

PARTNERS, SPONSORS & MAIN SUPPLIERS

When we decided to embark on the LAMPO project – back on January 11th, 2008 – all of us were well aware that this very exciting but also very ambitious development would require more than just a “handful” of excellent suppliers.

At that time, we had absolutely no idea that 2008 would become the worst year for the whole car industry worldwide. However, we thought that it was the right time to attempt to combine all our talents.

The first discussion on the strategy to be followed began with our friends at BRUSA, where we knew that we could find the most efficient yet powerful drivetrain components – as we did back in 1988, when we first equipped the ELECTRA (a common EV-project developed together with my great friend Carlo “Ciccio” Testa - who unfortunately passed away too early in 2001). We spent several months discussing if we should focus on top efficiency or record performance and we finally ended up targeting the best *combination* of these two characteristics in an attempt to emulate Mr. Hayek, who - some 15 years earlier - had tried to put into production - very successfully succeeding! - the two opposites of “small cars” and “safe cars” by inventing the SMART.

Obviously, the implementation of our goal of “ultimate performances & efficiency” turned out to be rather more complex than simply formulating it. However we are now finally there, ready for the Geneva Motor Show 2009!

All this would really not have been possible without all our partners, sponsors and suppliers. On my side, I would therefore like to thank them all for having supported the entire enthusiastic Protoscar team in making this project a reality!

Marco Piffaretti

Very special thanks to:

Josef, Fredy, Dr. Philipp, Axel, Alex, Teresa, Pietro, Mino, Raffaele, Erik, Vittorio, Eva, Andrea, Dario, Luca, Claudio & son, Arno, Beat, Agnese, Thomas, Luca, Giorgio G., Giorgio S., Franca, Francesco, Benoit, Antoine, Michael, Stefano, Adriano, Carmen, Paula, Giovanni, Andrea, Giacomo, Sandro P., Sandro M., Mauro, Juergen, Karin, Horst, Ulrich, Wilfried, Susanne, Martin, Peter, Herr Klaus, Tania G., Tania B., Simona, Enzo, Juichi, Roberto, Graziella, Domenico, Federica, Mara, Sabrina, Giordano, Luciano...

...from Switzerland, Germany, Canada, Spain, Italy, France and Japan.

Alpiq (energy company)



Alpiq is a new Swiss energy leader operating in 29 European countries. Alpiq was formed through the merge of Atel and EOS and for this reason it combines long experience, proven market insight and entrepreneurial success. Alpiq offers long-term energy solutions, from power generation and transmission, through trading and sales, to a full set of energy services.

The story of the company lies in the name. Our roots are in Switzerland, where the Alps stand as a symbol for delivering peak performance and solid expertise.

Alpiq has been committed to sustainable mobility in connection with its core business for a number of years. We support programs, events and initiatives that seek to promote the potential of electricity in reducing CO₂ emissions from transport. Sponsoring the Lampo project is in line with the Alpiq long term strategy of facilitating the introduction of electric vehicles in Switzerland.

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BASF (coating)



With sales of EUR 7.6 billion (2007), **BASF is the chemical industry's largest supplier in the world** for the automotive industry. The chemical products used to manufacture a compact car such as the Golf cost an average of EUR 800 in total. Whether it's the interior, the transmission, the chassis, safety features, the motor, emission control or electronics, BASF offers materials for nearly every aspect of car manufacturing. Joint development with customers from the automotive industry is becoming increasingly important in order to use new eco-efficient materials, for instance in engine and car body parts. In this way, chemistry is playing an ever more prominent role in the automotive sector, with innovative materials for greater environmental protection (CO₂ reduction, fuel consumption, weight) and comfort.

When it comes to automotive OEM coatings, BASF Coatings is among the top three global suppliers. With cathodic e-coats, primers, basecoats and clearcoats, BASF Coatings offers eco-efficient technologies and all-around competence for every layer of the finish. BASF is a partner for all large carmakers, as a provider of corrosion protection, color competence and scratch-resistant surfaces. BASF Coatings' global designers and one-of-a-kind Color Design Studio in Münster, Germany, make it a leader in design.

In close cooperation with Protoscar and BASF Coatings, BASF designer Eva Höfli has created a color selection for the LAMPO that not only ideally suits the form of the car, but also establishes the color relationship between the electric car and the aspect of nature. The powerful "light/dark" contrast is striking. A fascinating light silver with a bluish-green effect and a glossy finish evoke a light yet cool impression. On the other hand, as a contrast, add-on parts were coated in a brown with a bronze effect and a mat clearcoat – warm, captivating elements in the overall color design that do not contradict the rather cold finish of the body, but instead are in perfect harmony with it.

