

ELECTRONICS

The range includes plug & play or programmable controllers for speed/torque control and positioning. A distinction is made between versions of various motor technologies with different fieldbus/feedback systems. Application- and customer-specific controllers are frequently used.



Unified Motion Control platform

- Modular and cost-optimised
- Customised solutions
- Broad interoperability
- User-friendly interfaces
- Integration Industry 4.0
- Also with various approvals



Stepper motor controllers

- Nominal voltage 12–80 VDC
- Various digital in- and outputs
- Open or closed loop
- Various fieldbus systems
- Field Oriented Control (FOC)
- Also available as a programmable version



BLDC motor controllers

- Nominal voltage 12–48 VDC
- For motors up to 400 W
- Various digital in- and outputs
- Various fieldbus systems
- Integrated Arm Core M4 technology
- Also available as a programmable version



Ready-to-use motor controllers

- Nominal voltage 12, 24 and 48 VDC
- For DC and BLDC motors
- Nominal current up to 12 A
- Various functionalities
- Various safety functions
- Simple commissioning



Servo controller

- Nominal voltage 20–90 VDC, 230/400 VAC
- For motors up to 400 W
- Various digital in- and outputs
- Various fieldbus systems
- Functional safety
- Also available as programmable version



Moving coil controller

- Nominal voltage 24–48 VDC
- 1- or 2-axis version
- Various digital in- and outputs
- Various fieldbus systems
- Also available as programmable version
- Suitable cables available

COMPONENTS

Various power transmission variants (spindles, guides, couplings) are available in our portfolio to complete the drivetrain. We are happy to support you in the evaluation and layout of your application.



Spindle and nut systems

- Rolled precision spindles
- Diameter 2–24 mm
- Length up to 3.5 m possible
- Various nut versions
- Customisable
- Maintenance-free



Linear rail systems

- With and without stepper motor
- Nema 8 to 23
- Maximum length 2.5 m
- Loads up to 1000 N
- Various versions



Couplings

- Metal bellow couplings 0.05–10 000 Nm
- Elastomer couplings 0.5–25 000 Nm
- Safety couplings 0.1–2800 Nm
- Line shafts 9–25 000 Nm
- Disk pack couplings 350–20 000 Nm
- Intelligent coupling with sensors



Standard gearboxes

- Worm-, planetary- and spur gearboxes
- Catalogue products for various motors
- Customisable
- Any desired motor mounting flanges
- Optional: feedback system



Strain wave gears

- Backlash-free and accurate repeatability
- High static torque
- Flat and compact design
- Coaxial in- and output
- Various versions
- Compatible with frameless BLDC motors



Encoder

- Position and speed detection
- Optical and magnetic encoders
- Customised encoders
- Single and multiturn absolute encoders
- Various interfaces
- Motor-integrated solutions

MOVING COIL ACTUATORS

Moving coil actuators are precise, highly dynamic and efficient drives for linear and rotative motion profiles. They feature fast response behaviour, high accuracy and reliability. The perfect alternative solution for pneumatic drives.



Linear actuators

- Width 8–135 mm
- Diameter 30–50 mm
- Stroke lengths up to 250 mm
- Peak force up to 500 N
- Resolution up to 0.1 µm
- Also with integrated electronics



Linear & rotary actuators

- High positioning accuracy
- Stroke lengths up to 100 mm
- For pick & place applications
- With vacuum passage
- Optional: Gearbox for rotation



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moving forward



PRODUCTS DRIVE
TECHNOLOGY



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DC MOTORS

The brushed DC motors have the advantage of simple speed control directly from the supply voltage, low-cost construction, and overload capacity. In this design, commutation takes place mechanically via brushes.



- DC motors ironless**
 - Nominal voltage 3.7 – 24 VDC
 - Diameter 7 – 22 mm
 - Ironless winding technology
 - Highly efficient, low current consumption
 - Low inertia, high dynamics
 - Optional: Gearbox and encoder



- DC motors ironless**
 - Nominal voltage 4.7 – 7.4 VDC
 - Diameter 10 mm
 - Ironless winding technology
 - Highly efficient, low current consumption
 - Low inertia, high dynamics
 - Optional: Gearbox and encoder



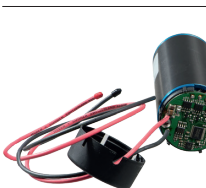
- DC motors**
 - Nominal voltage 12, 24 or 48 VDC
 - Diameter 36 – 80 mm
 - Nominal speeds in the range of 3000 rpm
 - Torques 0.03 – 7 Nm
 - Customisable
 - Optional: gearbox, encoder, brake



- DC motors**
 - Nominal voltage 12, 24 or 48 VDC
 - Nominal speeds in the range of 4000 rpm
 - Torque 0.32 – 15 Nm
 - Degree of protection IP54
 - Customisable
 - Optional: speedometer, encoder, gearbox, brake



- DC gear motors**
 - Nominal voltage 12 or 24 VDC
 - Speed 14 – 590 rpm
 - Torque 0.2 – 90 Nm
 - Various output shafts
 - Standard version also with hall sensors



- DC motors with integrated electronics**
 - Voltage 9 – 30 VDC
 - Diameter 42 – 80 mm
 - Speed and position control
 - IP67 protection
 - Customisable
 - Optional: Gearbox and brake

BLDC MOTORS

The brushless DC motors are characterised by smooth running, long service life and wide speed range. The commutation is solved via electronics. By adding an encoder, these motors can be used with 4Q controllers as servo drives.



