



H2 Speed, track emotions in a limited series

The 2016 concept becomes reality:

the first high-performance electric-hydrogen racing car is born

The concept becomes reality. The **H2 Speed**, which was awarded the 2016 Concept Car of the Year Award and named Best Concept at the 2016 Geneva Motor Show, is preparing to **go into production in a limited edition by Pininfarina**. Only **12 units** will be produced for speed and performance loving gentleman drivers who also respect the environment and are attracted at the same time by the exclusivity typical of a Pininfarina designed vehicle. The production version, as anticipated by the concept, will be the **first high performance hydrogen racing car** born out of the revolutionary technology experimented significantly on the track by Pininfarina's partner, **GreenGT**, a Franco-Swiss company that has been designing, developing and manufacturing clean and sustainable propulsion systems since 2008. The H2 Speed is opening a new era in automotive history. All the units, which will not be type-approved for road use, will be customised to the requests of each individual client, allowing them to experience the excitement of driving a real racing car on the track.

Underlying the 2016 concept was the idea of developing a grand tourism on a racing chassis, combining hydrogen fuel cell technology with high performance. A Pininfarina and GreenGT dream but also a project with solid foundations, so much so that it was possible to translate them into reality in a short time, putting together extraordinary performance, sportiness, pure driving fun and echo-sustainability.

The stylistic canons of the production version are the same as those of the concept. A pure form, free of any stylistic affectation and non-functional languages. Sculpted by aerodynamics, which increases its efficiency, the H2 Speed combines sensational performance with refined lines and forms, integrated in a design with a strong emotional impact that firmly embraces the driver and gives full expression to the values of Pininfarina DNA: purity, elegance and innovation expressed through the passion that has always pervaded the world of high performance cars.

In order to make the best use of the LMP evolved carbon based chassis performance-wise and to ensure proper weight balance, the car's dimensions had to be adapted slightly with respect to the 2016 concept: the wheelbase has been extended, the maximum width has been reduced to adapt the bodywork to the new racing tyre track width, and finally the H point has been raised to give the driver greater visibility and comfort at the wheel, as well as to accommodate a protective tubular cage.

From an aesthetic point of view, the great innovation in terms of design is the extension of the lateral intakes on the rear engine bonnet. The opening is divided in two by a vertical partition, also highlighted chromatically, which separates the centre flow aimed at cooling the electric motors from the lateral flow that cools the rear brakes. On the side panel too, the air intakes had to be extended so as to cool the compressors, integrated in the hydrogen cylinder cover. On the roof, on the other hand, an air scoop has been carved out to ventilate the engine compartment, as in the 2016 concept.

The bonnet presents a vertical fin whose function is to direct flows towards the rear; a large spoiler is anchored to this element with the function of creating lift and forcing all the power generated by the electric motor downwards. The fin has been modified, compared to 2016, because in the production version the link between the two parts must allow the spoiler to be adjusted for performance purposes.



At the front, the two large laterally-located radiators, which cool the entire fuel cell block, remain unchanged. Everything in the central part, also remains unchanged.

Another novelty is the livery presented at Geneva 2018. The blue and red colours of Pininfarina are reinterpreted in a modern key to underline that the car will be sold with the Pininfarina logo.

The power of a green engine

In a scenario of great attention to the most sensitive aspects of sustainability and emissions reduction, Pininfarina today proposes a new interpretation of its passion for motor car performance in an innovative and totally ecological key.

For this new styling and research exercise, it has used the hydrogen fuel cell technology developed by its partner GreenGT.

The technology presented by **GreenGT** is the substantial outcome of a two-year development and testing programme that has embodied the form of the H2 Speed concept. GreenGT proposes '**Full Hydrogen Power**' technology, a powerful electric-hydrogen fuel cell drive chain. The result is a **zero emissions** vehicle able to reach **300 km/h** by releasing just water vapor into the atmosphere. With a maximum power of 653 horsepower, the engine accelerates from 0 to 100 km/h in 3.4 seconds. Also notable is the rapid refueling, unknown to traditional electric cars: a full tank of hydrogen can be done in only 3 minutes.

H2 Speed eliminates air pollution and the compressor gives the vehicle's engine a very special tone, completely different to that of conventional electric cars - sounds and hisses that evokes science fiction.

The future owners of the H2 Speed will have the opportunity to enjoy their cars with its unique handling and powertrain characteristics in selected track days around the world.

External styling themes

Form and function merge together in the H2 Speed concept to create an external design that highlights the vehicle's sportiness and performance in every detail. Lines and volumes outline a sculpture that is as powerful as it is intriguing. Although it is based on the traditional styling cues of sports cars (low, aggressive proportions, strong design and an emotional synergy between car and driver), the H2 Speed presents the designer with a two-fold challenge: to design a car on a carbon frame base and on the mechanical layout of a high performance car of extreme proportions (length 4730, height 1113, width 1956, wheelbase 2968) and at the same time clothe the GreenGT Full Power Hydrogen system, an innovative technology that offers, in terms of vehicle architecture, the necessary originality to generate a unique, outstanding product.

