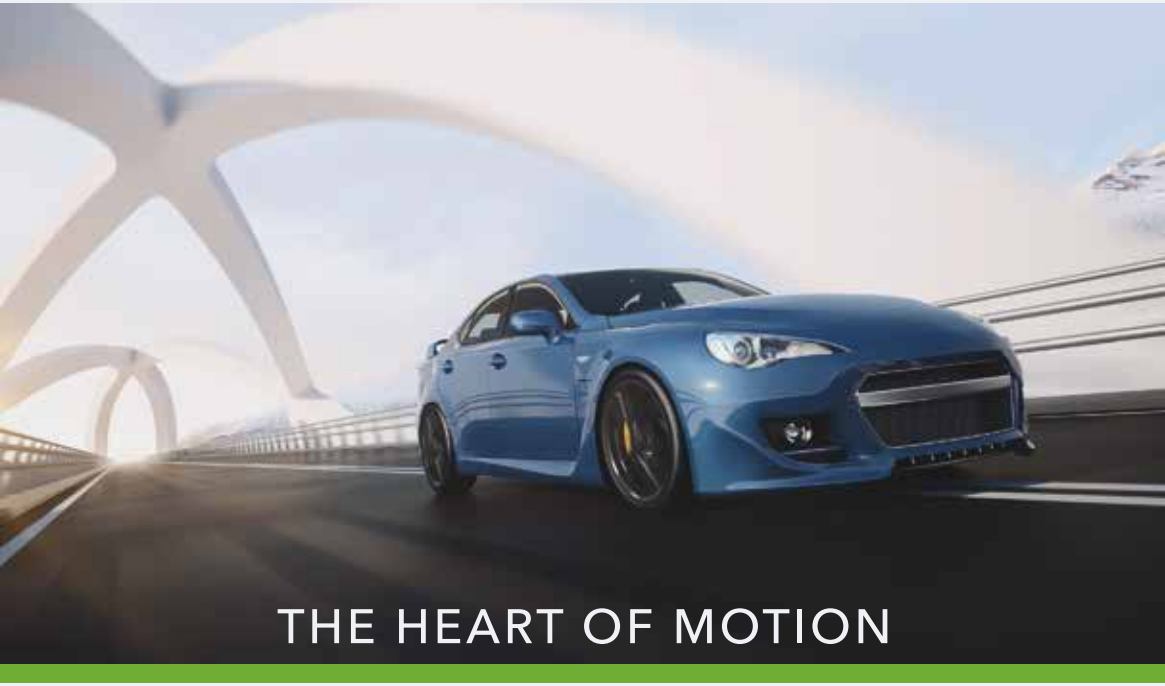
GRUPPE
MOTION TECHNOLOGIES



THE HEART OF MOTION

Product Overview
Automotive

About ETO GRUPPE

Motion is at the heart of every machine. With the power of innovation and passion we develop and produce electromagnetic actuation components, sensors, electronics and software for the regulation and control of highly dynamic processes in vehicles, medical technology equipment or machinery for food production.

Around the world, 2,500 employees are dedicated to the success of our customers and play a vital part in our fast-growing company group. Founded by Lake Constance/Germany in 1948, ETO GRUPPE has been part of the foundation "Christa und Hermann Laur-Stiftung" since 1968 which has ensured ETO GRUPPE's continuance to date.

Our Vision

As a company, we have specialized in making mobility, vehicles, equipment, devices, medical technology and food production more secure, efficient and environmentally friendly, in connecting the above and in processing data in an intelligent way.

Groundbreaking Projects

Connected, intelligent and secure sensors and actuators are trailblazers for autonomous driving, smart factories and intelligent services. For instance, ETO GRUPPE is part of a groundbreaking project called ALFRIED funded by the German Federal Ministry of Transport and Digital Infrastructure, which is focused on making connected and automated driving a reality. We are aiming to make road traffic more secure by developing sensors for intelligent road marker posts so that non-connected vehicles may also be provided with traffic information.

