
eNERGICA
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PROUDLY MADE IN MODENA
Innovation
Experience
Experience • Innovation
Disruption • Training

Energica Motor Company

- ✓ **Energica Motor Company S.p.A. is the first manufacturer of high-performing electric motorcycles.** The 100% Italian-manufactured electric sportbike project born thanks to **CRP Group,** a pioneer in the world of international motorsports and a hub of excellence for its state-of-the-art technologies.

- ✓ In short time Energica has opened a new chapter in the history of Italian Motor Valley, creating a new field within the automotive market: the high-performing electric motorcycle segment. The "Energica" project was born between 2008 and 2009 when the company created an **all-electric racing bike called "eCRP".**

- ✓ The design of this racebike required technical expertise and the experience and technologies inherited from the parent company, **CRP Group**, allowed to create a new concept of racing motorcycling. **CRP Group's know-how in F1 world and aerospace** industries supported Energica into further developing electric technology and creating a line of premium street-legal electric motorcycles. Indeed the team made two years of racing and then they started working on a new project: Energica, the first high-performing electric motorcycle.

- ✓ Today Energica Motorcycles range include 3 models among them there is the **sportbike Ego**. This model will be used by teams that will race the **FIM Enel MotoE™ World Cup** in a tuned version, the **Ego Corsa**.

- ✓ **Products**

ENERGICA EGO the first Italian high-performing electric sportbike.
ENERGICA EVA the streetfighter model.
ENERGICA EVA ESSEESSE9 is the new "old-school" electric motorcycle

Energica Milestones

2009

Start of the Electric motorcycle project (within CRP Group)

2010

eCRP – the electric racebike wins European Electric Championship

2011

First participation at EICMA*

2013

- Energica EGO launch

2014

- Establishment of Energica Motor Company Srl
- Worldwide Demo Tour (USA+ EU+ MC)

2015

- Stock Market

2016

- Energica new headquarters

2017

- Third model Eva EsseEsse9
- MotoE statement

Location

The eCRP 1.4, the runner-up World Champion and European Champion electric racing motorcycle

eCRP 1.4

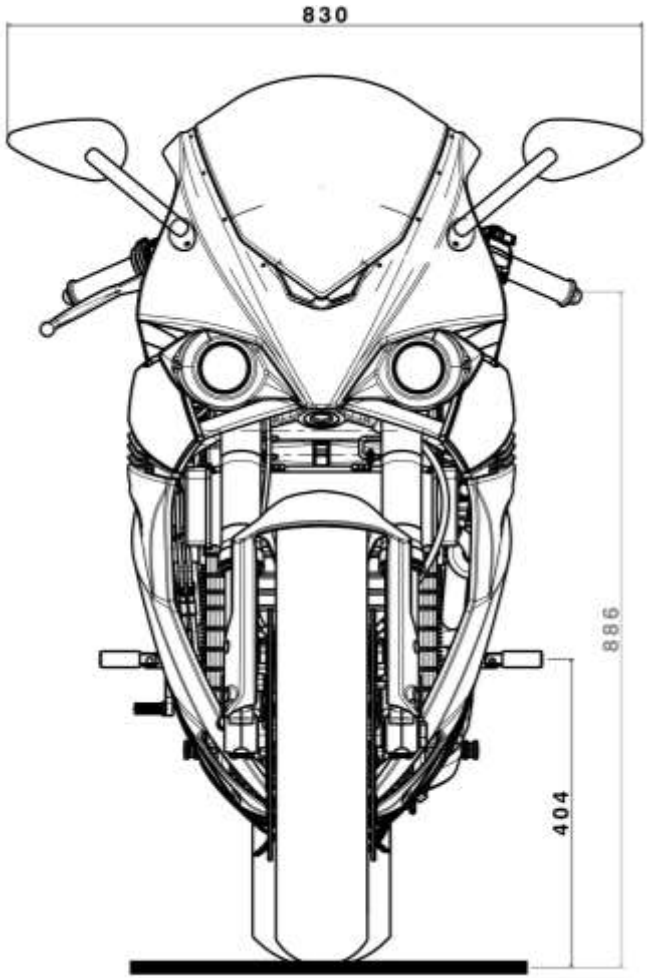
- ✓ Energica concept comes from **eCRP 1.4**, the Runner-up World Champion and European Champion electric racebike.
- ✓ The eCRP team started from an intuition and then realized in just 6 months a high-performed electric racing motorcycle, wisely combining technology, innovation and passion for the world of two wheels.
- ✓ The eCRP 1.4 used a lithium-polymer **7.4Kw/h** power supply with the weight of 52 kg custom made and optimized for racing. Proper weight distribution and use of proven racing technology allowed the eCRP 1.4 to weigh in at just 160kgs total.

