

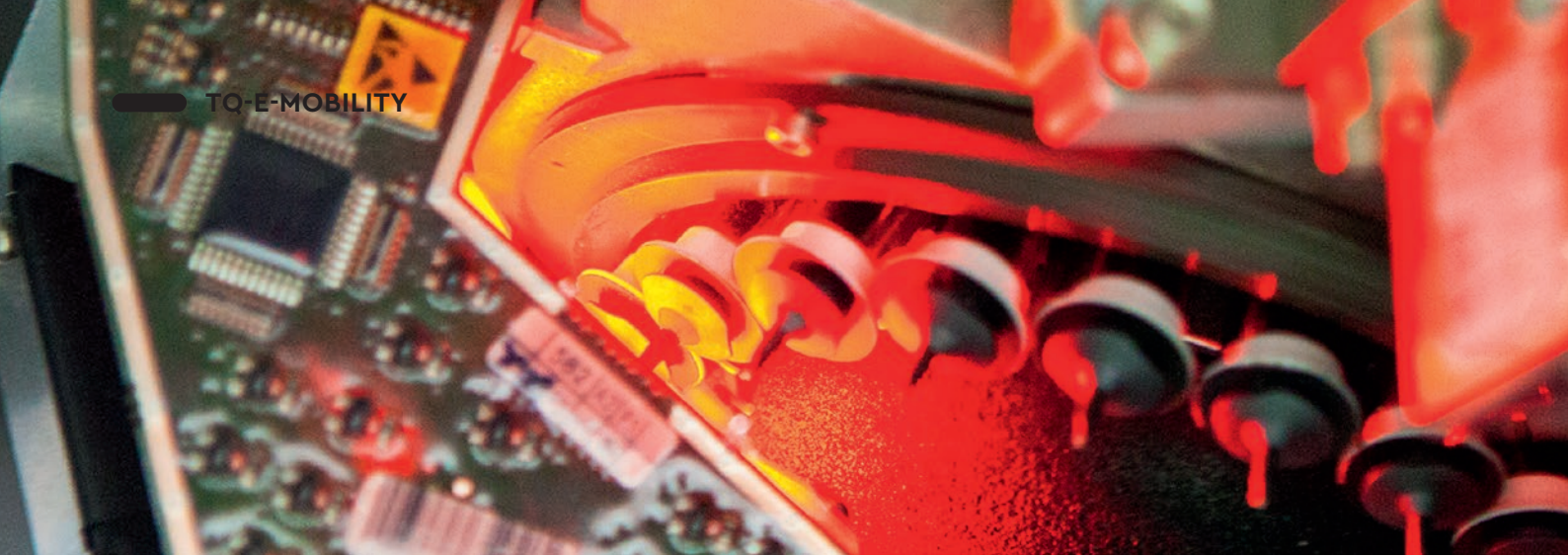
When
the journey
is the
reward.



Cargo and Fleet 2020

TQ HPR® 120C





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® 120C 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

As the need for sustainable, quick and affordable ways of transporting cargo in increasingly congested urban areas grows, e-bikes are rapidly becoming the vehicle of choice.

In its Declaration on Cycling, the European Union estimated that e-cargo-bikes in their myriad forms – from heavy-duty trike to sleek velo taxi or stylish Long Johns – have the potential to replace up to half the motorized cargo transport in European cities.

The TQ HPR® 120C was developed precisely to meet the requirements of this growing market for use in continuous application in industrial environments, commercial cargo transport and fleet applications.

Manufactured in a high-tech environment using only the best materials and most innovative technology, the TQ HPR® 120C allows fleet operators to meet future demands and regulations for urban logistics, while reducing operating costs and minimizing their environmental footprint.



TQ HPR® 120C

Performance you can feel

With the TQ HPR® 120C, TQ offers the ideal mid-motor solution for cargo bikes in both the 25 km/h category and the 45 km/h category (S-Pedelec). The compact power package is 100 % made in Germany in accordance with the IEC/DIN EN 15194 norm, ensuring a premium quality product with a minimum of maintenance and a long lifetime.