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BRUSA (motor, controller, battery, battery charger, DC/DC converter)



BRUSA Elektronik AG is a leading developer and manufacturer of innovative **components for electrically propelled vehicles**. The company was established in 1985 and is located in the eastern part of Switzerland, currently employing some 40 people. It is an independent company, owned and managed by its staff, and serves only the civil sector.

Applications mainly concern the automotive world in the field of **electric, hybrid and fuel cell vehicles** as well as energy generation and distribution.



With its product range of standard and customized products, BRUSA Elektronik AG is able to support its customers in realizing prototypes or small series vehicles from the basic concept up to the final product. Advanced components such as **motors, controllers and specialized power electronics** are supplied to the leading manufacturers and development companies, primarily in the automotive industry. The components which are matched to each other, combined with the comprehensive system competence that BRUSA Elektronik AG has acquired over the years, allow for smooth design of optimized systems and are offered as a 360 degree solution.

BRUSA Elektronik AG contributes to the Lampo project by supplying its latest components for this sporty full-size vehicle: the electric motors (2 x HSM1-6.17.12 hybrid-synchronous with transaxle gearbox), the motor controllers (2 x DMC524/100kW), the Li-Ion battery (2 x EVB1 Li battery packs based on prismatic Kokam cells), the battery chargers (2 x NLG513/3.3kW air cooled) and the DC/DC converter (BSC624-12V/3.5kW).

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ITP GmbH (seat-, head-rest- and steering wheel heating, seat cooling, textile interior)



ITP GmbH – SOCIETY FOR INTELLIGENT TEXTILE PRODUCTS

ITP GmbH uses their extensive engineering expertise and creativity to develop customized products with the added benefit of intelligence – **smart textiles**.

As an innovative engineering enterprise, we work closely together with the textile industry and a range of other high-tech industries. This networking is the basis for the successful development of new and ever more functional textile materials and products. Our main area of expertise is warming, cooling, sensory and actuator textile products.

Textiles for warming

We develop and make use of a range of conductive yarns from 2,5 Ω /m to 500 k Ω /m. These are used as the basis for our warming systems. For the heating of Lampo's seats, head-rests and steering wheel we used a woven and knitted heating material with integrated power lead. The advantage of this textile heating compared to customary seat heating systems is a perceptibly faster and steady warming.

Cooling textiles

Active cooling textile products are of ever greater importance. ITP is developing textile cooling applications using liquid-based Peltier- and compressor systems. The most important advantage is represented by the textile cooling applicators. These applicators made of spacer fabric and coated with Silicon surfaces are integrated into the seats of the Lampo project for comfortable seat-climate.

Textile Interior

The textile material for the seats has been especially developed for the Lampo project with special threads.

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Linea GAM (body developing and manufacturing)



Linea GAM Style Inedito Srl is a company entirely dedicated to the construction of styling mock-ups, models and concept cars. Created in 1996 and located in Rivoli on the outskirts of Turin, it offers a very pleasant and professional working environment.

Linea GAM disposes of 2'000 square meters of clean work area, well lit, and fully equipped.

The company combines and balances the experience and tradition with modern technology: the project can be created starting from the paper drawing as the tradition teaches, but also from CAD files.



The experience and the continuous search for new solutions are the starting point to create any kind of project. Plaster is the favourite material to realize the models.



Linea GAM has accepted the collaboration with Protoscar on the "Lampo project" with great enthusiasm in order to deepen its culture in the field of electric powered vehicles.

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Metaltool (mechanical workshop)



Metaltool is a mechanical workshop – founded in 2001 by Dario Piffaretti – which offers various services and currently employs 11 specialists.

The workshop is characterized by widely using Electric Discharge Machining (EDM). This is a machining process that uses a series of electric discharges (sparks) to erode material from a workpiece. There are two types of EDM: wire-cutting and die-sinking. EDM is a key technology in the manufacture of high-performance molds as well as press tools for the series production of plastic, glass and metal parts and for the direct machining of complex precision components.

Metaltool realizes primarily:

1. Tools for industries
 - mechanical matrix for printing and overhauling
 - tooling up
 - general mechanical pieces
 - assembling fitting
 - fixing
 - grinding
 - plate tools
 - milling
2. Moulds
 - pressure die casting
 - shearing machine

The main application fields of Metaltool are:

1. medical
2. luxury zipper
3. mechanical tools
4. special and unique car components

Metaltool has contributed to the Lampo project by realizing and installing several different mechanical special parts. In particular it has provided:

- structural modification of the chassis in order to adapt it to the electric drivetrain
- realization of new mechanical parts needed for the new layout of the powertrain (eg. a new front suspension ring in order to locate the front wheels drive axle)

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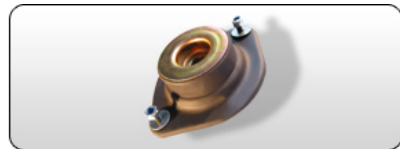
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Q-11 (Spare Parts, Online Distributor)



Q-11 Autoteile AG is one of the most successful spare parts retailer on the German E-Commerce market. The company was founded in 2000 and distributes spare parts out of the stockhouse in Zurich throughout Germany via parcel service.

