

Materialise contributes to Pininfarina Sintesi project at the Geneva Motor Show

Use of additive technologies in Pininfarina concept car

Leuven, March 4, 2008. Materialise unveils their contribution to the Pininfarina Sintesi project at the 78th International Motor Show in Geneva. It is the first time in history that additive technologies play such a prominent role in a concept car project.

Sintesi

“Sintesi” is the result of the Pininfarina Design Department, under the direction of Lowie Vermeersch, the 33 year old Design Director with almost ten years of experience at Pininfarina.

The Sintesi is a sports car with four doors and four seats, developed by a highly innovative approach: it does not consider the car as a shape that covers the mechanicals, but one that gives a shape to the mechanicals around the passengers, starting from the latter. This approach, which is known as “Liquid” Packaging, has overturned traditional volumetric balances, improving weight distribution and lowering the centre of gravity, which are important elements for driving dynamics.

“Our source of inspiration,” says Lowie Vermeersch, “was man’s freedom over technology, a car in which technology gives creative freedom back to the designer and allows us to explore new forms and future scenarios.

This is why we combined and tested our ideas with the innovative technologies provided by our partners in this project. In its search for partners for Sintesi, Pininfarina sought not only the best partners, but partners willing to share the project as a whole: its challenges, difficulties, problems and solutions.”



Materialise contribution

The new car design forms and futuristic approach that are characterizing the Sintesi, excluded the use of traditional manufacturing technologies. This is why Pininfarina partnered up with Materialise, specialist in Freeform Manufacturing. Freeform Manufacturing uses additive technologies (also referred to as 3D printing technologies), fully automated processes that don't require molds and thus allow a virtually unlimited freedom in design. Today, these technologies are increasingly used in the production of concept cars. Gradually, this production method will be applied for the production of final cars as well.

The use of Freeform Manufacturing allowed Pininfarina to materialise their creative design ideas. Materialise has produced several components for the Sintesi project, all by means of the additive technology stereolithography (SLA): the instrument panel, the radiator, control panels, roof antenna, remote controller and roof light cover.

The interior of the car is not conceived as a separate element but is fully integrated with the overall design. The instrument panel is designed as one integrated semitransparent piece, deriving its richness from a sophisticated play of light that serves as a visual and intuitive feedback for the different functions.



The tremendous complexity of the dashboard combined with the translucent aspect, required the use of additive technologies, as no other technology would have been capable of realizing the same ground-breaking effect. During the file preparation phase, a complex webbing structure was integrated in the dashboard to give it functional strength. The eventual panel was “printed” in its full width on a Materialise Mammoth SLA machine, with a build volume up to 2150 x 700 x 800 mm, in a translucent PP-like epoxy. Due to its complexity, also the radiator had to be manufactured by means of additive technologies. The production of the smaller components like the roof antenna and remote controller show the endless personalization possibilities of additive manufacturing. Nowadays, these types of components are already being personalized, by means of additive manufacturing, in small series of production cars or one-offs.

As stated by Pininfarina, the Sintesi should be looked at with one’s minds switched to the future. Bart Van der Schueren, Director Materialise Industrial Services, explains: *“This is the first concept car that not only uses additive techniques but really exploits all the advantages of personalised manufacturing.”*

About Materialise Industrial Services

Materialise, with headquarters in Belgium, started in 1990 in the sector of rapid prototyping. Since that time, the company has grown exponentially. Materialise has become **the largest service provider in Europe**, with references in the medical, automotive, aerospace and consumer electronics sectors.

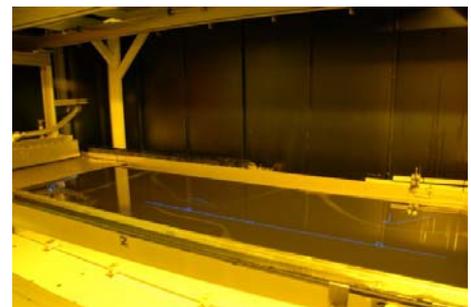
Their Rapid Prototyping & Manufacturing (RP&M) Service offers a complete solution, from view and fit parts to engineering prototypes and final series at impressive lead times. Materialise is well-known in the automotive industry for its extensive knowledge in the production of extremely large prototypes in one piece.

RP technologies are increasingly used in the production of concept cars and one-offs. When only a limited series or one single copy of your part is required, RP&M solutions provide an affordable alternative. It’s a fully automated process that doesn’t require moulds and allows a virtually unlimited freedom in design.

About Materialise stereolithography

Starting from a 3D image, a part is built slice by slice from bottom to top, in a vessel of liquid polymer that hardens when struck by a laser beam. Starting from an STL file, the required supports for overhangs and cavities are automatically generated in the model under construction.

The support and model files are then “cut” into thin horizontal slices and programmed into the stereolithography machine. This machine uses a computer controlled laser to draw the bottom cross section onto the surface of a liquid polymer that hardens where struck by the laser. The part is then lowered to a depth corresponding to the section’s thickness and the next cross section is then drawn directly on top of the previous one. This is repeated until the part is finished. The supports are removed manually after the product is taken from the machine.



For more information about Materialise: www.materialise.com

For more examples of additive manufacturing: www.materialise-mgx.com

For more information about the Sintesi: www.sintesi.pininfarina.com