
Torque, Linear and Custom Motors

Stepper, Servo and Traction Motors

Drive Electronics and Controllers

Actuators and Sensors

CAE Tools and Engineering

Motion Control Systems

ELECTRIC MOTORS

Standard & Bespoke Designs



MACCON – STANDARD & BESPOKE DESIGNS

ELECTRIC MOTOR DESIGN & PRODUCTION

Motor Technologies

Motors made to measure

We receive many motor enquiries. The majority we serve with existing designs, either from MACCON or our partners. We are also able to modify these designs with a minimum effort, e.g. change of winding or adaptation of mechanical interfaces. However, if none of these options work, we supply an optimised, bespoke solution. The common reasons for this approach are special requirements with regard to:

- Mechanical interface dimensions
- Rotor inner diameter
- Torque to speed characteristics
- Power or torque density
- Robustness/environment
- Second-source (non-ITAR)
- System cost

Motor design tools

We design and verify our motors with the best motor CAE tools available. In Germany we also sell and support these tools. Our customers are reputable motor manufacturers and major machine and automotive manufacturers, who wish to develop their own proprietary designs. It is not necessary to buy and master these tools, MACCON also performs design studies under contract. Through our own design activities and through regular interaction with our CAE-software users we stay at the forefront of electric motor design.

MACCON's core expertise is the electric motor. We design motors, we build them, we modify them and together with our customers we apply them.

Although the majority of our designs are rotary, permanent magnet, brushless, we can also supply asynchronous (AC/IM), switched (SR) and synchronous reluctance (SyR) as well as dual-fed machines. Hybrid stepper (HyS) and hybrid-servomotor (HyS with feedback) are also part of our portfolio.



Wheel-rim traction (MACCON)



Aircraft flap actuator (MACCON)



Satellite scanner motor (MACCON)

Torque-motors

- 1 to 25,000 Nm, up to 1.5 m OD
- Segmented designs for larger torques and diameters
- Inner and outer rotor designs
- Ironless motor designs for low torque-ripple

Hollow-shaft motors

- Large ID
- Thin-ring torque-motors

Linear motors and LATs

- Linear: 10 to 10,000 N
- LATs: 0,1 Nm to 10 Nm
- Moving-coil and moving-magnet
- Iron- and ironless designs,
- Single and 3-phase

Traction, Servo- and Stepper motors

- 1 to 150 Nm continuous torque; 1,000 to 15,000 rpm
- Special environmental requirements

Actuators

- Full or hollow-shaft
- With and without gearboxes, sensors, brakes etc.
- Rotary: 1 to 10,000 Nm
- Linear: 1 to 133 kN; stroke up to 1 m

Feedback encoders

- Reluctance resolvers, 4, 6 and 8 pole
- MR-based encoders, incremental and absolute
- With signal conversion electronics



Motors
made to measure!

Our Partners for motors



MACCON – STANDARD & BESPOKE DESIGNS

FRAMELESS MOTORS

Kit-motors for customer integration

Kit-motors

MACCON offers many families of kit-motors, which are optimised with respect to torque or power density, mechanical mounting or simply cost. Each of these families includes models with different diameters and stack lengths; there are up to 50 different models in each family. We offer 3 or more different standard windings for each model; many special windings are also available, at no extra charge. The scope of our kit-motor offering is unique.



Traction, 8kW
(MACCON)



Megaflux torque motors (Allied)



Satellite actuation (MACCON)



Linear motor forcers (Technotion)

Embedded Motion

This is the full integration of kit motors into the target application. The advantages are better dynamics, better thermal performance, a smaller and lighter machine as well as cost and energy savings in manufacture and operation. In fact, it is usual for us to supply Torque motors in kit-form, as stator and rotor sets. Servomotors are normally housed, together with position feedback and optionally a holding brake; these too we provide as kits for embedded motion applications.



Kit torque motors (Kollmorgen)



High torque & power (Alxion)



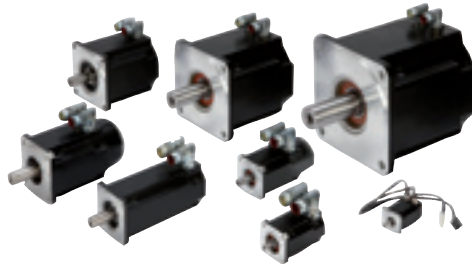
MACCON – STANDARD & BESPOKE DESIGNS

HOUSED MOTORS & EMAS

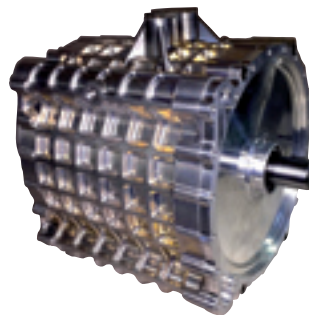
Ready Motors & Actuators



QB Motor family (Allied)



AKM Servomotors (Kollmorgen)



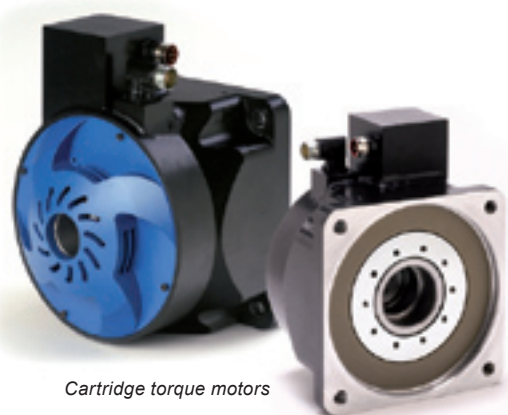
Traction, 60 kW (MACCON)



