

MILA Aerolight:

An emotional study in lightweight construction

MAGNA STEYR, an operating unit of Magna International Inc., is presenting its fifth concept vehicle from the MILA (Magna Innovative Lightweight Vehicle) innovation family at the Geneva Motor Show 2011.

MILA Aerolight is a compact, four-seat, natural gas vehicle in the A segment that weighs 700kg and has maximum CO₂ emissions of 55g/km. Aerolight stands for tangible lightweight construction. This concept vehicle is distinguished by its highly dynamic styling and use of materials from the aviation industry.

The main characteristics of the MILA Aerolight are:

- **Consistent weight reduction through intelligent combination of lightweight materials and unique design strategies**
- **More efficient CO₂ emissions-lower natural gas drive system (CNG)**
- **Developed from ground up, combining exciting design with innovative lightweight construction, safety and sportiness for maximum driving experience**

The Design Philosophy

MILA Aerolight defines purism and sustainability as new virtues. Esthetics and technology complement each other in an unambiguous design idiom arousing the observers' emotions. Characteristic features make the lightweight construction tangible through the design. The black passenger compartment evokes a strong sense of security. The hovering shell seals the shape and represents lightness and ideal aerodynamic qualities.

The combination of tangible lightweight construction and perceptible security injects a sense of freshness into the small car segments. This configuration will appeal to design and technology enthusiasts through its dynamic appearance.

The Technology Philosophy

A multi-material system forms the basis of the MILA Aerolight concept vehicle. This system is distinguished by the use of the right material in the right place. Thus, new features of structure and function evolve. The body consists of a structural frame optimally adapted to stress and of a polymer shell. Considerable reductions in weight are achieved due to the honeycomb structures and innovative composite materials. In this way, all safety requirements – especially with regard to protection of pedestrians – are fulfilled, while simultaneously improving insulation and acoustic properties. Furthermore, there are module solutions with integrated functions. Among these, for example, are an axle with stabilizers, a structurally embedded back seat and a digital viewing system.

The drive system is in the form of a two-cylinder CNG engine. The natural gas is stored in a 55-liter high pressure tank. This corresponds to a gas weight of 8 kg. The tank is integrated in the shape of a cylinder in the center tunnel of the vehicle, taking into account optimum use of space. With respect to vehicle safety, this position of the pressure tank offers considerable advantages on retrofitted systems. Moreover, compared to traditional multipart tank systems, clear cost savings result from the use of a single pressure tank. The tank capacity aims at a range of some 400 km and is therefore fully suited to everyday use.

The combination of innovative lightweight materials with an efficient and reduced CNG drive system enables extremely low CO₂ emissions with a maximum of 55g/km. This is currently the minimum value in the small car segment, and it can be further diminished by enriching with bio-gas.

From Concept to Reality

With the well-proven flex plant concept, MAGNA STEYR is well positioned to carry out multi-material construction techniques along with conventional body construction in steel and aluminum.

Utilizing lightweight multi-material construction techniques allows parts to be produced from more cost-intensive materials at reduced investment costs resulting in potential costs savings at medium volumes.

About Magna Steyr

With over one hundred years of experience, MAGNA STEYR's range of services makes us the worldwide leading, brand-independent engineering and manufacturing partner for OEMs and provider of innovative solutions for future mobility. We strive to consolidate our leading position in the industry with our own innovative ideas and new developments. Whether it be through engineering and assembly of single modules or the complete vehicle, development and manufacture of different storage or roof systems, or innovative solutions for future applications – vehicles are more than just our business – they are our passion.

MAGNA STEYR has global capabilities with 36 locations and 9,000 employees located in North America, Europe and Asia Pacific.

About Magna International

Magna International (www.magna.com) is the most diversified automotive supplier in the world. We design, develop and manufacture automotive systems, assemblies, modules and components, and engineer and assemble complete vehicles, primarily for sale to original equipment manufacturers of cars and light trucks in North America, Europe, Asia, South America and Africa. Our capabilities include the design, engineering, testing and manufacture of automotive interior systems; seating systems; closure systems; metal body and structural systems; vision systems; electronic systems; exterior systems; powertrain systems; roof systems; hybrid and electric vehicles/systems as well as complete vehicle engineering and assembly.

Magna has more than 92,000 employees in 248 manufacturing operations and 81 product development, engineering and sales centers in 25 countries.

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AEROLIGHT



Dimensions:

Length mm:	3586
Width mm:	1720
Height mm	1348
Wheelbase mm	2340
Track	1492 / 1492 mm
Clearance Cycle	10,5 m
Tank capacity	7,9 kg net
Weight	700 kg
Load Space	130 l
Range	>400 km