

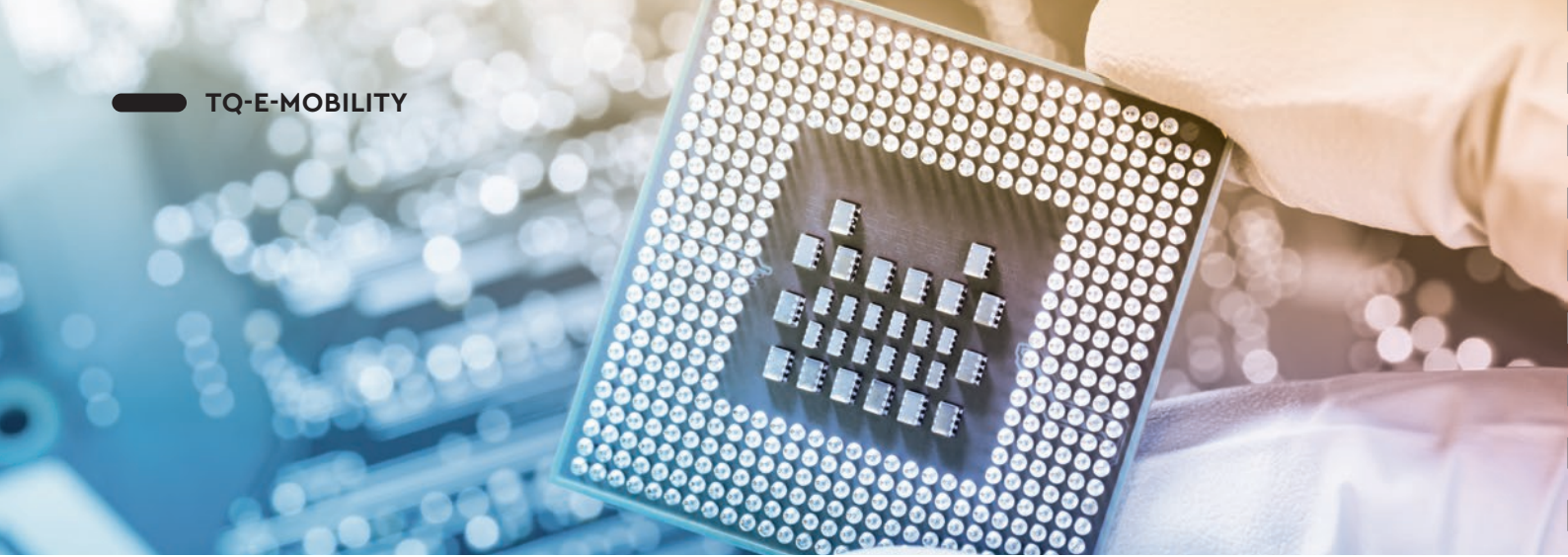
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**When
the journey
is the
reward.**
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Trail and Urban 2020

TQ HPR® 120S





Unmatched performance Born in a high-tech environment

As one of the largest technological service providers and electronics specialists in Germany, the TQ Group provides customized, innovative solutions for a wide range of industries and sectors.

Sophisticated, high-quality electronic and mechatronic systems from TQ Systems can be found in industrial, energy, medical technology, aviation and space applications as well

as in marine, railroad and automotive technologies. Among the customers who trust TQ Systems are global corporations such as Airbus, Siemens and Kuka.

TQ Systems employs around 1,650 people at over 14 locations around the world. The TQ HPR® 120S is developed and manufactured by the business unit TQ Drives, located in Inning am Ammersee outside of Munich, Germany.



EN 9001
Quality Management



EN 9100
Aviation



ISO 13485
Medical Technology



MDD
Medical Products



ISO 14001
Environmental Management



EN 9110
Aviation Service



ISO 16949
Automotive



Recognized by UL
Recognized Mark

Whether ISO 16949 (automotive), EN ISO 13485 and MDD (medical technology) or even the particularly sought after EN 9100 (aviation) – at TQ-Systems quality management is a top priority. Our promise is in our name: "Technology in Quality."



The mobile revolution Designed for the future

Summit a hill that previously seemed insurmountable. Travel a distance that would be out of the question with a normal bicycle. Take another lap before calling it a day – just for the fun of it. The TQ HPR® 120S makes the impossible seem possible.

