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NEW!

**Ultra EC™**

# Ultra EC™ Motors

Ultra performance in a complete family of brushless slotless miniature motors.

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# No two applications are the same.

One design definitely does not fit all. Not when your application has specific performance requirements for high speed, high torque or a balance of both. Not when all that performance needs to fit in a small space. And not when you need to deliver ultra performance at an optimized cost. That's why we created the **Ultra EC™** platform of motors.

**Ultra EC™**

Three different product lines address your specific performance requirements:



**ECS line** for ultra high speed and responsiveness in direct-drive applications.



**ECP line** for balanced performance in a cost-efficient motor that fits an ultra wide range of applications.



**ECT line** for ultra high torque in the smallest package.

## Ultra EC™ Brushless Motors 35ECS60 & 80



### Ultra high speed without compromising on low voltage

Portescap has expanded the Ultra EC range of Brushless motors with the introduction of the 35ECS60 and 35ECS80 motors. Part of our Ultra EC platform of brushless slotless miniature motion solutions, these 2 pole motors offer similar performances than motors with battery cells operated at up to 400V without compromising on the smooth operation and long life you expect from Portescap's brushless slotless motors.

The 35ECS60 and 35ECS80 motors feature our patented Ultra coil technology which provides unparalleled torque and power density with limited core losses over a wide range of working speeds without friction and brush wear. They feature our patented high-speed rotor design and can sustain speeds up to 40,000rpm. Thanks to their rugged design, the 35ECS can sustain peak torque during 2s up to 1.1Nm (35ECS60) and 2.0Nm (35ECS80).

The Ultra EC range offers solutions in a 2 pole design for diameters of 16, 22 and 35mm. The new 35ECS feature a laser welded front flange to ensure the strongest housing to sustain high torque reaction. Available with hall sensors and a total of 6 different coils to match your speed and voltage requirements, these motors are an ideal choice for industrial applications such as battery-operated hand tools and for applications with length constraints. Upon request, Portescap can also provide options for customization including gearboxes, encoders, coil variations and mechanical interface modifications.

✓ Peak torque (2s) up to 2.0Nm

✓ Ø35mm with 60mm & 80mm lengths available

✓ Speed up to 40,000 RPM

### Key Features

- The most powerful 2 pole motors in Ø35mm
- High peak torque optimized design
- Up to 193mNm continuously
- Max continuous speed: 40,000rpm
- Torque performances allow superior dynamics, harder work cycles, and cooler operation.
- Available in 2 lengths: 60mm & 80mm
- RoHS compliant

### Applications

- Power battery-operated hand tools
- Nutrunners
- Drills
- Factory automation
- Vacuum pumps
- Industrial fans

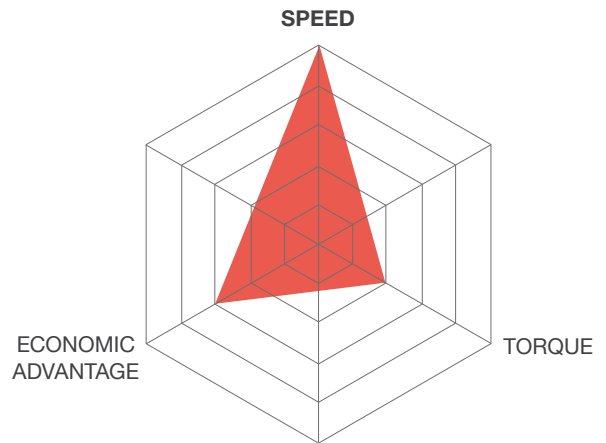
### Compatibility & Customization (\*)

- Encoder: Absolute digital & Sine/Cosine encoder & M-sense magnetic encoder
- Gearboxes: R32, R40
- Customization: coil variations and mechanical interface modifications