Technical Specs

MOTORS – 52 kW
N.2 DC motors with a controller DC -> DC
VOLTAGE
92,5 V
BATTERIES
Lipo batteries
Battery pack features
Current: 80Ah – 95Ah
Weight: 53kg – 66kg
Max discharge rate: 30C
Power: 7,4Kwh – 8,9Kwh
DATALOGGER
Integrated system datalogger/dashboard with complete sensors system and GPS

WEIGHT
160 Kg – 180kg
CHARGING TIME
3h
ENDURANCE RANGE
40Km (it depends on track conditions)
SPEED
Up to 220 Km/h

From eCRP 1.4 to Energica

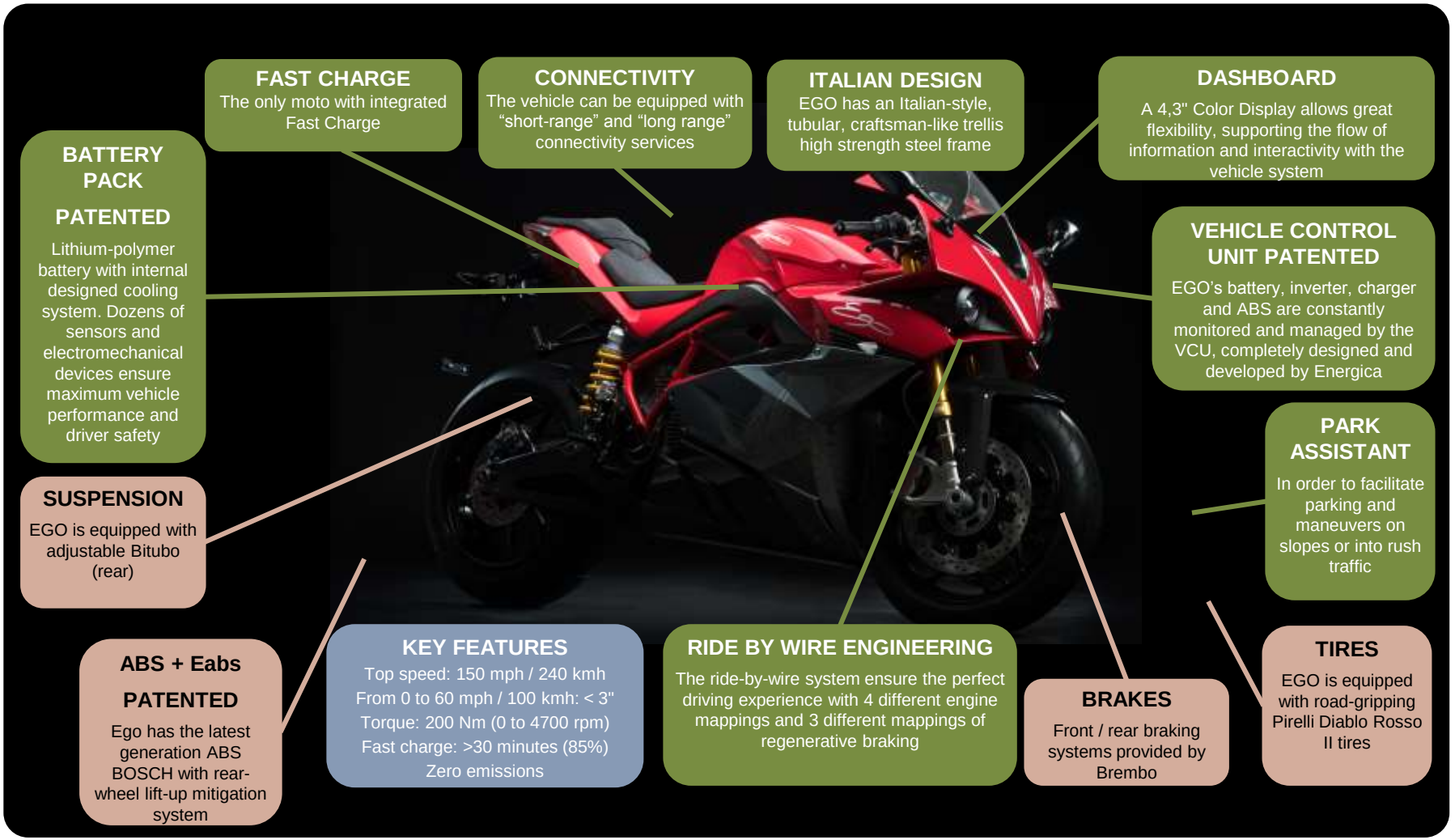


Technical Specs

MOTOR – 107 kW
Permanent Magnet AC (PMAC), Oil Cooled
VOLTAGE
300 V
BATTERIES
Litium batteries
Battery pack features
Current: 400 A
Weight: 115kg including all high voltage components
Max discharge rate: 10C
Capacity: 11.7 Kwh
VCU
A Vehicle Control Unit implementing a multi-map adaptive energy and power management algorithm manages the vehicle. It constantly monitors batteries, even in key off position.
WEIGHT
280 kg
CHARGING TIME
20 minutes in DC Fast Charge
RANGE
150 km – 200 km
SPEED
Top speed 240 Km/h

- ✓ **TORQUE 200 Nm**
- ✓ **POWER 107 kW**
- ✓ **MAX SPEED Limited at 240 km/h**
- ✓ **Fast charge on board: 0-85% < 30 min**

Core Technology – from Ego to Ego Corsa