Hollow-shaft actuator (MACCON)



DC-Servomotor (Callan)



Cartridge torque motors
(Kollmorgen)

Traction Motors

For electrically and hybrid-driven vehicles we offer different types of traction motors:

- 3 - 200 kW, up to 12.000 rpm; 24 to 600 V
- Optionally with planetary gearboxes
- Air- and liquid cooled
- Wheel-rim motors; up to 500 Nm
- Also for marine, underwater and MEA applications

Ruggedised

Our MS servomotors are also available in a ruggedised configuration (MSR family), especially designed to meet extreme environmental conditions and MIL-specifications:

- IP67 protection; MIL-paint, camouflage green
- High quality connectors; MIL38999
- 24 V high power winding options with direct cable connections
- High EMC protection standards; internal bonding
- Robust, protected against vibration and shock
- With anti-rust passivation, drainage valve options

Gearboxes

We supply gearboxes to match our motors. Our partners include:



MACCON – STANDARD & BESPOKE DESIGNS

MOTOR EXAMPLES

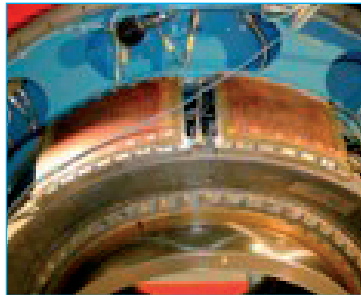
Applications of Bespoke Motors

More-electric Aircraft

MACCON is playing a major role in this new and exciting application field of electric motors and drives.

In the segment up to 150 kW, we have new, high-performance motor designs with up to 10 kW/kg. These are typically for direct propeller (up to 4,000 rpm) or turbine (up to 20,000 rpm) propulsion.

Here we present just some of many application examples for our bespoke motors.



3D Torque motor (MACCON)

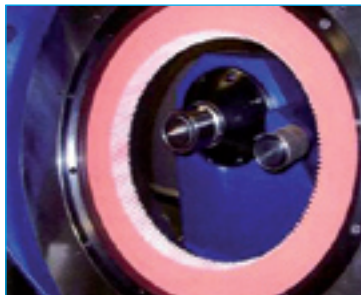


Traction, 60 kW (MACCON)

MACCON in SPACE

For over 30 years MACCON has been a supplier and development partner of leading companies in the Aerospace industry.

We can provide all our bespoke motors to the materials and processes requirements of the European (ESA) and other space agencies.



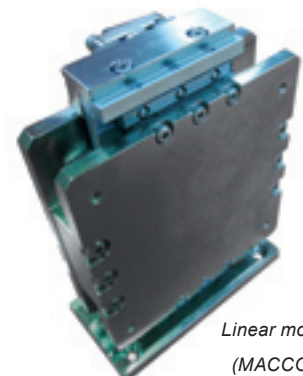
Machine tool torque motor (MACCON)



Heart pump (MACCON)



Valve Control Motor (MACCON)



Linear motor (MACCON)



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Company Portrait

MACCON is a leading supplier of electric motors, EM-actuators, drive and control electronics in the range of 1 W to 250 kW. The company was founded in 1982.

MACCON provides drive solutions to meet demanding system requirements. We co-operate with many reputable product manufacturers, combining their high-quality products with our own custom-developed designs, to create high-performance yet cost-effective drive systems.

Our mission is to serve users in solving their real-time motion control problems in machines, processes and experiments. We ensure that the target machine exhibits:

- Precise, dynamic and smooth motion
- Compatibility with electrical and mechanical interfaces as well as with the host control
- Perfect adaptation to the physical environment

We are committed to providing our customers with top quality products and performance along with expert technical support. We strive to be the technical leader in motion control systems.

Firmenportrait

MACCON ist ein technisch führender Anbieter von Elektromotoren, EM-Aktuatoren, Antriebs- und Steuerelektronik in der Leistungsklasse 1 W bis 250 kW. Das Unternehmen wurde 1982 gegründet. MACCON löst anspruchsvolle Antriebsaufgaben, die hohe, technischen Anforderungen stellen. Wir arbeiten mit vielen renommierten Partnerunternehmen zusammen, deren hochwertige Produkte, kombiniert mit unseren eigenen Entwicklungen, die Realisierung leistungsfähiger und zugleich wirtschaftlicher Antriebssysteme ermöglichen.

Es ist unsere Aufgabe, Anwender bei der Lösung ihrer Echtzeitbewegungsprobleme in Maschinen, Anlagen und Experimenten zu unterstützen. Wir stellen in der Zielmaschine sicher:

- Eine genaue, dynamische und gleichläufige Bewegung
- Die Anpassung unserer Produkte an die Hoststeuerung sowie an die mechanischen und elektrischen Schnittstellen
- Eine perfekte Anpassung an die physikalische Umgebung

Wir sind dem Grundsatz verpflichtet, unseren Kunden sowohl eine erstklassige Produktqualität und -performance als auch eine gute technische Beratung zu liefern. Wir streben die fachliche Führung im Bereich der elektronischen Antriebstechnik an.

