

ENGINEERING IN ELECTROMAGNETICS



INNOVATION SUPPLIER



MMT

MOVING MAGNET TECHNOLOGIES SA

INNOVATION SUPPLIER

Based on its extensive experience and know-how in electromagnetic design, MMT develops a wide range of innovative solutions for Electrical Motors, Direct Drive Actuators and Non-contact Position Sensors. All these technologies are well suited for integration into mecatronics systems.

• Research and Development

Thanks to our continuous effort on anticipating customer requirements, our team of experts is developing innovative solutions to propose the best technology at right time for a given application. These innovations are protected by intellectual property and MMT is today the owner of more than 200 international patents.

• Engineering

MMT's expertise in electromagnetism allows us to offer Engineering services. A complete team of engineers and technicians are thus dedicated to:

- development or optimization of magnetic circuits
- design of these solutions with associated mechanics and electronics
- validation through realization of prototypes and small pre-series.

MMT has also developed a strong and unique know-how in designing and realizing production multi-polar magnetizing tooling.

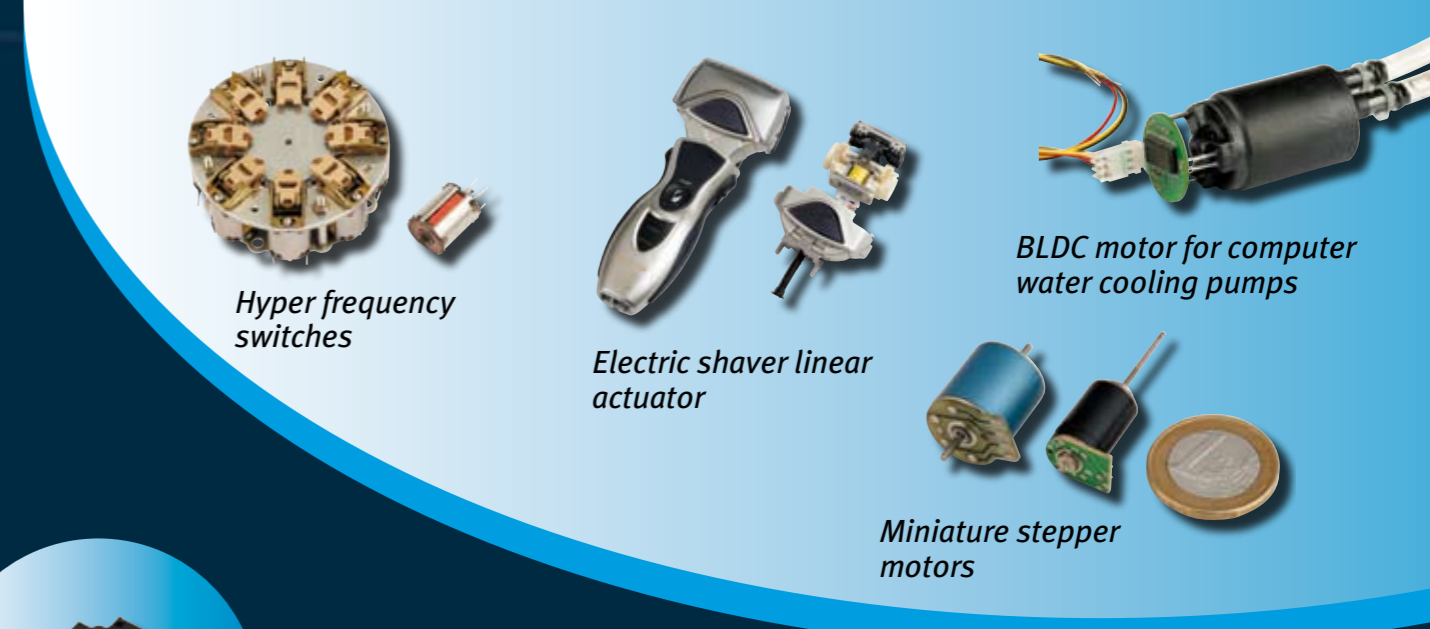
• Licensing

Based on its international patent portfolio, MMT is granting its customers the rights to produce through patent and know-how License agreements. In addition to the patents rights, an MMT Licensee will have access to extensive technical know-how transfer sessions given by our team of experts and a continuous support on the integration of the MMT design in the customer product from design to mass production. MMT has already granted more than 70 Licenses.