*\*available upon request*

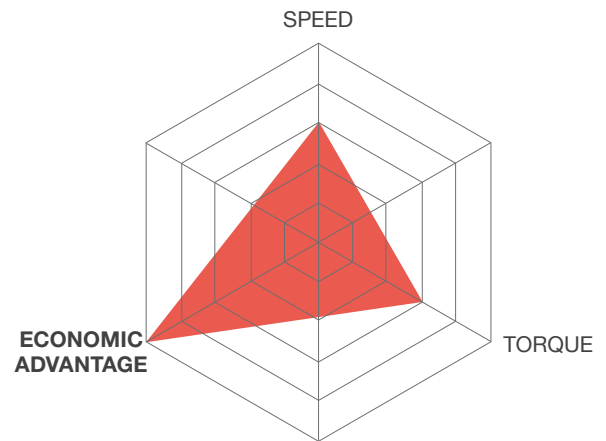
## ECS line: Ultra high speed and responsiveness.

Ultra ECS motors are tailored for high-speed, high-acceleration direct-drive applications. With a high-end magnetic circuit and minimal iron losses, these dynamic designs can reach amazing mechanical powers such as delivering **180 W continuously at 50,000 rpm** in a 22 mm diameter motor (22ECS60). With advanced vibration-damping and built-in temperature monitoring, ECS motors are designed for cool, virtually silent and vibration-free operation.



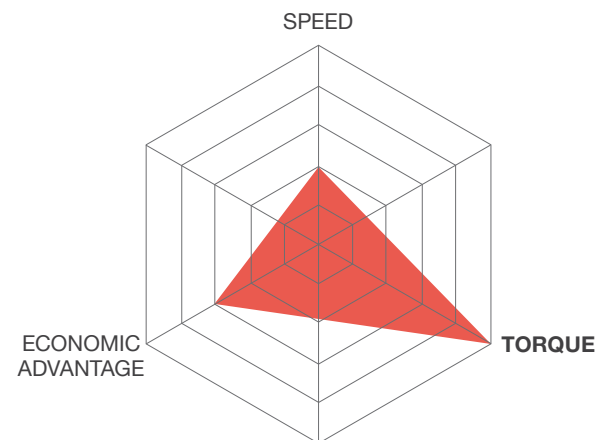
## ECP line: Ultra performance for a wide range of applications.

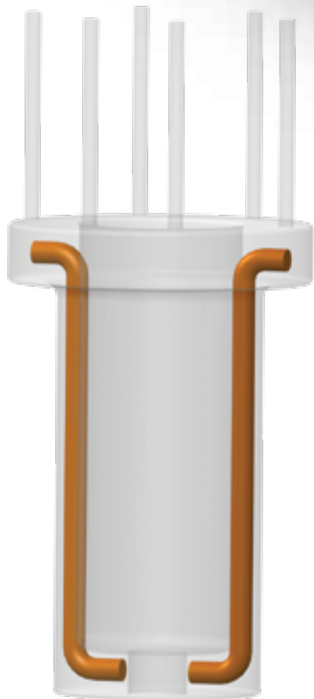
Ultra ECP two-pole motors balance speed and torque capabilities, bringing premium performance to the most commonly specified brushless motor working points. Compatible with gearboxes and encoders, these cost-optimized motors can provide **30 percent more continuous torque and 100 percent more power** over similar competitive motors without compromising on the smooth operation and long life you expect from Portescap's brushless slotless motors.



## ECT line: Ultra high torque in the smallest package.

Featuring a multipolar design, our Ultra ECT motors approach the torque capabilities of much larger motors. **Continuous torque can be up to two times higher** than comparable brushless DC motors of the same size over the entire low speed range typically used with gearheads. Even compared to multipolar miniature motors from our competition, the ECT line delivers 20 to 150 percent more torque, with a lower speed drop under load. These cool-running motors feature built-in temperature monitoring, and are compatible with gearboxes and encoders.





**Ultra EC™** Coil

**Ultra EC™** technology drives performance.

Portescap's Ultra EC™ motors are crafted around our patented **U coil technology** – a new design that is the key to the outstanding performance of these brushless slotless miniature motors. This unique coil design allows two-pole motors, for example, to deliver 30 percent more torque compared to the same size motor using a conventional coil design, with substantially lower iron losses.