- BLDC motors ironless**
 - Nominal voltage 3.0 – 24 VDC
 - Diameter 4 – 22 mm
 - Ironless winding technology
 - Highly efficient, low current consumption
 - Low inertia, high dynamics
 - Optional: Gearbox and encoder



- BLDC motors ironless 4-poles**
 - Nominal voltage 3.0 – 24 VDC
 - Diameter 12 – 22 mm
 - Ironless winding technology
 - Highly efficient, low current consumption
 - Small moment of inertia, high dynamics
 - Optional: Gearbox and encoder



- BLDC motors external rotor**
 - Nominal voltage 5 – 48 VDC
 - Diameter 20 – 90 mm
 - Torque 0.08 – 1 Nm
 - Compact design
 - Optional: Gearbox and encoder



- BLDC motors**
 - Nominal voltage 12, 24, 48 and 96 VDC
 - Diameter 45 – 85 mm
 - Nominal speed in the range of 3000 rpm
 - Torque 0.03 – 6 Nm
 - Customisable
 - Optional: gearbox, encoder, resolver, brake



- Frameless BLDC motors**
 - Compact design
 - High torque density
 - Diameter 52 – 132 mm
 - Torque 0.32 – 19.11 Nm
 - Customisable
 - Optional: Strain wave gears and sensors



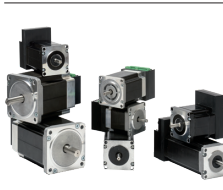
- Gearless motorollers**
 - Nominal voltage 24 and 48 VDC
 - Diameter 46, 60 and 76 mm
 - Speed up to 1150 rpm
 - Torque up to 3.1 Nm
 - Power Pack or cartridge versions
 - Optional: Encoder

STEPPER MOTORS | ACTUATORS

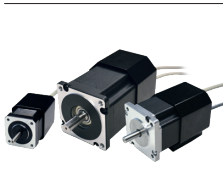
Stepper motors are reliable, inexpensive drives with a long service life and high step accuracy and are particularly suitable when high torque at low speeds is required. Linear actuators convert rotary movements into linear movements in the smallest of spaces.



- Stepper motors**
 - Hybrid and permanent magnet
 - NEMA 8 – NEMA 42
 - Holding torque 2.6 mNm – 28 Nm
 - Optional: Gearbox, encoder, brake, IP protection



- Stepper motors with integrated electronics**
 - Hybrid stepper motors
 - 12-bit singleturn absolute encoder
 - NEMA 17 – NEMA 34
 - Holding torque 0.35 – 7.7 Nm
 - Various fieldbus systems
 - Optional: Gearbox, encoder, brake



- Stepper motors with integrated electronics**
 - Hybrid stepper motors
 - Plug & play commissioning
 - NEMA 17, 24 and 34
 - Holding torque 0.42 – 6.9 Nm
 - Speed control with stop function
 - Customised programs possible



- Multi-axis system**
 - Hybrid stepper motors
 - Linear and rotary motion
 - NEMA 17/23 with encoder
 - Linear stroke max. 305 mm
 - Speed up to 152 mm/s
 - Linear force max. 67 N



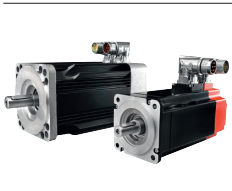
- Hybrid linear actuator**
 - Hybrid stepper motors
 - Sizes NEMA 8 – NEMA 34
 - 3 different versions
 - Linear force from 2 – 2200 N
 - Customisable
 - Optional: Encoder and limit switch



- Linear actuator can-stack**
 - Permanent magnet stepper motors
 - Diameter 15 – 46 mm
 - 3 different versions
 - Linear force from 30 – 280 N
 - Customisable
 - Optional: limit switch and proximity sensor

SERVO MOTORS | AC MOTORS

The wide range of servo motors is particularly suitable for precise positioning applications in which heavy loads have to be moved highly dynamically. The durable AC motors can be operated directly from the single-phase supply or via frequency converters with any corner frequencies.



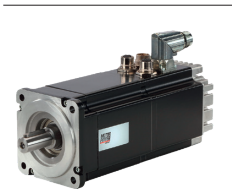
- Servomotors**
 - Brushless servo motor
 - Nominal power 60 – 8000 W
 - Nominal torque 0.16 – 45 Nm
 - Peak torque up to 130 Nm
 - Various feedback systems



- Servomotors extreme**
 - Nominal voltage 24, 48 VDC, 230 and 400 VAC
 - Flange dimensions 40 – 100 mm
 - Torque up to 5.8 Nm
 - Speed up to 3000 rpm
 - Environment -40°C and +80°C
 - Various feedback systems



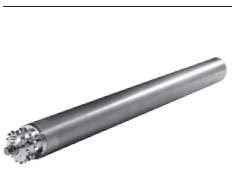
- Servomotors compact**
 - Brushless servomotor
 - Flange dimensions 40 – 180 mm
 - Torque up to 48 Nm
 - Speed up to 8000 rpm
 - Various feedback systems
 - Customised versions



- Servomotors with integrated electronics**
 - Nominal voltage 48 and 560 VDC
 - Various fieldbus systems
 - Size 40 – 145 mm
 - Torque 0.19 – 11.1 Nm
 - Various feedback systems
 - Optional: Gearbox and brake



- AC motors**
 - Nominal voltage 230 and 400 VAC
 - Synchronous and three-phase current motors
 - Diameter 45 – 95 mm
 - Torque 0.02 – 0.75 Nm
 - Various feedback systems
 - Optional: Gearbox, encoder, brake



- Pallet Conveyor Motorollers**
 - Nominal voltage 40 VDC, 230 VAC and 400 VAC
 - Integrated 3-stage planetary gearbox
 - Conveying speed up to 22.2 m/min
 - Diameter 70 and 89 mm
 - Payload up to 1500 kg
 - Optional: Encoder