

Ultra Performance in a Complete Family of Brushless, Slotless Miniature Motors

Portescap has extended its Ultra EC™ range of motors with new sizes, with the motors now covering diameters from 16mm to 35mm. Crafted around Portescap's proprietary U coil technology, these motors deliver outstanding performance, minimal iron losses, improved efficiency and cooler operation.

The unique coil design uses straight copper turns to maximize the effectiveness of the magnetic field, with coil heads perfectly integrated into the compact motor design. The U coil helps to optimize the motor package size and maximizes the useful volume of copper, with stronger coil integrity. This enables motors to deliver up to 30% more torque than a BLDC motor of the same size using a conventional coil design, plus it offers substantially lower iron losses.

Recognizing that no two electric motor applications require the same operational characteristics, the Ultra EC family includes three distinct variants: the ECS line, the ECT line and the ECP line. The Ultra ECS BLDC motors are optimized for high speed and acceleration in direct drive applications. Available in diameters from 16mm to 35mm, these dynamic motors excel in applications where responsiveness is a critical requirement. For example, with a high-end magnetic circuit and minimal iron losses, a 22mm Ultra ECS 2-pole motor can offer powers up to 180W at 50,000 rpm.

Further, with advanced vibration-damping and built-in temperature monitoring, the Ultra ECS motors meet the needs of applications that require cool, virtually silent and vibration-free operation. Across the range of diameters, they provide powers up to 330W, torque up to 193mNm, and speeds up to 73,000 rpm.

Where an application needs a motor optimized for high torque in the smallest package, the Ultra ECT motor features a multi-pole design to approach the torque capabilities of much larger motors. Continuous torque can be up to twice that of conventional BLDC motor of the same size, and even compared to similar multi-pole motors the ECT line delivers 20-150% more torque, with lower speed drop under load.

Covering the low speed range typically used with gearheads, the ECT motors are easy to integrate with gearheads and encoders. They are available in diameters from 22mm to 30mm, and offer powers up to 244W, torque up to 225mNm and speed up to 30,000rpm.

The third model in the Portescap Ultra EC family, the Ultra ECP motors delicately balance speed and torque capability with cost, opening up premium performance to a wider range of BLDC motor applications. Compatible with gearboxes and encoders, these cost-optimized motors can provide up to 30% more continuous torque and 100% more power than similarly-sized

competitive motors, yet still offer the smooth operation and long life for which Portescap's brushless, slotless motors are renowned. Available in diameters from 16mm to 22mm, the Ultra ECP motors provide powers up to 120W, torques up to 50mNm and speeds up to 63,000rpm. Leveraging the versatility of Portescap's U coil technology, the three product families within the Ultra EC range each highlight a major motion requirement, whether it be traditional BLDC features, very high torque or very high speed. The proprietary U coil provides outstanding performance, including minimal iron losses, better efficiency and cooler operation.

About [Portescap](#)

Portescap succeeds in providing high quality, long lasting and high performance brushless motors which are an ideal choice for geared applications because of their minimal speed drop and low motor heating under load. Their low inertia makes them an exceptional option for applications requiring fast stopping, starting and acceleration.

Upon request, Portescap can also provide options for customization including gearboxes, encoders, coil variations and mechanical interface modifications.

Portescap is globally ISO 9001:2008 certified and our production site in India is also ISO 14001:2004 and OHSAS 18001:2007 certified.



Figure 1- The Ultra EC family includes the ECS line, the ECT line and the ECP line that are optimized for high speed and acceleration in direct drive applications.