Regardless of whether you ride to work every day, occasionally do some shopping or want to conquer the world on vacation. The TQ HPR® 120S was developed with the aim of achieving maximum performance and comfort in

any situation and the most fun on any terrain. Available in the standard pedelec version (25 km/h), s-pedelec series (45 km/h) or racing format (open) for use on private trails, the TQ HPR® 120S is manufactured from the best materials using the most innovative technology – to give riders of all levels the ride of their life.

Become a part of the mobile revolution now. Experience the TQ HPR® 120S, the premium mid-motor solution for the world's most advanced e-bikes.



TQ HPR® 120S

Complete e-bike drive systems

The TQ HPR® 120S is a high-performance, mid-motor e-bike drive developed and manufactured in Germany. It lies at the heart of complete e-bike drive solutions from TQ Systems for pedelecs (25 km/h), s-pedelecs (45 km/h) and race pedelecs. TQ offers both standardized, out-of-the-box drive systems and customized solutions, in which we work closely together with customers to deliver drive packages that mirror their brand DNA.

1 TQ HPR® 120S E-Bike Drive

Based on our patented Harmonic Pin Ring transmission, the TQ HPR® 120S delivers supreme power, dynamic acceleration and natural responsiveness in any terrain.

- Constant 120 Nm torque
- Efficiency > 80 %
- Natural torque-sensitive handling & power modulation
- Freewheel eliminates internal drag
- Compact design
- Maintenance-free
- IP65 weather resistant
- Simple installation

1 Motor Configuration

Work together with TQ to tailor the performance curve of the TQ HPR® 120S – and deliver power in a way that matches your brand's DNA.

1 Motor Design

Customize the housing of the TQ HPR® 120S to ensure seamless integration with your bike's design.

2 Sensors

TQ speed, cadence and torque sensors deliver precise information on the current speed rpms and pedal pressure for a smooth, natural-feeling ride.

3 Wiring Harness

The TQ Wiring Harness functions as a central connector with electrical interfaces to all drive systems, sensors and lighting.

4 Lighting Systems

From simple front lamps to fully integrated lighting concepts including tail-lights, TQ can help you meet your brand's need for visibility, safety and style.

● TQ Standard System ● TQ Customized Solution





Remote & Mini-Display



White-label TQ SmartPhone App for extensive route, range and performance stats. Backend fleet management tool.



5 Remote & Mini-Display

Ultra-compact, independent remote unit with integrated mini-display for basic trip data and battery capacity info. Interface to TQ SmartPhone App for extensive route, range and performance statistics.

6 Full-Color Display

Work with TQ to turn your display into a full-color, central communications interface, allowing riders to view tour, range and performance data, customize settings and more.

6 Smartphone App

The TQ Smartphone App offers range prediction, route planning, navigation, trip recording, diagnostics and more. Available for both iOS and Android smartphones.

7 Standard Li-ion battery

Our standard battery offers 650 Wh of low-weight, highly efficient, durable energy storage available for in-tube mounting.

7 Custom Batteries

Give your riders the capacity they need for any journey. From 650 Wh standard to over 2,000 Wh – TQ can make it happen.

7 Intelligent Battery Management

Rely on TQ's expertise for an intelligent battery management that ensures rapid charging and efficiently drives all electronic components, even in highly integrated E-bike systems.

8 Gearbox Compatibility

Compatible with hub gears and derailleurs from Rohloff, Enviolo, SRAM, Shimano and other leading brands.

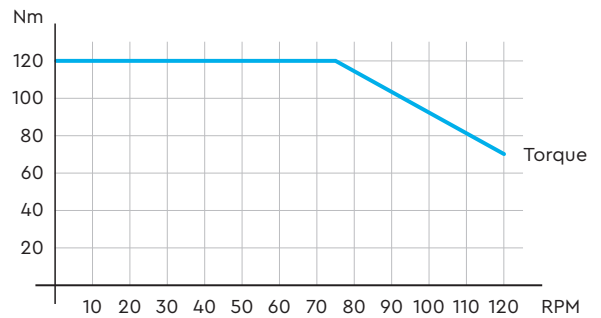
TQ HPR® 120S

Performance you can feel

With its technological underpinnings in aerospace and robotics, the TQ HPR® 120S sets e-bike industry benchmarks for power and efficiency in a compact form. Its patented Harmonic Pin Ring transmission gears down at a ratio of 1:37 in a single step, delivering 120 Nm of constant torque – and allowing riders to master even the most technical terrain with ease.