Markets and applications

Through our Licensed customers, MMT motor, sensor and actuator technologies are today in production mainly in the automotive industry and also in some other industrial areas. We present here a non exhaustive list of products and applications.

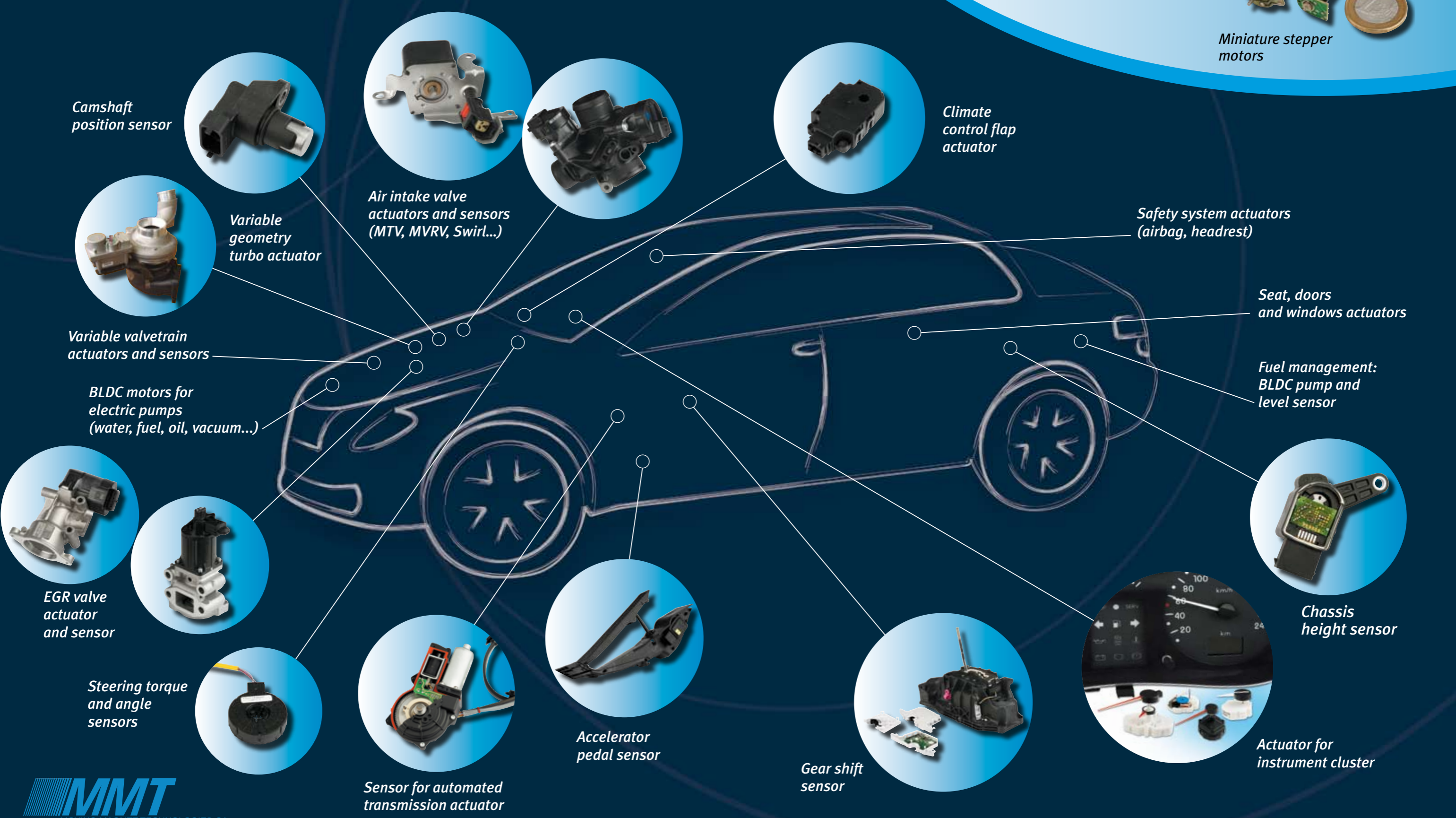


Hyper frequency switches

Electric shaver linear actuator

BLDC motor for computer water cooling pumps

Miniature stepper motors



Camshaft position sensor

Air intake valve actuators and sensors (MTV, MVRV, Swirl...)