The H2 Speed was born for high performance. Under the banner of essentiality and rationality, all parts of the layout have been designed for the correct distribution of weights to be able to transfer the power and enormous torque of the Full Power Hydrogen system to the ground.

The sinuously three-dimensional shape springs naturally from an original styling process where the most important constraint – the two large hydrogen tanks at the side – becomes an opportunity. To avoid weighing down the side of the vehicle, the hydrogen cylinders are faired instead of being incorporated into the body volume but they remain visible through a window in the rear part of the fairing where the fuel cap is easy to access.



Arising from the marked sidecut, the three-dimensionality can be seen clearly in the plan lines of the vehicle. The geometric composition of the design from above is particularly intriguing: the car seems to consist of two triangular bodies that intersect to generate the front and rear mudguards. And it is the compenetration of this two volumes that defines the features of the plan, side and perspective views, playing seemingly on a symmetrical drawing. The crests of the mudguards do not follow wing volume in a traditional way but enter and exit the body, giving sensuality and originality to the handling of the surfaces.

Modelling the side panel makes it possible to hollow out a generous air passage from front to side. The result is an efficient aerodynamic flow and, at the same time, the creation of three-dimensional hollowed out volumes that leave part of the carbon frame visible as well as mechanical parts like the suspension arms.

At the front, between the two radiators, a center duct permits the flow of fresh air which, channeled along the sides of the cabin, cools the engine compartment. The muzzle presents two upside-down L-shaped wings which direct the aerodynamic flows and also act as supports for the lighting system: the apparently suspended led strips give the front an attractively original, dynamic expression.

The volume of the cabin is a transparent, tapered, aerodynamic drop shape characterised by a body-coloured band extending over the windshield.

The cut-off rear volume is cleanly detached from the flows and is characterized by sloping mudguard volumes; playing with the sidecut in plain view, the mudguards confer its original shape on the tail volume, directly deriving from technical and aerodynamic needs.

At the centre of the transom a fine, horizontal lighting strip, elegant and basic, integrates lighting functions typical of high performance cars.

Thanks to the **partnership on the project between GreenGT and Michelin**, the H2 Speed is equipped with high performance racing tyres: Pilot Sport GT 59M for dry conditions, Pilot Sport GT P2L for wet conditions.

Interiors

In the rigorous interiors - with racing steering wheel and exposed carbon fiber - the only aesthetic element is the design of the dashboard, which is divided into three elements: the central one houses the instrumentation on board and is connected to two "ears" saddled on the door panels that integrate the handles. The dashboard is covered with black *alcantara* with red stitching that reproduces the color of the livery.

The new H2 Speed seats have been designed and created thanks to **Sabelt** experience in the world of motorsport and in road sports cars. Two super light monocoque seats with innovative pad cushions that make the product design exclusive, modular in different sizes and with visible carbon. The possibility of varying the density of the foams allows the driver to have the right support while driving, increasing lateral containment and G force absorption in the turns. The use of these pad cushions also allows the modification of the H point, lowering the seat center of gravity. All fabric covers are made by prime materials such as leather and *alcantara*, a sign that any detail is left to chance.

The seat belts will be the same provided by Sabelt to the Formula 1 teams. Two 6 points, compliant with the new 8853-2016 homologation standard. Configured with 2" webbing, super light quick



release adjusters in forged and CNC-machined aluminum and a rotating buckle with patented crotch strap fixing.

TECHNICAL SHEET

Length 4730mm

Height 1113mm

Width 1956mm

Wheelbase 2968mm

Front overhang: 987mm

Rear overhang: 775mm

Wheels: front tyre 30/68/18_MICHELIN Pilot Sport GT, Radius = 326.5 mm (FRONT_RIM_12X18)

Rear tyre 31-71-18 Michelin Pilot Sport GT, Radius = 356.0 mm (REAR_RIM_13X18)

Full Power Hydrogen Powertrain

- 4 race electric motors
- 1 lightweight GeenGT H2 fuel cell – 250 kW constant
- braking energy regeneration system – 2.4 kWh – 250 kW/20 sec.

Chassis

- LMP carbon based chassis + steel frame
- front and rear wishbone suspension and push rod
- carbon brakes

Engine

- 4 electric synchronous motors with permanent magnet
- Max power : 480 kW @ 13000 rpm (653 Horsepower)

Energy production

- GreenGT PEMFC Fuel cell 250 kW
- 4 stacks

Transmission

- Direct transmission to rear wheels (ratio : 1:6.3)
- No clutch / No differential / No gear shifting
- GreenGT torque vectoring system

Hydrogen storage

- tank capacity : 8.6 kg
- 700 bars storage technology
- autonomy : same as an internal combustion racing car
- time for refueling : 3 minutes

Braking energy recovering

- Battery 750 V nominal
- Capacity 2.4 kWh



Emissions

- **Air and water at the exhaust**
- **No pollution**

Weight

- 1420 kg with bodywork
- refueling weight modification : only 8.6 kg
- weight distribution: front 41% / rear 59%

Performances

- max speed 300 km/h
- 0 to 100 km/h : 3.4 seconds
- 0 to 400 m : 11 seconds

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