**Ultra EC™** coil features.

*Straight turns*

*Inner and outer heads*

*Special output to prevent loose wires*

*Axial and radial forming*

**Ultra EC™** benefits.

*Greater efficiency of copper turns, minimized joule losses*

*Optimum package size*

*Maximized useful volume of copper*

*Stronger coil integrity*

*Perfect integration into motor design*

*Ability to reach a wide range of torque constants*

*Simple, cost-efficient design – wide-ranging performance*



## **Ultra EC™** Because targeted performance matters to **UJ**.

All three product lines owe their performance to our innovative U coil design – the core of the Ultra EC™ family platform. The Ultra U coil uses straight copper turns to maximize the effectiveness of the magnetic field, with coil heads perfectly integrated into the compact motor design.

With minimal joule and iron losses, maximum power is available to achieve the specific performance characteristics you're looking for in the frame size you require. And of course, minimal losses also means greater efficiency and cooler operation.



*Portescap's innovative patented Ultra U coil*

# The right motor for the right application.

SPEED

TORQUE



## ECS line: High-speed applications.

- Respirators
- High-speed spindles
- Medical hand tools
- Dental hand tools
- High-end impellers



## ECP line: The universal performance solution.

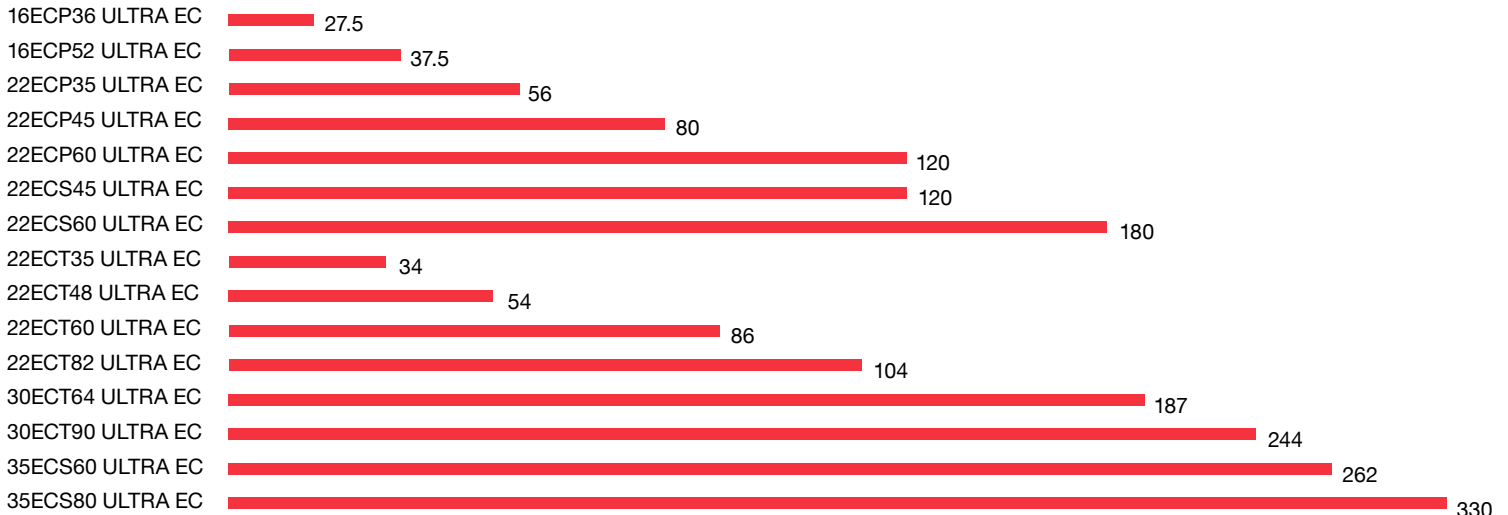
- Automated hand tools
- Factory automation
- Lab automation
- Disposable medical tools
- Grippers
- Automation actuators



## ECT line: High-torque applications.

- Industrial hand tools
- Electric screwdrivers
- Strapping hand tools
- Pruning shears
- Robotics
- Exoskeletons
- X/Y Axis

## Ultra EC™ Maximum Continuous Power (watts).



## Ultra EC™ Maximum Continuous Torque (mNm/oz-in).