Climate control flap actuator

Safety system actuators (airbag, headrest)

Variable geometry turbo actuator

Seat, doors and windows actuators

Variable valvetrain actuators and sensors

Fuel management: BLDC pump and level sensor

BLDC motors for electric pumps (water, fuel, oil, vacuum...)

Chassis height sensor

EGR valve actuator and sensor

Accelerator pedal sensor

Gear shift sensor

Steering torque and angle sensors

Actuator for instrument cluster

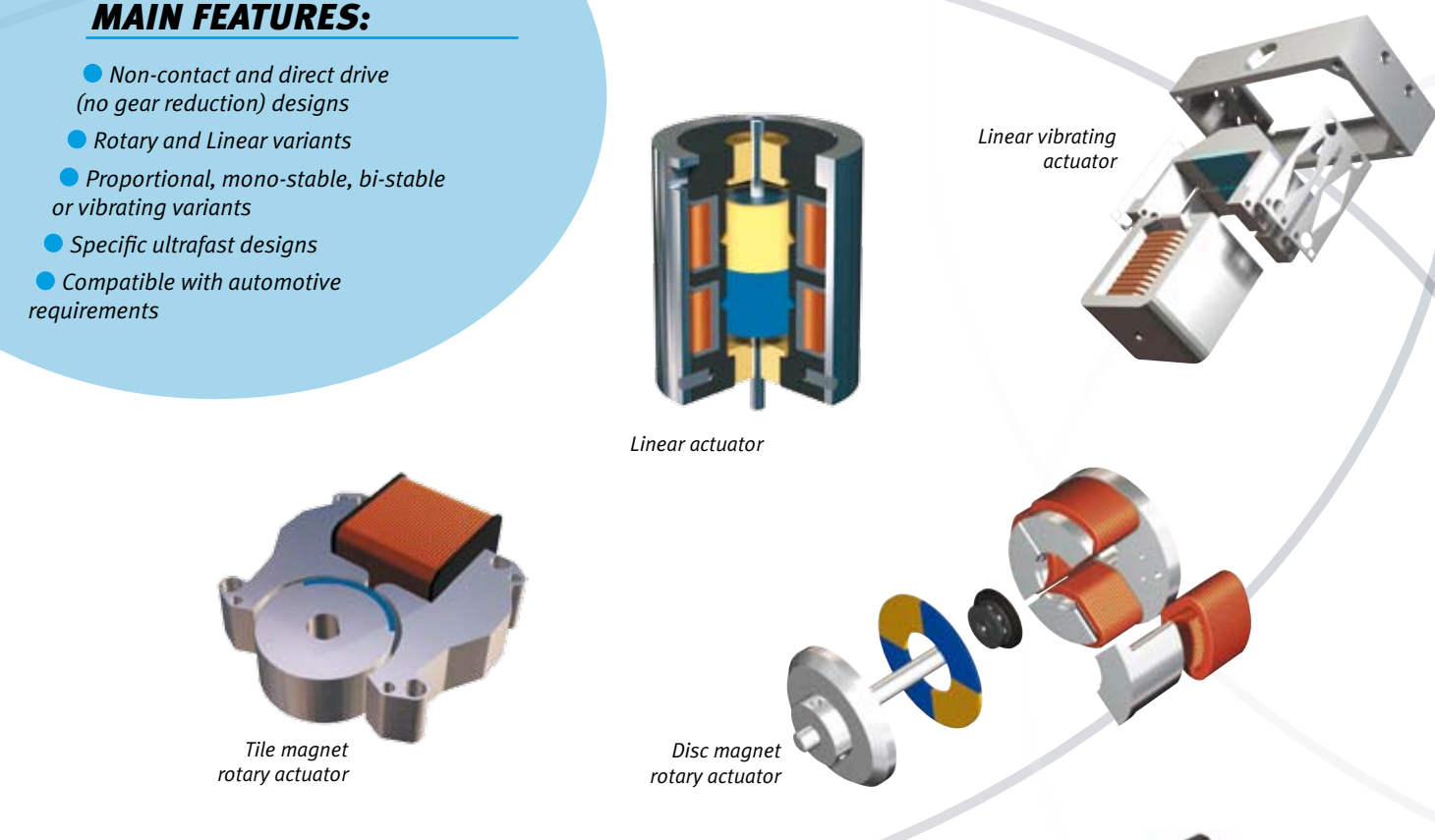
Sensor for automated transmission actuator