TQ HPR® 120C with Patented Harmonic Pin Ring

The oval contour of the patented 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 at 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.

Advantage compared to other systems:

- Unmatched performance for heavy loads
- 120 Nm permanently available torque
- Motor, transmission and power electronics in one compact unit
- Mid-drive motor for greater efficiency, smoother handling
- Maintenance-free, extremely robust
- Minimal operating costs for fleets
- Simple installation: two bolts and central electronics interface
- Protection class IP65: permanently resistant to wind and weather

Gearbox Compatibility

Compatible with hub gears and derailleurs from Rohloff, Enviolo, Pinion and other leading brands. Can be integrated with both chain and belt drives.

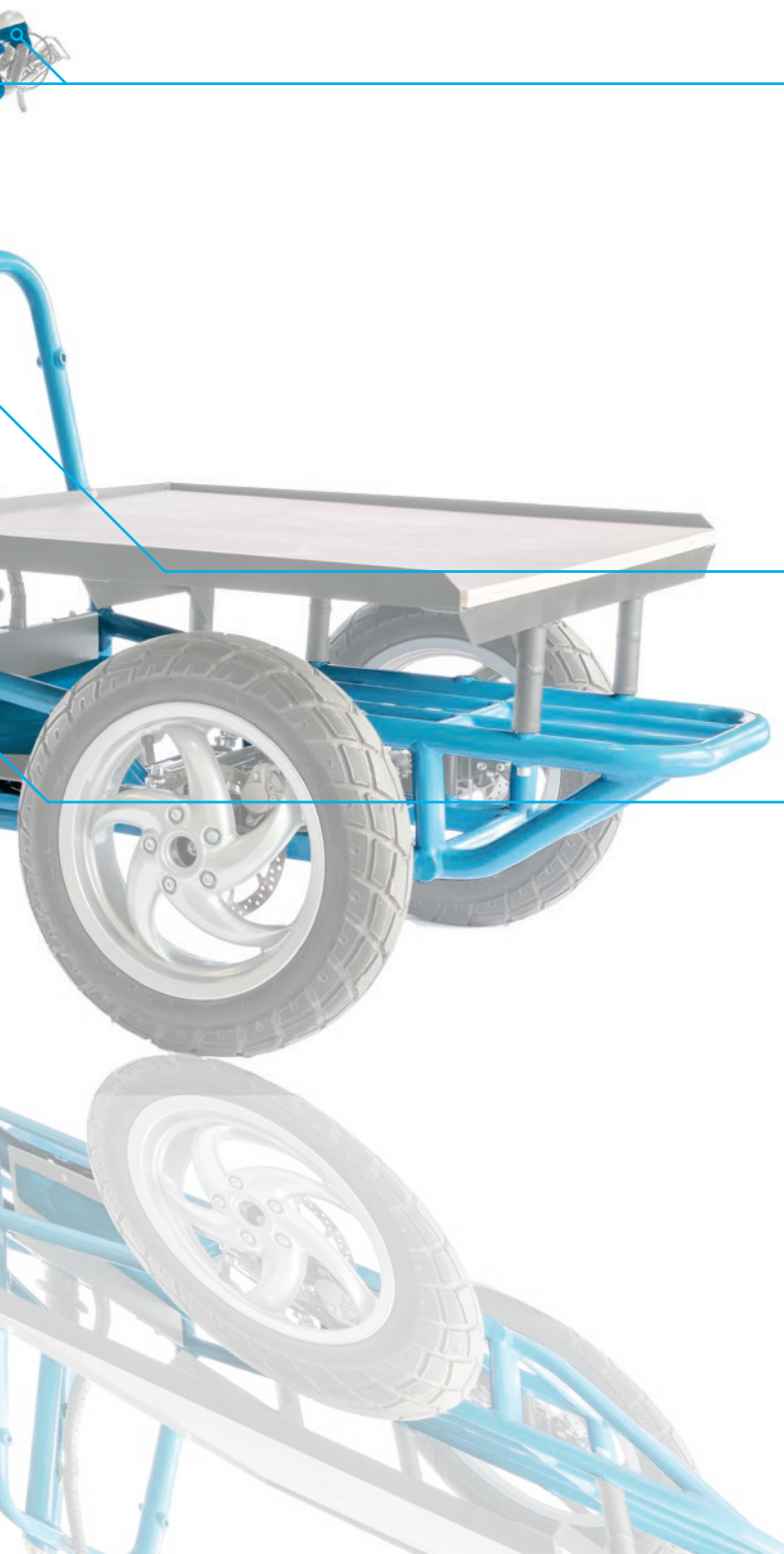




Reduced to the essentials: all-in-one: remote control, display and interconnectivity



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



Display and Connectivity

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.

