

Big World of miniature brakes

Many industries have come to employ the compact cameras, sensors, batteries, processors, and communications technologies made ubiquitous by consumer products. Electromagnetic brakes complement such designs with miniature formats.

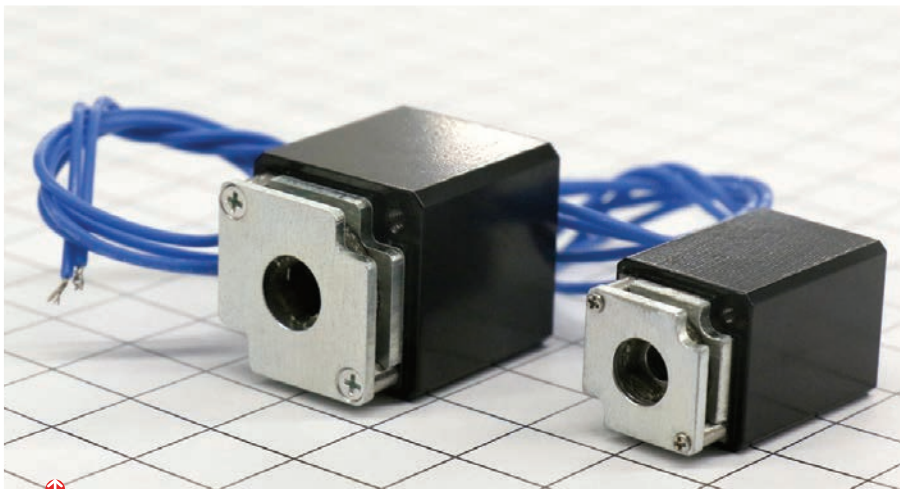
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Oh, how times are changing. Zoom meetings are the norm. Children all over the world are experiencing cyberschooling. Robots are picking our produce. Doctors are performing surgery on patients while standing miles away.

Such developments are out of necessity, convenience, health, safety, and consumer demand. They're also the result of advancements in manufacturing along with evermore-capable design and computing options.



In fact, many new applications in the medical, robotics, aerospace, and automotive industries require compact mobile designs. These frequently employ small electric motors ... and those motors sometimes need brakes or clutches. As we'll explore, electromagnetic brakes are often the most suitable complement to such designs.



Miniature electromagnetic brakes come in both round and square configurations ... and can be dimensionally sized to meet the torque of the motor on which they are mounted.

Applications in medical devices

In the medical industry, miniature electromagnetic motors and brakes work in curative tools and surgical equipment.

Consider how cameras and sensing equipment have advanced so dramatically that medical personnel can now see things inside the body in detail never before imagined ... and can use precision controls to operate small devices inside patients to scope areas of concern. In a similar way, the latest surgical equipment operates with a surgeon driving motions through controls via robotic-assist functions. Such functionality provides better surgical outcomes with minimally invasive procedures, quicker recovery times, and lower total cost from start to finish. In some cases, doctors can even execute surgeries from another room or even another city.

For robotic and handheld battery-powered equipment in these applications, equipment must be extremely reliable with highest precision. Here, high-ratio gearboxes on the motor output help with precision positioning — to maintain the highest level of safety. Motors on motion axes in many such designs also need brakes for holding and emergency stops. The challenge is that brakes in these devices must be lightweight with low power requirements for ergonomics and longevity.

Uses in the robotics industry

The robotics industry is diverse ... we've just touched on medical robotics. There are other industrial-grade mobile robotics with

In aerospace applications, the low power requirements for electromagnetic brakes help minimize heat buildup.