Direct drive actuators

Proportionnal Actuators

MAIN FEATURES:

- Non-contact and direct drive (no gear reduction) designs
- Rotary and Linear variants
- Proportional, mono-stable, bi-stable or vibrating variants
- Specific ultrafast designs
- Compatible with automotive requirements

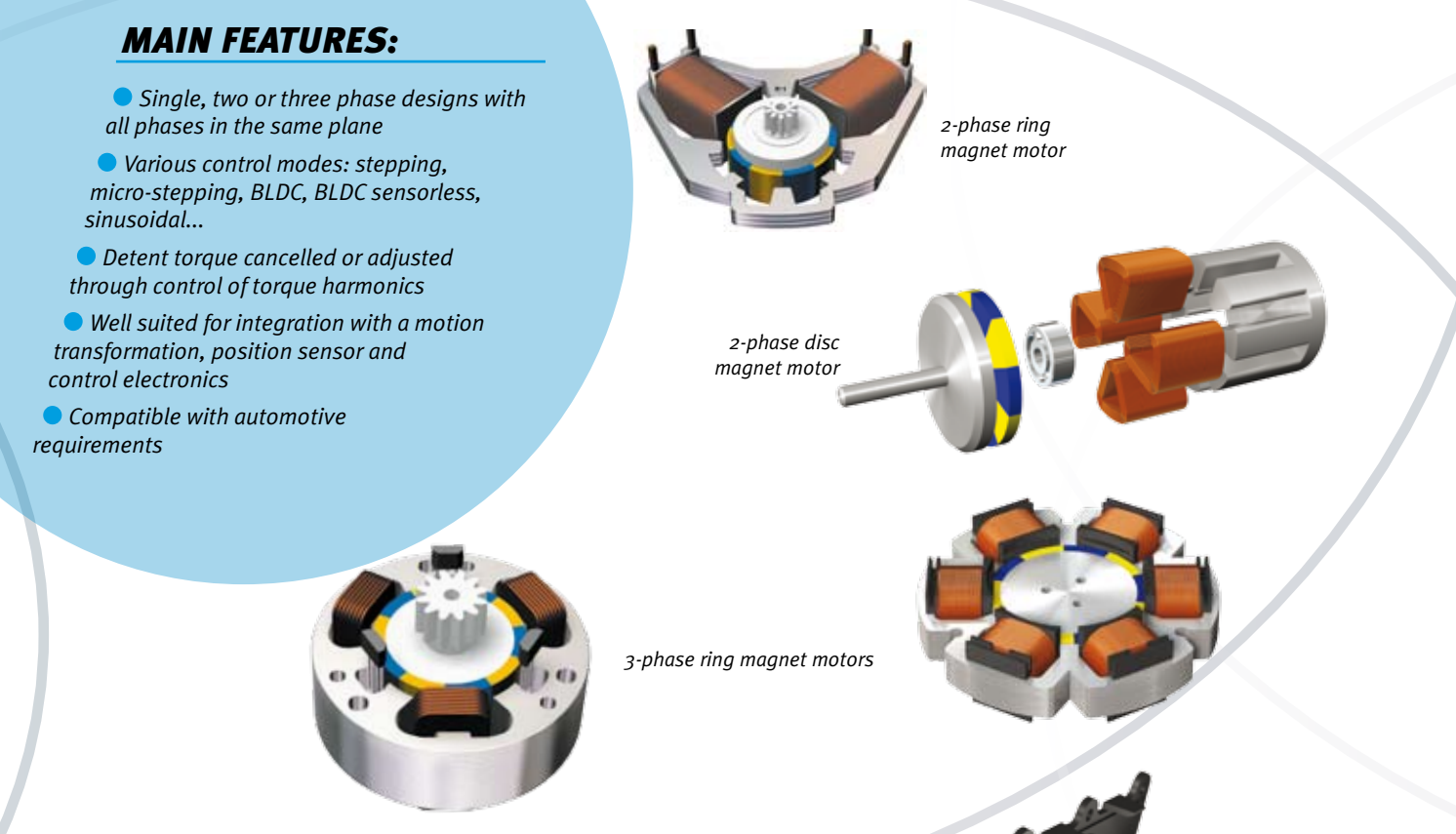


BLDC and Stepper motors

Motor Structures

MAIN FEATURES:

- Single, two or three phase designs with all phases in the same plane
- Various control modes: stepping, micro-stepping, BLDC, BLDC sensorless, sinusoidal...
- Detent torque cancelled or adjusted through control of torque harmonics
- Well suited for integration with a motion transformation, position sensor and control electronics
- Compatible with automotive requirements