The white-label TQ Smartphone App offers range prediction, route planning, navigation, trip recording, diagnostics and more. It is available for both iOS and Android smartphones.

An additional fleet management tool enables live fleet tracking, theft recognition and real-time performance and battery health monitoring.

Wiring Harness

A central connector with all electrical interfaces can be customized to meet specific OEM needs for bike format, frame type, length, lighting requirements and other factors.

Customized or Standard Li-ion Battery

TQ can provide manufacturers with the ideal battery capacity for their bike, from our standard 650 Wh battery up to as much as 2,000 Wh, in single or dual battery form.

Intelligent battery management systems from TQ ensure rapid charging and maximum efficiency for all electrical features. Partnerships with leading battery manufacturers mean we can offer lighter individual frame construction and quick service.

TQ HPR® 120C

The most powerful way to travel new paths

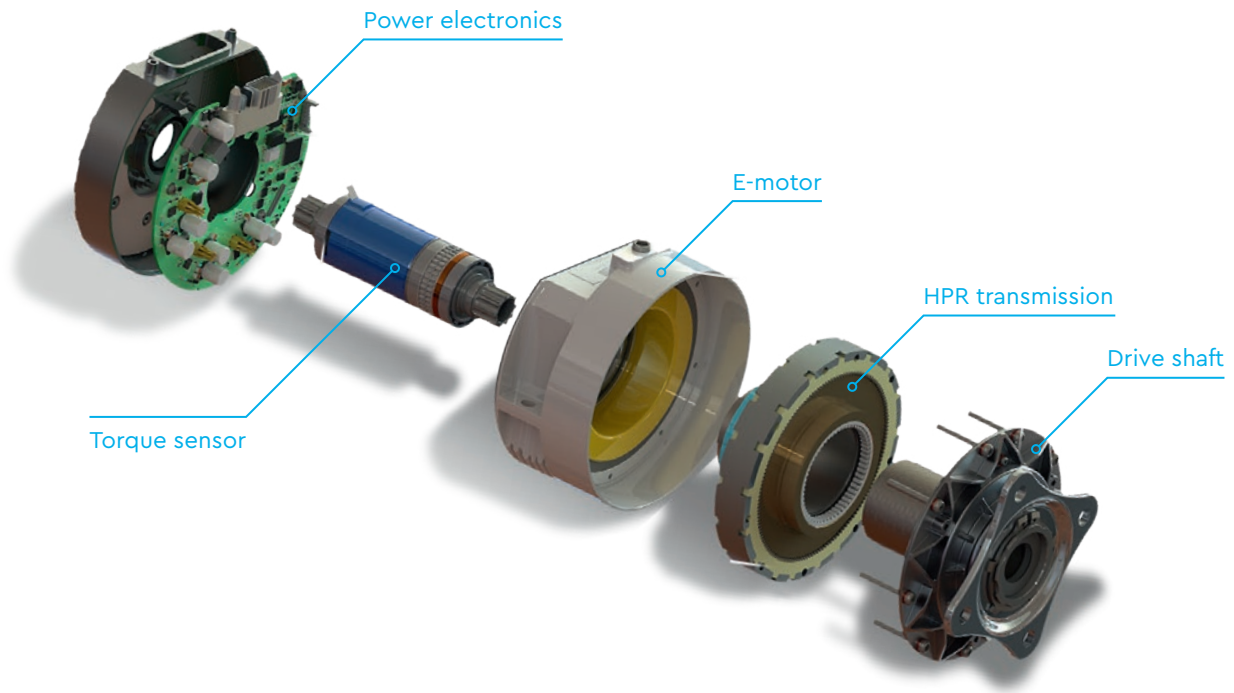
Heavy loads, inclement weather and considerable wear and tear on a daily basis – these are some of the challenges fleet owners transitioning to e-bikes face. The TQ HPR® 120C is up to the task, combining uncompromising power and smooth handling with maximum efficiency, IP65-class robustness and minimal maintenance.