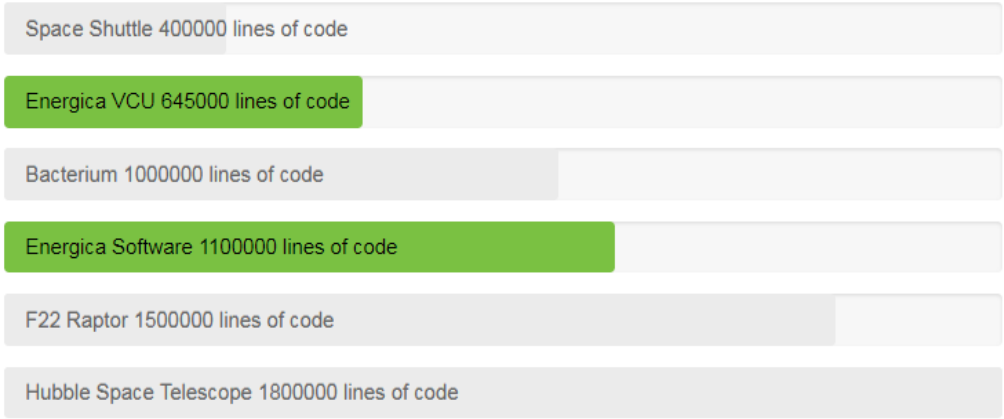
Core technology / IP

Selected supplier

VCU – Vehicle Control Unit

- ✓ **The brain of Energica motorcycles is the Vehicle Control Unit.**
- ✓ Unlike other vehicles where the control units work separately on all controllers, the Energica's battery, inverter, charger and ABS are constantly monitored and managed by the VCU, completely designed and developed by Energica.
- ✓ **The VCU implements a multimap adaptive energy, and a power management. Algorithm manages the vehicle, carefully monitoring and adjusting the motor's power according to the throttle thrust 100 times per second while riding.**
- ✓ The VCU interfaces with the ABS system, controlling regenerative engine braking. This ensures the highest efficiency in energy usage and full functionality of the battery throughout the life of the vehicle, but also delivers great drivability and experience. The system is based on an architecture with dual redundant microprocessors to ensure the highest safety standards that constantly monitor the status of the battery, even in the key-off position.
- ✓ **Ensuring superb efficiency in energy management of the battery even in prolonged periods of vehicle hibernation.**