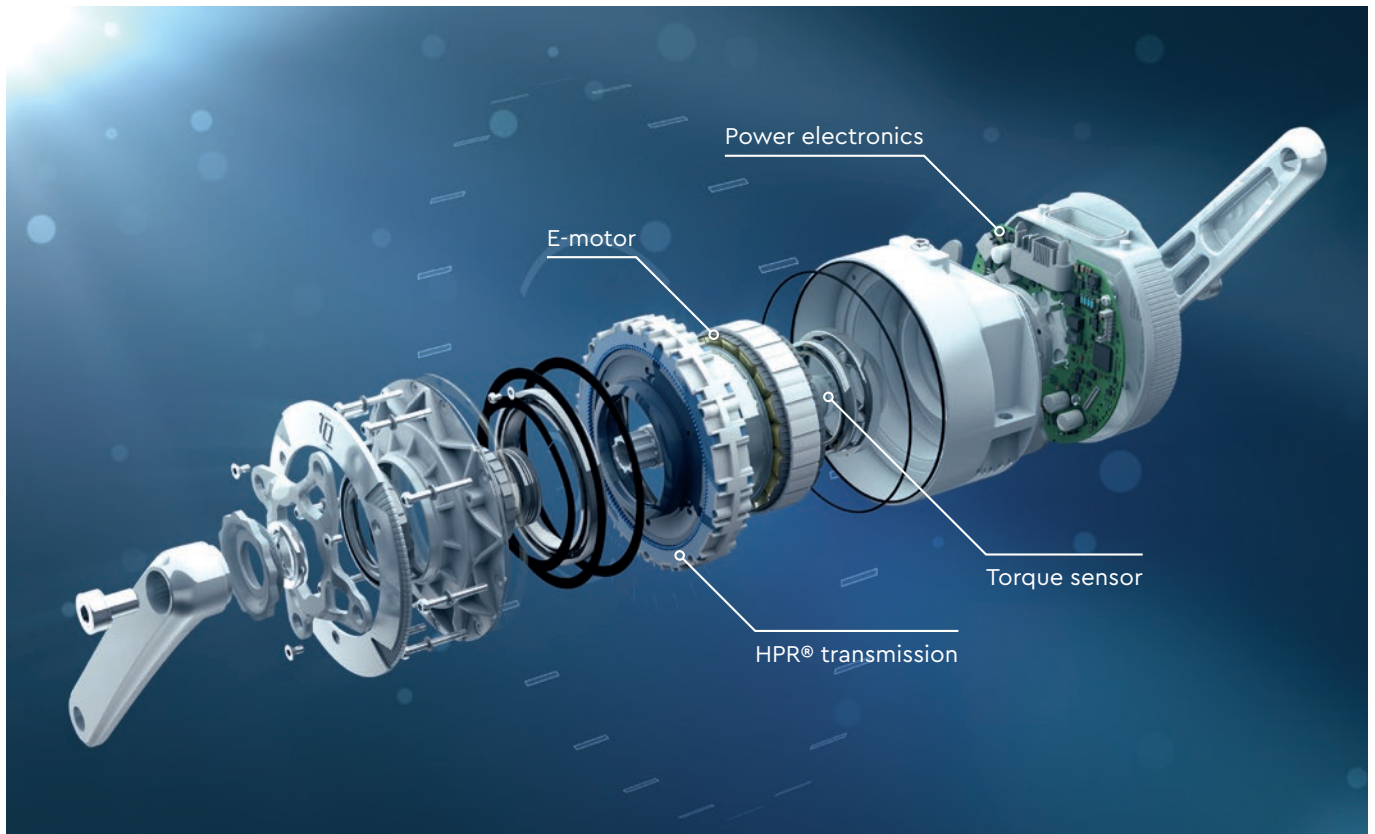
The oval contour of the TQ Harmonic Pin Ring transmission moves 150 pins in a wave pattern between the inner gear (148 teeth) and the stationary external gear (152 teeth). All pins are engaged simultaneously around the entire circumference to transmit power extremely effectively in a minimal of installation space. The transmission gears down in one stage with a ratio of 1:37, meaning that at a pedaling frequency of 80 rpm, the electric motor is running at roughly 3,000 rpm. An integrated freewheel eliminates internal drag so that the bike can be pedaled normally and without resistance when the motor is not in use or when traveling above 25/45 km/h.

