

16. Imperia Automobiles

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A hybrid race Car

recentre



Gilles Philippart
de Foy © Muriel Thies

A vehicle whose fuel consumption and CO2 emissions would be lower than those of a Smart ForTwo while delivering performance rivalling that of Ferrari and Porsche race cars: this is not an utopian dream, but the challenge that Imperia Automobiles has set itself, a young company resulting from a division of the activities of Green Propulsion in 2009. A spin off of the University of Liège founded by Yves Toussaint, Nicolas Naniot and Bernard Loly, Green Propulsion is a research centre that is independent of any manufacturer, which is developing cleaner motorisations for every type of vehicle...

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In 2004, when the engineers at Green Propulsion thought about a sportive application of advanced hybrid technology, they went to meet with small-scale sports car manufacturers in England to propose to integrate it into their vehicles. “We were too early for the market,” relates Gilles Philippart de Foy, Sales & marketing manager at Imperia Automobiles. “They looked at us with wide-eyed astonishment. We told ourselves just the same that we had a nice concept and the idea of making a complete vehicle around this motorisation matured.” This is how the Imperia adventure began in 2005. The Green Propulsion team put the finishing touches on a business plan and appealed to public and private investors for initial financing. Green Propulsion’s past history made it possible to convince the investors: the centre, a real European leader in hybrid motorisation, can be proud of having 15 manufactured prototypes to its credit. It benefits from 10 years of “trial and error” concerning hybrid technology at Green Propulsion.



Imperia GP - design Denis
Stevens © Imperia
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An old Ford Escort was turned into a research prototype. The engineers tackled grafting to its frame a motorisation based on an exclusive technology, making it possible to combine ecological concerns with the pleasure of sportive driving. Equipped with new generation lithium-polymer batteries, the electric motor of the Imperia GP generates 100 kW of power, i.e. the equivalent of 130 HP, and makes it possible to attain autonomy for 50 to 80 km depending on the type of driving. "It is necessary to realise," emphasises Gilles Philippart de Foy, "that the hybrids that are seen on the market today operate for barely 2 km in the electric mode before the combustion engine takes over: these are very slightly hybrid. Here we have an advanced hybrid." Rechargeable from the 220 volt network or under way, the batteries make it possible to cross through the majority of the major European cities without direct emissions of CO₂. While the electric engine suffices the majority of the time for daily use, the addition of a combustion engine enables it to make up for the lack of autonomy when it is necessary. "When the car starts up, the driver has the choice of imposing the system of running purely on electricity or in automatic hybrid mode. The computer designed internally decides, depending on the state of charge of the batteries and the pressure on the accelerator, whether electricity is enough or whether the two engines must run concurrently. When they function coupled together, at full power, more than 300 HP are obtained for a car weighing less than one tonne!"

Particular care was given to the choice of components. "As the combustion engine we selected the 1600cm³ turbo with direct injection that equips in particular the Peugeot RCZ, the Mini John Cooper Works and the Citroën DS3. A class of supercharged engine chosen by the FIA to motorise the WRC and WTCC championships." Thanks to this high-performance equipment, the Imperia GP goes from 0 in 100 km/h in 6.0 s in electrical mode and in 4.0 s in hybrid, and is capable of running 1000 m start-stop in 22.5s! A real sports car, therefore, which can find nothing to envy even in the Porsche 911 Carrera S, because its carbon load is extremely low:

calculated according to the European test standards for rechargeable hybrid vehicles, the CO₂ emissions of the Imperia go below 50 g/km.

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This exceptional vehicle deserved to be provided with a name and a design worthy of its performance. Imperia Automobiles revives the name of a famous Liège company that experienced commercial and sportive success between 1900 and 1950. Imperia grew, starting in 1907, in the workshops of Henri Pieper, inventor of the "Auto-Mixte", the first hybrid vehicle, also called a "petrol electric" engine. This allusion to the past is also perceptible in the neo-retro appearance of the new Imperia. Following a competition organised with the Institut Saint-Luc de Liège, 3 prize winners were selected. The design of the Imperia is the result of close cooperation between Green Propulsion and one of them, designer Denis Stevens. "Provided with wings independent of the engine bonnet, with fluid lines and with a vertical radiator grill, the roadster houses a device with movable louvers which regulates the flow of air in the interior of the vehicle, giving its coefficient of penetration in the air superior to a good many contemporary cars."

While the initial financing will allow the finalisation of prototypes in the course of 2011, the financing of the industrial phase is under way. "Through the internet site opened in 2008, we have registered more than 300 intentions to order, which we are in the process of converting into firm purchases." The Imperia GP displays a price tag of 78.091 euro excluding VAT; sales targets call in the end for 200 vehicles per year for Europe. "We have chosen to develop in the exclusive top of the range segment for commercial



Imperia GP - design Denis
Stevens © Imperia
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and economic criteria,” explains Gilles Philippart de Foy: “mass vehicle production at 20 or 30.000 euro represents an industrial project requiring huge investments. Others are doing that better than we. On the other hand, the Imperia GP is a real technological showcase.” This demonstration of Imperia Automobiles’ know-how should make it possible for the company to develop, along with the assembly and marketing of hybrid sports cars, a second activity of motorisation as a sub-contractor for other sports vehicle manufacturers. “Our engineering branch has already landed a contract, generating the first turnover.” At the starting line, Imperia Automobiles is delighted to revive in this way “the first vocation, often diverted, of Formula 1: to develop technologies at high costs to allow their later use on mass market vehicles.”

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Isabelle Masson for REcentre

Interviewee / Gilles Philippart de Foy, Sales & marketing manager

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