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Ford Rides into E-Bike Market with Stunning Concept

- E-Bike Concept demonstrates how Ford's design language can translate to a bicycle
- The concept pairs cutting-edge sensor technology from the world of Formula One with top-of-the-range bicycle components
- Promising a range of up to 85km on a full charge, Ford E-Bike Concept could be an innovative solution for urban mobility

Alongside the exciting line-up of new vehicle and technology introductions on its stand at Frankfurt Motor Show, Ford is also unveiling a rather surprising addition to its range – an E-Bike.

Designed to show how the company's design language can translate to a bicycle, the Ford E-Bike Concept also demonstrates the spectrum of Ford's electric mobility competence. Ford has no plans to produce the E-Bike but will continue studying the concept along with other future mobility solutions.

"The E-Bike market is growing very, very rapidly, with some 30 million units sold globally last year," said Axel Wilke, director, vehicle personalisation, Ford Customer Service Division Europe. "We see E-Bikes as an important element of urban electric mobility. More and more people are using E#Bikes for short distance commuting and they are becoming comfortable with the concept of electric mobility."

Developed by a Ford Design team led by Executive Design Director Martin Smith, in partnership with cyber-Wear, the German brand behind Ford's popular Lifestyle Collection products, the Ford E-Bike Concept has been created from the ground up to appeal to both men and women.

At the heart of the design is a trapezoidal frame profile. Constructed from aluminium and carbon, the frame combines outstanding strength with a weight of just 2.5kg. The wheels, with a six-spoke V-design, appear to float around the frame, while the drive system is hidden from view, creating a clean, minimalist appearance.

Providing the power is a drive system consisting of a motor in the front wheel hub, a lithium-ion battery concealed in the frame, promising a range of up to 85km on a full charge, an integrated controller and patented magnetostriction sensor technology from the world of Formula One.

Magnetostrictive materials are used to convert magnetic energy into kinetic energy, and vice versa. In Formula One, these sensors help handle high engine revolutions in combination with intense thermal strains. They need no physical contact with other parts of the engine, are temperature-independent and are completely maintenance-free.

In the Ford E-Bike, the first application of this technology in the bicycle industry, the sensors read the revolutions in the inner bearing and relay this information to the control unit within a hundredth of a second. The control unit then instantly activates or deactivates the electric motor, providing a seamless integration of the power of the legs with the power of the motor.

A handlebar-mounted display provides trip information and allows the rider to select from three support modes – Economy, Comfort and Sport.

The drive system is complemented by top-of-the-range bicycle components, including a Shimano Alfine 11-speed internal gear hub and a 2012 Shimano Rapidfire shifter. In place of a traditional chain is a Carbon Belt Drive System, making for a cleaner, lighter and more immediate transfer of energy.

"With its cutting edge design, cross-gender appeal, robust build quality and high performance drive package, we believe the Ford E-Bike Concept would be the perfect addition to the e#mobility solutions we will offer," added Wilke.

Front wheel hub motor
Max. nominal power: 350W
Electricity: 36V – 250W
Supports up to 25km/h (to EN 15194)
Clutch with freewheel function
Gearbox: Planet gears
Integral sensor technology

Cell type: Lithium-ion accumulator
Electricity: 340Wh, 36V, 9.3Ah
Charging cycles: 1000 cycles at 80% residual capacity
BMS (Battery Management System): protects against deep discharge and self-discharge
Charge times: 80% after 2 hours, 100% after 3-4 hours (at room temperature)
Range: Up to 85km (depending on drive power and support mode selected)
Temperature range: -20°C to +60°C

Extremely small unit to connect battery (remains on bike) to normal mains network.

Intelligent electronics to prevent overcharging, undervolting, overheating and shortcircuit; in particular, sleep function prevents deep charging and necessity for recalibration with charger connected

Background lighting with light sensor system

Energy-saving automatic sleep mode

Diagnosis function with fault code display

Support modes: Economy, Comfort, Sport

Displays: Range, Battery capacity, Speed, Time, Distance, Maximum speed, Average speed, Total distance, Service reminder, System diagnosis, Support modes

iPhone Smartphone app control function planned

Wheels: Mavic Elipse Aluminum black (modified with Ford Design crossing)

Tyres: Continental Ultra Sport black

Pedals: Wellgo LU-C27G, silver/black

Handlebars: Downhill Aluminum black, custom made

Stem: Giant SLR Carbon 110mm

Saddle: Selle Italia SLR XC

Brakes: Avid Elixir 5, full hydraulic, 185mm, white

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About Ford Motor Company

Ford Motor Company, a global automotive industry leader based in Dearborn, Mich., manufactures or distributes automobiles across six continents. With about 166,000 employees and about 70 plants worldwide, the company's automotive brands include Ford and Lincoln. The company provides financial services through Ford Motor Credit Company. For more information regarding Ford's products, please visit www.fordmotorcompany.com.

Ford of Europe is responsible for producing, selling and servicing Ford brand vehicles in 51 individual markets and employs approximately 66,000 employees. In addition to Ford Motor Credit Company, Ford of Europe operations include Ford Customer Service Division and 22 manufacturing facilities, including joint ventures. The first Ford cars were shipped to Europe in 1903 – the same year Ford Motor Company was founded. European production started in 1911.
