

Motion systems

for challenging **Mobile Hydraulics**
applications



SONCEBOZ
from mind to motion

Challenges in Mobile Hydraulics

Efficiency:

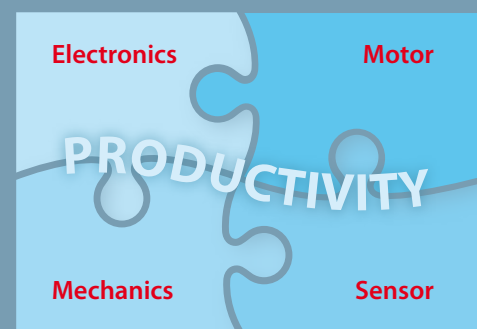
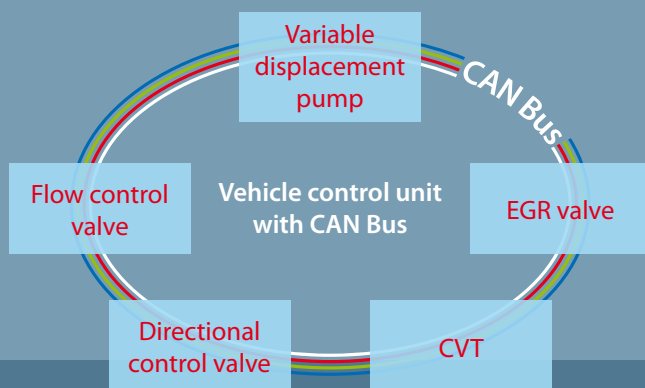
- Simplification of the complexity of hydraulic and electronic systems
- Provide robust solutions withstanding harsh environments, with optimal price/quality ratios
- Omission of pilot circuit and related components with high oil filter requirements

Simplicity:

- Developing a platform that enables automatic repetitive actions
- Reducing the maintenance and downtime by monitoring operating conditions

Comfort & Safety:

- Provide smooth and precise hydraulic movements
- Immunity to load and pressure variations



• Servo valves

In modern machines, the complexity of the overall system can be reduced through the use of departed intelligence and the elimination of hydraulic pilot circuits. In order to increase productivity and comfort, it requires controlling the valve's spool in a really stable fashion, even under the most extreme conditions. The general trend of increasing service intervals coupled with the need of improving machine availability pushes the development of intelligent hydraulic On Board Diagnostics (OBD). OBD of the actuator controlling the spool of the hydraulic valve can help to meet these expectations.

• Continuous Variable Transmission

Fuel economy and general increase in comfort requires more precise settings of variable hydraulic pumps and motors. Since a CVT is commonly controlled by a drive-by-wire approach, it is an integral part of the safety concept, and the actuator located at its heart has to display an absolute reliable behaviour, even in the harshest environment. Every movement of this actuator has to be monitored by redundant sensors.

Our solutions

Sonceboz is known for its innovation and technical expertise in the development of complete mechatronic drive systems tailored to mobile hydraulics specifications. Simulation and validation tests for the harshest environments guarantee state of the art solutions exhibiting robust design of mechanics and software in the aim of achieving a 0 PPM strategy. Since our actuators are full electric, they eliminate **any need of pilot circuits**. They are immune to pressure and load variations, and are based on **CAN Bus** systems.

Since hybrid stepper motors feature high torque values at low speed as well as high intrinsic resolution, this allows them to operate in **direct drive** mode, or with gears **without** any backlash. These characteristics facilitate the realization of self closing (fail safe) mechanism in unpowered conditions. For highly critical applications, the use of additional **innovative magnetic and optical sensor technologies** insures redundant monitoring and safe operation of the actuator.

Sonceboz' **sensorless closed loop control and load sensing drive technology** brings new values and solutions to our customers. Those include: **force monitoring** used to detect sticking effects and potential valve failures; **On Board Diagnostics** and **dead-zone compensation** for improved precision and compensation of mechanical wear and play, as well as valve linearization. Our powerful electronics even allow us to implement customer specific functions and features, in order to reduce the amount of mechanical disparities or the overall number of electronic units.



Our core expertise has been proven in multiple off-highway vehicle applications:



Your benefits

- *All-in-one actuator with CAN Bus interface*
- *No pilot circuit needed*
- *No hysteresis, high dynamics for precise and very smooth hydraulic movements*
- *Oil pressure and load variation immune positioning*
- *Automatic calibration, dead band and mechanical play compensation*
- *Simpler systems: multiple software configurations can replace complex mechanics*



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
MOBILE HYDRAULICS Solutions
info@sonceboz.com

SONCEBOZ
2605 Sonceboz - Switzerland
Tel. +41 (0)32 488 11 11
Fax +41 (0)32 488 11 00

www.sonceboz.com