According to the specific part identification in Germany, Q-11 uses an in-house developed software which guarantees the customers a comfortable and correct product choice. High availabilities and a great level of service standards allowed Q-11 to grow up to one of the most popular providers in the automotive after market.



To fulfill the requirements of its end consumers, Q-11 is specialized on spare parts for all kind of passenger cars and motorcycles, tyres, cleaning and lubricant products. Q-11 offers a wide range of brake parts, exhaust systems, filters, shock absorbers, clutches as well as steering and cooling products.

A central topic of Q-11's business implies that each offered item has to come up to the high technological demand of original equipment which is assured by exclusive and certified suppliers.

Q-11 Autoteile itself has been a pioneer in German E-Commerce 9 years ago and accomplished proving the potential of online part trading. The company is now proud to be placed one of the most innovative visionary clean cars, which will hopefully affirm the rightness of energy efficiency in automotive business.

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SFOE (project support)



The **Swiss Federal Office of Energy (SFOE)** is the office responsible for all questions relating to energy supply and energy use within the Federal Department of the Environment, Transport, Energy and Communication (DETEC).

The SFOE pursues the following objectives:

- It creates the necessary conditions for ensuring a sufficient, well diversified and secure energy supply that is both economical and ecologically sustainable.
- It imposes high safety standards in the areas of production, transportation and distribution of energy.
- It sets out to promote efficient energy use, increase the proportion of renewable energy in the overall energy mix and reduce the level of CO₂ emissions.
- It promotes and co-ordinates energy research and supports the development of new markets for the sustainable supply and use of energy.

The SFOE is proud to be one of the main sponsors of LAMPO!

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VirVe (EVA vehicle navigation, instrument cluster, vehicle telematics, eco-driving)



VirVe, Wilhelm & Bornatico specializes in software designed to address the challenges of present and future transportation systems. Formed in 2007, VirVe is a young company based in Zürich, Switzerland, with the mission of reducing the ecological impact of personal transportation. At the core of VirVe's products are algorithms which translate information about driving routes into energy consumption for electric, hybrid, fuel cell, and conventional vehicles. The Electric Vehicle Application (EVA) provides drivers with real-time information on how far they can drive based on their current battery charge and driving conditions, drastically improving the consumer acceptability of battery electric vehicles. The distance to the nearest charging station, as well as extended route planning, among other functionalities are also provided.



In addition to EVA, VirVe offers online access to its fuel consumption services through the web-tool CARTography (www.virve.ch/cartography). This service is useful for trip planning, vehicle comparison, car-sharing, and also offers analysis of driving patterns to help reduce fuel use.

VirVe designed and implemented the instrument panel, in addition to integrating its EVA touch-screen for the Lampo project. VirVe also assisted in telemetric data logging and analysis, and developed eco-driving functionality.

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Vitabella-Palazzetto (remote photovoltaic power plant)



Vitabella-Palazzetto is a farmhouse situated in Tuscany (Italy)...where the sun is (nearly) always shining!

This is the reason why it has been decided to develop a remote photovoltaic power plant in that place. This photovoltaic plant has three goals:

1. to produce (more than) enough totally clean energy for driving our electric car LAMPO;
2. to become a sample to be copied, particularly as part of the electric-mobility solution;
3. to serve as a didactic tool for the guests of the farmhouse.

The photovoltaic plant is right now in the construction phase with the goal to have it in operation by May 2009, when Lampo really needs its energy for participating in the EVS-Vinking-rally (570 kilometers from Oslo to Stavanger)!

The 260 m² thin film photovoltaic plant (amorphous silicon), which has a peak power of 16kW and a planned production of 16'800 kWh/year, is installed on the roof of an existing facility.

The manufacturer of the photovoltaic laminate, United Solar Ovonic, is the world leader in thin film solar technologies and the manufacture of thin film solar electric laminates. Distributed globally under the UNI-SOLAR® brand, the company's products are ideally suited for cost-effective solar roofing solutions because they are lightweight, durable, flexible, can be integrated directly with building materials, and generate more energy in real-world conditions. The solar plant of Vitabella-Palazzetto is installed by the Grosseto-based company TECNA.

Of course, all the guests of the farmhouse Vitabella-Palazzetto are very welcome to check the production of solar energy themselves, spending some absolutely relaxing holidays in the direct neighbourhood of Siena, Montalcino and the fabulous "terme di Saturnia".

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