Product Overview

Sliding Camshaft Actuators

APPLICATION

- Cam sliding system for variable valve lift or cylinder deactivation

CUSTOMER BENEFITS

- Flexible design concept
- Fast switching times at compact design

TECHNICAL DATA

- Switching time: < 8 to 22 ms
- Stroke: 4 to 5 mm
- Ambient temperature: -40 °C to +155 °C

FEATURES

- Bistable end positions
- Available with one or two pins
- Very short switching times
- Optional with position sensor
- Variability regarding pin-distance and pin-position

Proportional Solenoids

APPLICATION

- Hydraulic camshaft adjuster

CUSTOMER BENEFITS

- Compact design
- Reduced fuel consumption and CO_2 emissions
- Increased power and torque
- Improved combustion

TECHNICAL DATA

- Force: 12 N at 0.9 A to 15 N at 1.3 A
- Resistance: ~ 8 ohm
- Ambient temperature: -40 °C to +155 °C
- Max. oil temperature: 130 °C

FEATURES

- Proportional characteristics
- Low hysteresis
- Variable fixation and sealing concepts

Canister Vent Valves

APPLICATION

- Integrated canister vent system
- To meet OBD-II applications in the USA and Korea

CUSTOMER BENEFITS

- High volume flow at low pressure drop
- Integrated in carbon filters
- Robustness due to overmolded design
- Low operating noise

TECHNICAL DATA

- Temperature range: -40 °C to +90 °C
- Max leakage (-2.5 kPa vacuum): 2 sccm
- Max leakage (14.0 kPa pressure): 4.0 sccm
- Response: < 180 msec
- Max flow: 80 l/min

FEATURES

- Normally open valve
- Valve to seal positive pressure in canister

Oil Control Valves

APPLICATION

- Oil control valve for hydraulic systems
  - Variable oil pumps
  - Variable camphasing
  - Piston cooling
  - Transmission actuation

CUSTOMER BENEFITS

- High reliability
- Low hysteresis
- Customer specific design

TECHNICAL DATA

- Flow rate: 1.2 l/min at 1 bar; > 8 l/min at 6 bar; 20 l/min at 15 bar
- Ambient temperature: -30 °C to +150 °C
- Maximum oil temperature: 150 °C

FEATURES

- Proportional or on-off-switching valve
- Electrical interface: Cable outlet or molded connector
- Normally-open or normally-closed

Parking Lock Solenoids

APPLICATION

- Parking lock for transmission in conventional and xEV powertrains

CUSTOMER BENEFITS

- High power density
- Flexible design concept

TECHNICAL DATA

- Switching time: < 30 ms (under load)
- Stroke: : ~ 2.5 mm
- Force: > 30 N (over entire stroke)
- Ambient temperature: -30 °C to +150 °C

FEATURES

- Operation also in oil
- Compact design
- High durability

Motor Actuators

APPLICATION

- Coolant valves
- Refrigerant valves

CUSTOMER BENEFITS

- Flexible interfaces
- Modular design concept
- Customized hardware and software

TECHNICAL DATA

- Temperature range: -40 °C to +135 °C
- Torque: Up to 1 Nm
- Switching time: 2 sec / 90 °
- Current range: Imax < 1.5 A
- Voltage: 9.8 V to 16 V

FEATURES

- Sealed BLDC-Motor/Transmission Assembly
- Integrated power electronics
- PWM or LIN BUS interface

Thermal Management Motor Valves

APPLICATION

- Flow control in thermal management circuits especially for xEV
- For secondary cooling circuits

CUSTOMER BENEFITS

- Modular design
- Customized connector
- Customized interfaces

TECHNICAL DATA

- Temperature range: -40 °C to +135 °C
- Cooling water temperature up to 120 °C
- Flow at pressure drop: 25 l/min at 0.2 bar
- Leakage: 0.1 l/min at 0.2 bar
- Current range: Imax < 1.5 A

FEATURES

- Sealed BLDC-Motor and gear box
- Integrated power electronics
- PWM or LIN BUS interface

Thermal Management Solenoid Valves

APPLICATION

- Flow control in thermal management circuits especially for xEV
- For secondary cooling circuits

CUSTOMER BENEFITS

- Modular and compact design
- Customized interfaces

TECHNICAL DATA

- Temperature range: -40 °C to +160 °C
- Cooling water temperature up to 120 °C
- Flow at pressure drop: 25 l/min at 0.4 bar
- Leakage: 0.1 l/min at 0.2 bar
- Max flow: 25 l/min
- Max. pressure: 1.8 bar

FEATURES

- Customized connector
- Optional: integrated position sensor for OBD
- Valve type: 2/2 or 3/2

GRUPPE

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