Electronics: Energica DNA



- ✓ Any mechanical, electrical or biological system needs instructions to be able to work.
- ✓ For biological organisms there is DNA and for software the number of program lines.

- ✓ **The Energica Software has reached 1.1M of program lines (645,000 program lines only for the VCU).**
- ✓ **Over 200,000 more than a Space Shuttle**

Battery Pack

- ✓ **Energica motorcycles use a high-energy lithium polymer (Li-NMC) battery.**
- ✓ Contained in sealed housing holding battery cells, the **Battery Management System (BMS)** has all the necessary provisions to ensure the safety of the vehicle. The battery keeps all high-voltage components encapsulated, making it unlikely to accidentally be exposed to risk.
- ✓ The battery pack is an intelligent device with its own electrical brain, comprising dozens of sensors and electromechanical devices that constitute a closed subsystem to ensure maximum vehicle performance and driver safety in all environmental conditions.
- ✓ **Energica has designed a cooling system for the battery pack thanks to its specific ventilation paths limits the stress of the batteries. This provides considerable benefits to both performance of the vehicle and the life of the battery.**
- ✓ **Energica is the only company in the world that has designed, patented and adopted this type of technology on its own bikes.**

Dashboard

- ✓ The TFT full-color LCD dashboard on Energica motorcycles with **16.7 million display colors has excellent visibility.**
- ✓ **The active matrix dashboard creates a real Human Machine Interface for the motorcycles.**
- ✓ This technology allows great flexibility, supporting the flow of information and interactivity with the vehicle system. It can provide an extensive menu of configurations and advanced user diagnostics, which are easy to read. It also monitors all of the functions and phases of vehicle operation, such as charging, driving, standby, and the connection with the outside world.

Fast Charge

- ✓ **Energica conforms to the international standards CCS (combined charging system).**
- ✓ Energica is the first and only electric motorcycle capable of fast charging with CCS standard (Type 1 & 2)
- ✓ Thanks to the onboard connector, you can recharge at the DC Fast Charge Stations and the AC Chargers.
- ✓ When you use the **DC Fast Charge Station, the bike can charge at 20kW up to 80/85% of its state of charge (SOC) in about 20 minutes.**
- ✓ **This guarantees 120 km of range in less than half an hour.**
- ✓ When using the AC charger, the bike can be charged in about 3.5 hours using the 3kW OBC (On Board Charger).

Energica Ego Corsa - prototype

Alessandro Brannetti, Energica Official Tester, on Ego Corsa prototype

MOTOR
Permanent Magnet AC, Oil Cooled
POWER
110 kW (149Hp)
TORQUE
200 Nm from 0 to 5000 rpm
SPEED
Top speed 250 Km/h

- ✓ The green heart of **Ego Corsa racebike** is a synchronous oil-cooled motor with permanent magnets. It allows a maximum continuous power of **110 kW (149 hp/cv) and a torque of 200 Nm.**
- ✓ Ego Corsa does not have a gearbox or a clutch. Everything is regulated by the ride-by-wire system, allowing you to control the acceleration torque of the motor and deceleration based on the regenerative torque or engine braking.
- ✓ During the French GP some technical tests were held with an updated version of the Ego Corsa prototype.
- ✓ A new battery and updated suspensions/brakes settings brakes and ratios, were tested and the team progress on the overall performance of the bike.
- ✓ With the new racing battery the Team is already testing solutions with **+ 50%** of energy accumulated in smaller dimensions and weight.
- ✓ A new fairing with improved aerodinamics is undergoing sever tests to improve the efficiency of the whole bike

ENERGICA MY2018