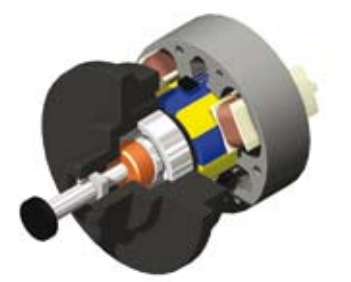
Compact Rotary Actuators

2-phase slim gear motor



Linear Actuators

Fail safe design using a reversible lead screw

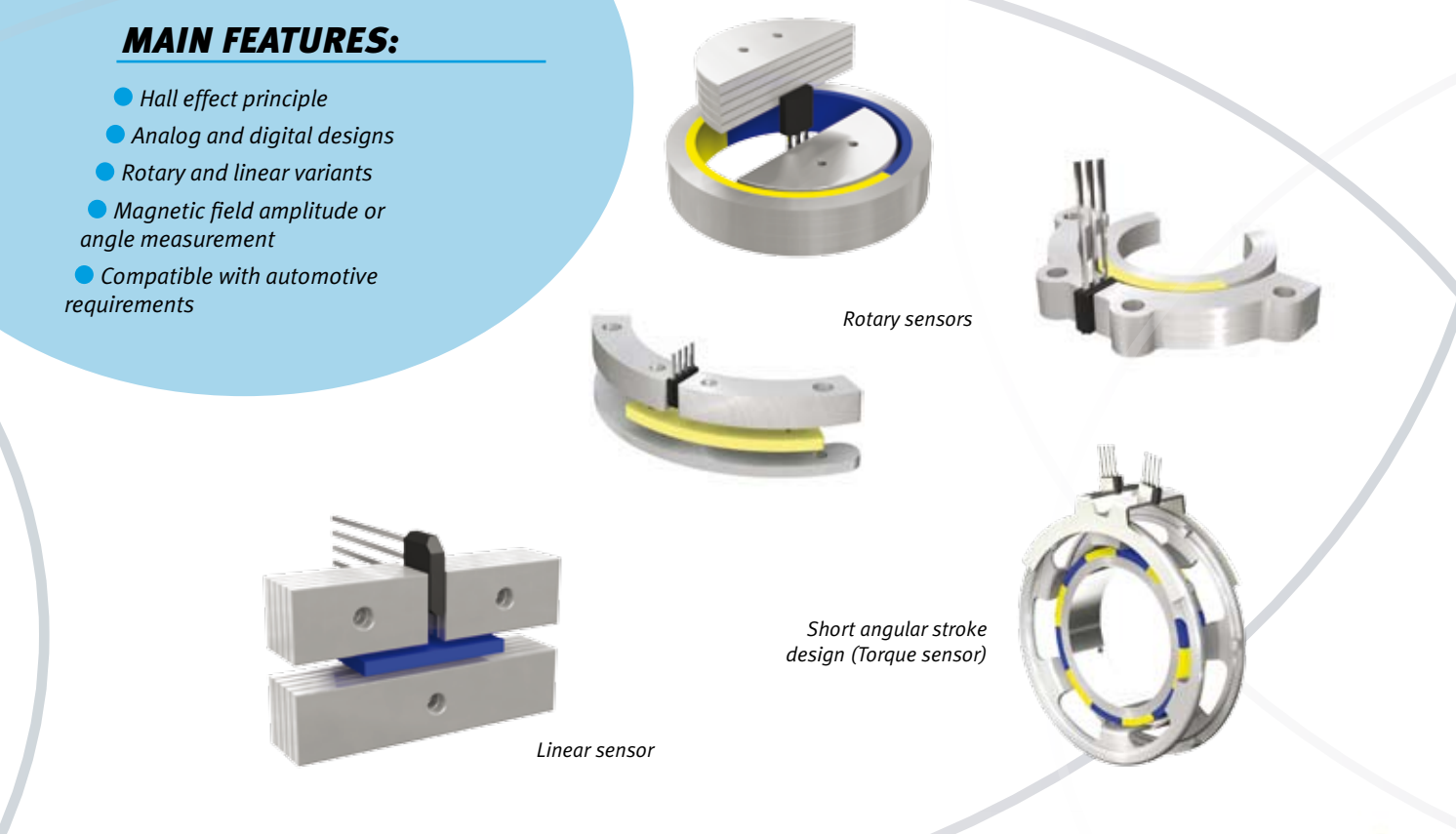


Non-contact position sensors

Magnetic field amplitude measurement

MAIN FEATURES:

- Hall effect principle
- Analog and digital designs
- Rotary and linear variants
- Magnetic field amplitude or angle measurement
- Compatible with automotive requirements