The TQ HPR® 120C is the ideal drive for any cargo bike or fleet application. Wholly manufactured in Germany, it gives riders a choice of five different levels of motor support, from eco mode to full power. Thanks to its patented Harmonic Pin Ring transmission with 120 Nm of constantly available torque, riders can transport even the heaviest loads and manage the steepest inclines, while also having enough power to swiftly accelerate from a standstill.

Stronger, more robust and more sustainable: the TQ HPR® 120C is ushering in a new era of e-mobility for urban transport and cargo fleets.



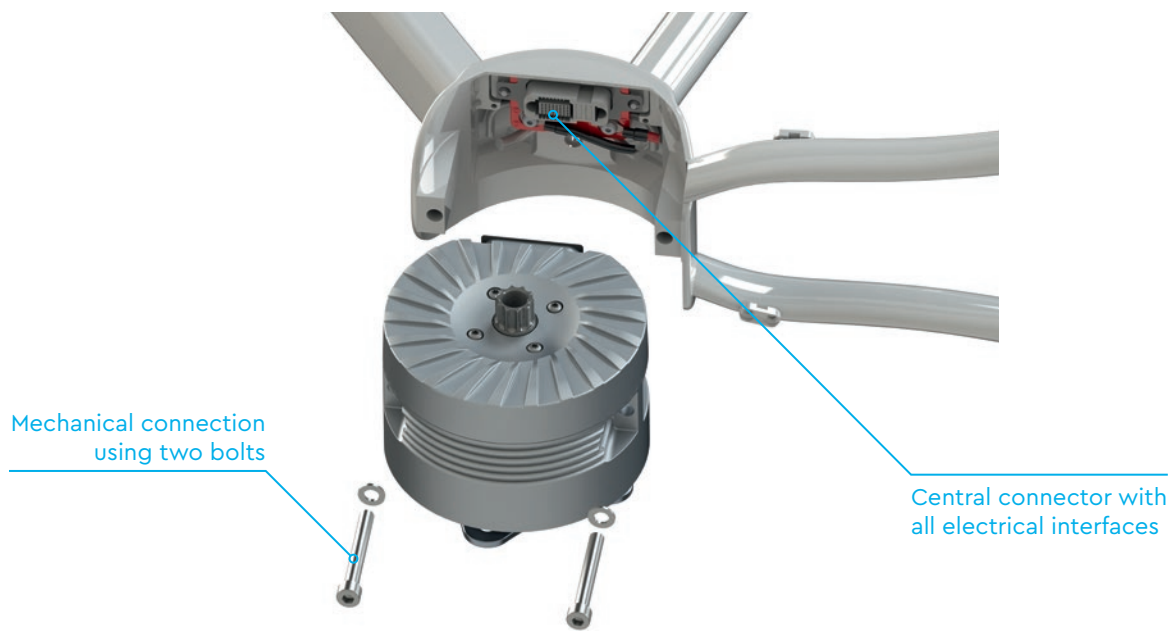
TQ HPR® 120C: the compact power package



Motor integration

The TQ HPR® 120C 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® 120C 25 km/h	TQ HPR® 120C 45 km/h
Rated power (W)	250	500
Torque (Nm)	120	120
Start-up aid	-	-
Pushing aid	up to 6 km/h	up to 6 km/h
Voltage (V)	48	48
Communication	CAN-Bus	CAN-Bus
Efficiency (%)	> 80	> 80
Class of protection	IP 65	IP 65
Weight, drive system (kg)	4	4
Rotationally symmetric installation space	Ø 144 mm; shaft length 146 mm	Ø 144 mm; shaft length 146 mm

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