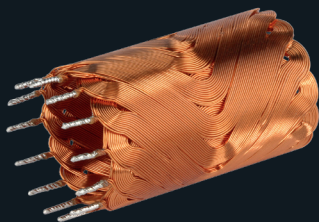


Drive systems for medical technology



Change the world with a reliable partner

At maxon, we believe that outstanding engineers and technicians can make a positive impact on the world. This is why we support them in their efforts to go off the beaten path and provide the perfect drive system for their ideas.



View the entire range of products online
shop.maxongroup.com

We understand the requirements for medical technology

maxon drives are used in numerous medical applications. Our motors perform reliably and with the best possible quality in high-precision devices such as active implants, insulin pumps, surgical robots, power tools, respirators, ventilators and prostheses. Drive components for medical technology applications must meet extremely demanding requirements. Precision, sterilizability, smooth running and long service life, as well as low heat build-up in DC and EC drives are essential.

maxon's medical business unit specializes in developing and producing drive systems for a variety of medical applications. Our engineers are well versed in the technical requirements of the medical technology industry, whether for active implants or robot-assisted rehabilitation. In close partnership with our customers, we develop the perfect drive system based on a modular standard solution or create a fully customized solution tailored to the customer's specifications.

Drive components for medical
technology applications must
meet extremely demanding
requirements.

Our experts can advise you in the following areas



Active implants

- Ventricular assist devices
- Active valves
- Positioning systems
- Pump systems



Surgical systems

- Surgical robots
- Power tools
- Dental devices
- Ventilators
- Respirators



Pumps and medication delivery systems

- Insulin/pain pumps
- Dialysis pumps



Rehabilitation and prosthetics

- Hand prostheses
- Foot prostheses
- Exoskeletons
- Therapy systems

Popular products



maxon ECX Speed 4/6/8

ECX-Speed series motors meet the exacting standards of the medical technology industry and withstand the constantly moist conditions and high salt concentrations inside the human body. With diameters of 4 to 8 millimeters, the brushless DC motors are particularly suitable for applications in medical technology, especially active implants.

maxon EC 9.2 flat

In the medical technology industry, devices and drives have to be 100 percent reliable. Pumps and medication delivery systems are no exception. For example, insulin delivery needs to be extremely precise, which is why insulin pumps require a high-precision drive. The maxon EC 9.2 flat meets this need precisely. A slightly modified version of this drive is used in the drive module of an insulin pump.



maxon DCX 10 S

The DCX 10 S is available as a small drive with preloaded ball bearings or sintered bearings. The optional spark suppression (CLL) makes this DC motor with precious metal brushes a real long-distance runner. The compact DCX drive systems are used in applications such as hand and foot prostheses; and they feature high power density (torque per volume) and are quiet running.



Power tools – the surgeon’s instruments



The brushless electric motor has two pole pairs, resulting in very high power density and high torque.

During many surgical procedures in the operating room, the surgeon relies on battery powered power tools. These tools are used when surgeons need to saw through bone or drill holes. This is frequently the case in trauma surgery, if hands or feet are involved or in hip joint surgery. With the EC-4pole series, maxon offers the perfect drive solution for this purpose. The brushless electric motor has two pole pairs, resulting in very high power density and high torque. Another impressive feature is its ability to withstand 1,000 autoclave cycles.



EC-4pole 30 brushless DC motor

- High torque
- Ironless maxon winding provides smooth running
- Energy-efficient and very suitable for battery operation
- Can be autoclaved up to 2,000 times
- High overload capacity
- Hollow shaft Ø4 mm for Kirschner wire

Robots revolutionize surgery



What was unimaginable a few decades ago is now reality in operating rooms all over the world. Robots support surgeons during difficult prostate removal surgery or other operations in the torso. During the operation, the surgeons sit at a control console, where they control the four-arm robot. Its instruments are laparoscopically inserted into the patient through small openings, where they can be maneuvered with more flexibility and precision than would be possible with any human hand. This helps prevent nerve damage or major bleeding during the operation. In addition, the small incisions aid in speeding up the healing process for patients. To accurately transmit the movements of the surgeon to the robot and have the robot execute them, several dozen maxon DC motors are needed. These have no cogging torque and are therefore ideal for use in surgical robots.

maxon's brushed DCX 22 with graphite brushes or DCX 10 combined with a GPX 10 planetary gearhead and ENX encoder are configurable online and ready to ship in 11 working days. xdrives.maxongroup.com

- Ironless maxon winding provides smooth running
- Linear characteristic, excellent control properties
- High energy efficiency
- Minimal heat build-up
- Very quiet
- Backdrivable gearhead



DC motors have no cogging torque and are ideal for use in surgical robots.