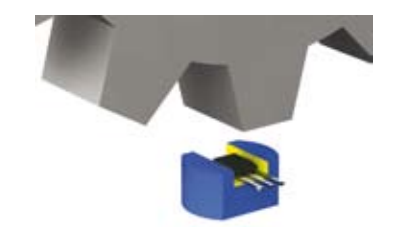


Magnetic field angle measurement



Gear tooth detection

0 Gauss True Power-On digital sensor

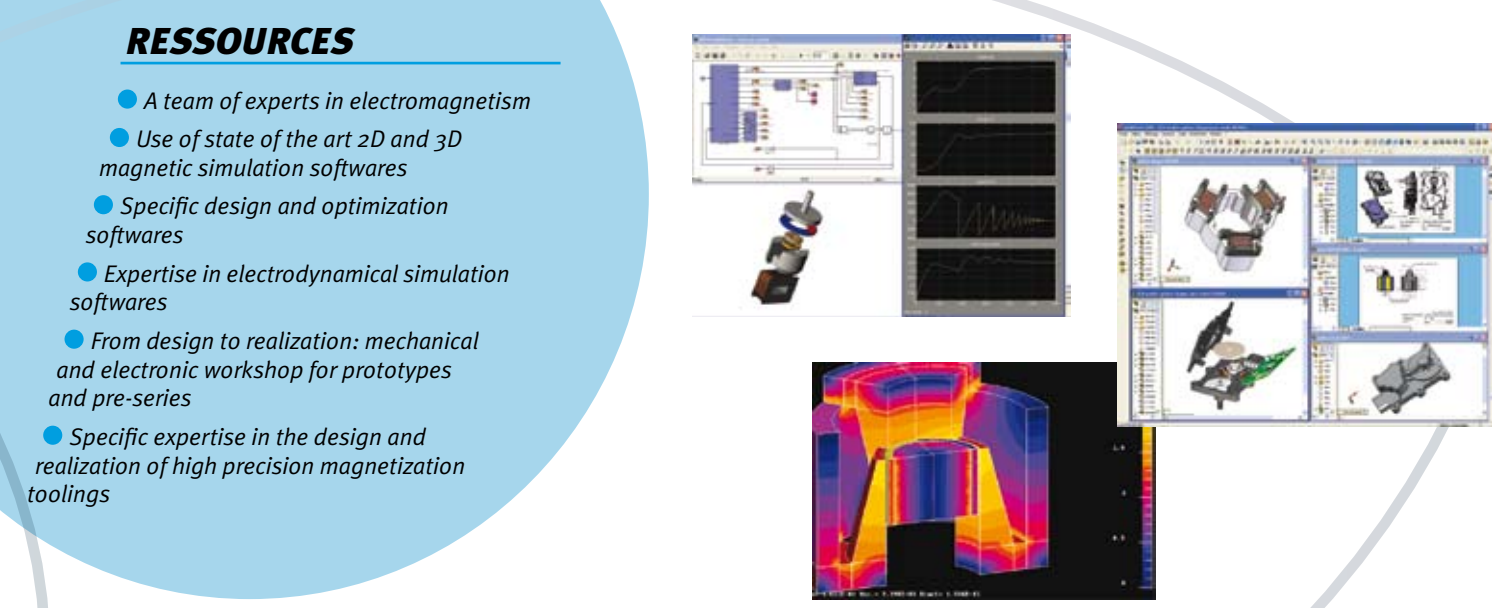


Engineering

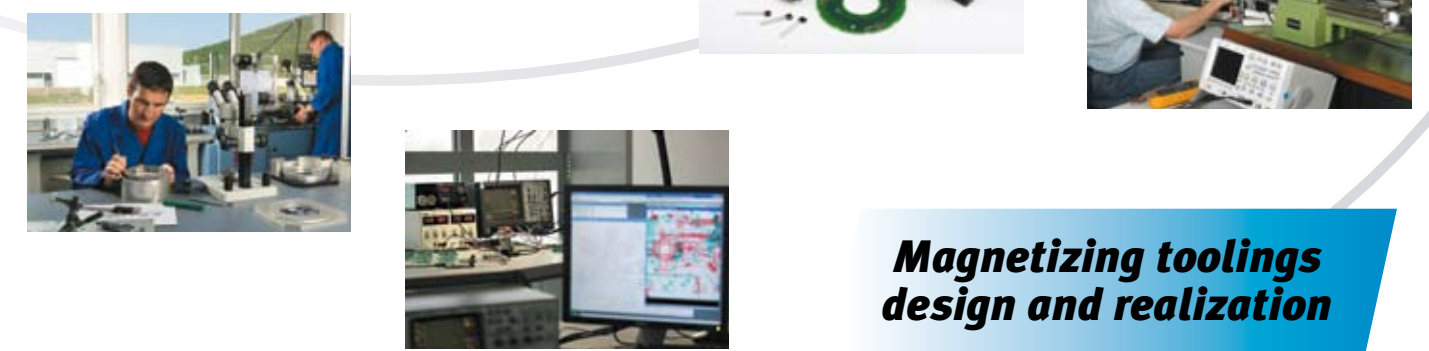
Magnetic studies and simulations

RESSOURCES

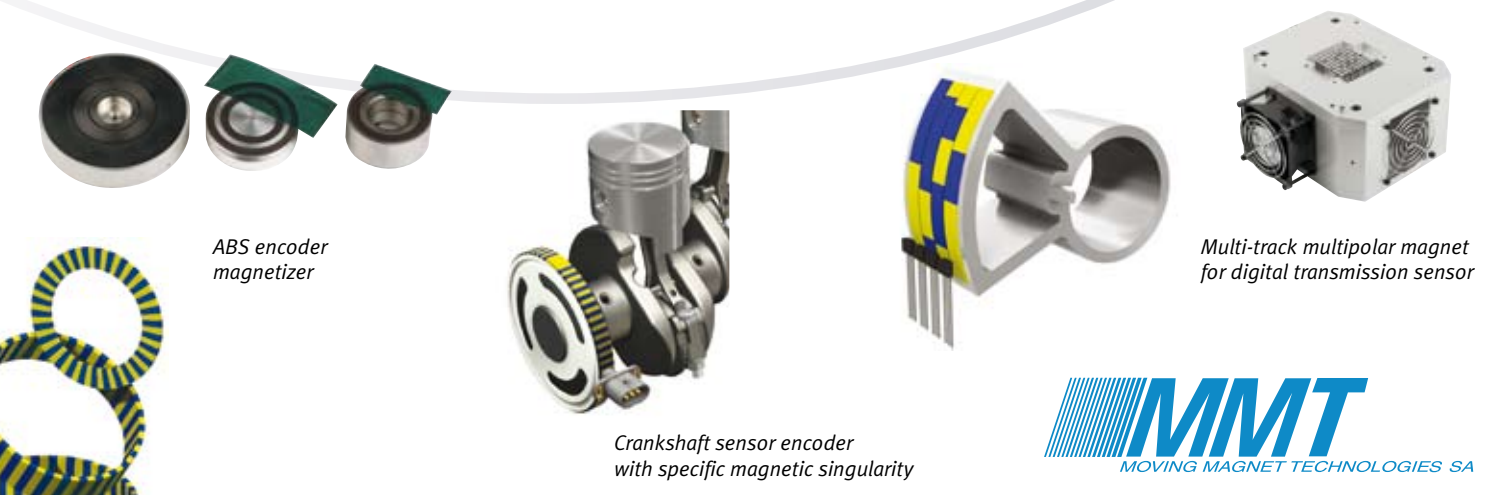
- A team of experts in electromagnetism
- Use of state of the art 2D and 3D magnetic simulation softwares
- Specific design and optimization softwares
- Expertise in electrodynamical simulation softwares
- From design to realization: mechanical and electronic workshop for prototypes and pre-series
- Specific expertise in the design and realization of high precision magnetization toolings



Prototyping Pre-series - Test



Magnetizing toolings design and realization



Some of our customers around the world

- BI Technologies
- Borg Warner
- CTS
- Delphi
- Flowserve
- Fraen
- GHSP/ KDS Control
- Saia Burgess
- Visteon
- Williams Control

america@movingmagnet.com

- AB Elektronik
- Arsape
- BMW
- Bühler
- Continental Automotive
- Daimler Chrysler
- Dura Automotive
- Electricfil Automotive
- ETA
- Magna
- Paulstra
- Radiall
- Siemens VDO
- Valeo

europa@movingmagnet.com

- Calsonic Kansei
- Denso
- LG Innotek
- Matsushita Electric Works
- Mikuni
- Mitsubishi Electric
- Uchiyama
- Yazaki

asia@movingmagnet.com





Zac La Fayette
1 rue Christiaan Huygens
25000 BESANÇON - France
Tél. : 03 81 41 42 00 - International +33 3 81 41 42 00
Fax : 03 81 51 83 06 - International +33 3 81 51 83 06
www.movingmagnet.com
info@movingmagnet.com