Constant torque: the key to performance



The TQ HPR® 120S delivers 120 Nm of constant torque across a very wide performance spectrum.

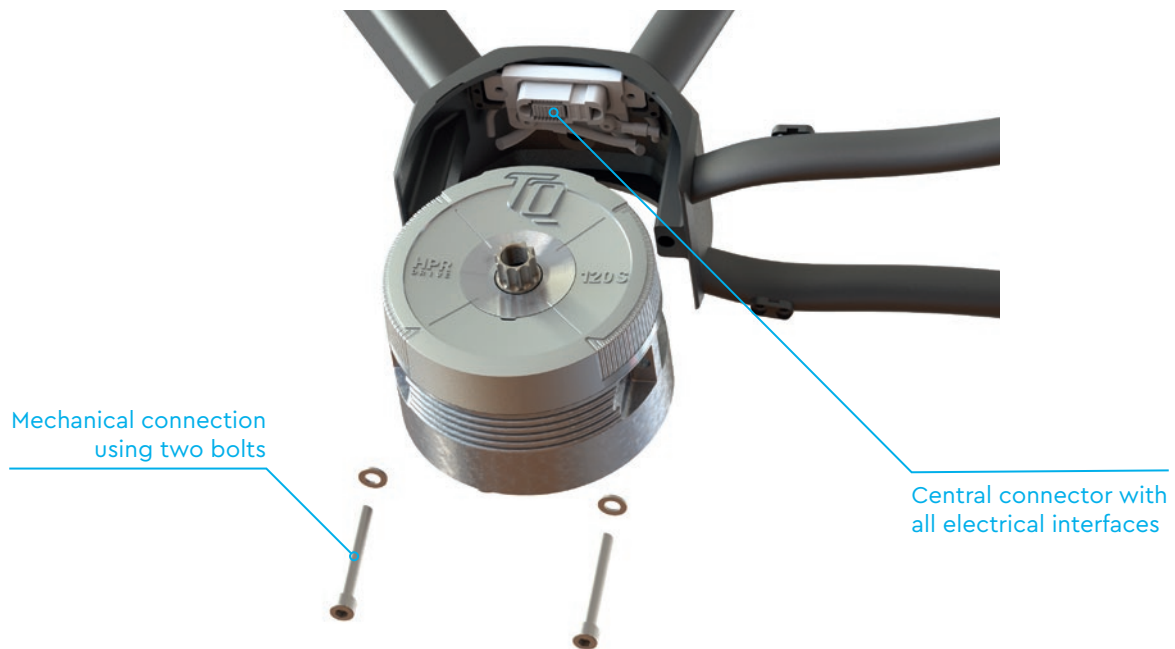
TQ HPR® 120S: the compact power package



Motor Integration

The TQ HPR® 120S can be installed with minimal effort. A single, central interface ensures connection to all electronic systems contained within the bike. Two bolts securely fix the motor to the vehicle frame.

TQ professionals can assist bike manufacturers in integrating the motor and adapting its design to perfectly fit their individual requirements.



	TQ HPR® 120S 25 km/h	TQ HPR® 120S 45 km/h	TQ HPR® 120S-R (open)*
Rated power (W)	250	500	920
Torque (Nm)	120	120	120
Start-up aid	-	-	up to 20 km/h
Pushing aid	up to 6 km/h	up to 6 km/h	up to 6 km/h
Voltage (V)	48	48	48
Communication	CAN bus	CAN bus	CAN bus
Efficiency (%)	> 80	> 80	> 80
Class of protection	IP 65	IP 65	IP 65
Weight, drive system (kg)	3.9	3.9	3.9
Rotationally symmetric installation space	Ø 144 mm; shaft length 146 mm	Ø 144 mm; shaft length 146 mm	Ø 144 mm; shaft length 146 mm

* The race version is not approved for road traffic.



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