



MAGNETI MARELLI COMPANY PROFILE

Magneti Marelli is an international company committed to the design and production of hi-tech systems and components for the automotive sector, based in Italy (Corbetta, Milan).

With a turnover of € 5.9 billion in 2011, about 34,000 employees, 77 production units, 11 R&D Centres and 26 Application Centres, the Group has a presence in 18 countries (Italy, France, Germany, Spain, Poland, Czech Republic, Slovak Republic, Russia, Turkey, the United States, Mexico, Brazil, Argentina, China, Japan, India, Malaysia and South Africa).

Magneti Marelli supplies all the leading car makers in Europe, North and South America, and Asia.

Within the scope of its mission as a world-wide automotive systems and components supplier, Magneti Marelli aims at combining quality and competitive offer, technology and versatility, with the goal of making key technologies available to the final user at a competitive price. Through a process of constant innovation, Magneti Marelli aims at optimising transversal know-how in the electronics field in order to develop intelligent systems and solutions that contribute to the advancement of mobility, according to criteria relating to environmental sustainability, safety and quality of life onboard the vehicles.

Magneti Marelli is part of Fiat S.p.A.

Magneti Marelli's business areas are:

- **Electronic Systems** (instrument clusters; infotainment & telematics, lighting & body electronics),
- **Automotive Lighting** (front and rear lighting systems),
- **Powertrain** (engine control systems for gasoline, diesel and multifuel engines; Automated Manual Transmission "Freechoice" gearboxes)
- **Suspension Systems** (suspension systems, shock absorbers. dynamic systems),
- **Exhaust Systems** (exhaust systems, catalytic converters and silencing systems)
- **Motorsport** (electronic and electro-mechanical systems specifically for championships at the cutting edge of technology, in F1, MotoGP, SBK and the WRC)
- **Plastic Components and Modules** (activity under integration process in Magneti Marelli)
- **After Market Parts and Services** (Spare Parts for the Independent Aftermarket – IAM, Service Network – Magneti Marelli Checkstar Workshops)



MAGNETI MARELLI BUSINESS LINES PROFILE

Magneti Marelli Automotive Lighting

Automotive Lighting (AL) was formed in 1999, from a 50-50 joint venture which merged the lighting technology divisions of Robert Bosch GmbH and Magneti Marelli Spa. After having incorporated the Seima Group (a leading manufacturer of rear lights) in 2001, the Automotive Lighting division also took over Robert Bosch's shareholding in 2003, becoming the sole owner.

Automotive Lighting concentrates on research, development, production and sale of the complete range of technologies for front and rear lighting, fog lights, front headlight wiper systems, level adjustment systems, electronic components and stoplights fitted to the top of the rear hatch.

Customer focus and global presence are the key factors in the success of Magneti Marelli Automotive Lighting's global operations: 17 different production plants worldwide. In Europe, the R&D centres concentrate on innovations in front and rear lighting, and are located at Reutlingen, Germany, and Tolmezzo (UD) in Italy; there are also local R&D centres distributed over three continents, who work in close contact with customers.

Automotive Lighting has 14 application centres, located in 13 different countries: Brazil, Czech Republic, China, France, Germany, Italy, Malaysia, Mexico, Poland, Russia, Spain, Turkey and the U.S.A.

Headlights and rear lamps are becoming increasingly important as far as safety is concerned, and also for design and the way the car looks. Headlights and rear lamps are important in defining the image and identity of a particular model, both during the day and at night: this is why the styling departments at Automotive Lighting work closely with their counterparts at the car manufacturers.

Magneti Marelli Automotive Lighting was the first to launch Xenon, in 1991, taking front lighting to a new dimension.

In 2003, AL equipped its first car with the dynamic curve light, one step towards the Adaptive Frontlighting System, AFS.

In 2005, the world's first-ever front headlight with an active infra-red module was sold.

2006 saw the launch of the first complete AFS headlight which adapts to changing road and weather conditions.

A subsequent innovation was the introduction of LEDs (light-emitting diodes) in front and rear lights. These offer new styling possibilities as well as cutting down on energy consumption.



In 2005, AL began mass producing the first rear light based on LED technology.

In 2007 Automotive Lighting presented the world's first Full-LED headlamp in series production (for Audi R8).

Since 2010, Automotive Lighting has been supplying the first all-LED headlight with adaptive light function (for Mercedes-Benz CLS).

The technological evolution resulting from LED and Xenon technologies has opened up new frontiers in terms of safety, reduced energy consumption and CO2 emissions, as well as new possibilities for designers.

Magneti Marelli Electronic Systems

Magneti Marelli Electronic Systems is the business area based in Corbetta (Milan, Italy), which deals with automotive electronics. It has 8 production plants, 3 research centres and 6 application centres in Italy, France, Germany, Slovakia, Spain, Brazil, Mexico, India and China. It currently operates in three areas: instrument clusters, body electronics and Infotainment and Telematics.

Instrument clusters

The traditional business of this division, the instrument cluster provides drivers with information such as speed, revs, fuel level and water temperature.

Magneti Marelli Electronic Systems develops and manufactures instrument panels with integrated monochromatic displays (dot matrix), or the increasingly common colour display. It also manufactures more complex, fully reconfigurable clusters which can perform gateway functions.

Body Electronics

The body electronics division develops and manufactures electronic units with the following functions: fuel control and distribution, external lighting control, immobiliser, RF remote control, wiper arm control, tyre pressure monitoring, window lift control with antipinch function. It also develops and manufactures electronic control units for adaptive XENON and LED lighting systems.

The division has also gained expertise in the field of onboard systems, defining and validating functional characteristics (message maps).

Infotainment & Telematics

To offer a modular, complete range of products, Magneti Marelli Electronic Systems has decided to develop three different types of product: high-end infotelematics platforms, radio navigators and telematic boxes.

The new high-end infotelematic system is a device which combines entertainment, navigation, telematics and telephony. It is a natural evolution of the current high-end telematic platform and its performance has now been enhanced even further with the



use of a 30 GB hard disk or SD (used to store maps covering the whole of Europe), a 3D graphic processor and solutions which have further improved the system's audio performance.

The radio navigator, on the other hand, has been designed to offer an original equipment system which is cost-competitive with portable devices. The special feature of this product is the use of bluetooth (instead of the integrated telephone module) to connect the user's cell phone and the SD reader.

To complete the range, "telematic boxes" are currently being developed. These are highly integrated, low-cost systems for entertainment and satnav hands-free applications such as Blue&Me and safety (E-call box, a device that automatically makes an emergency call if the vehicle crashes or turns over).

Telematic boxes provided with GSM modules enable vehicle connectivity to communication networks and the exchange of information. Thanks to this connectivity, the telematics boxes allow a wide range of info-mobility services to be accessed from the vehicle: pay-per-use telematics insurance services, anti-robbery tracking and vehicle localization in case of theft, remote diagnostics for vehicle operation, company fleet management, emergency call (also known as E-call), information services on traffic and road conditions, information on access limits and bans, as well as in-vehicle multimedia entertainment services.

Magneti Marelli is also strongly committed in the field of the "Open Platform" for infotainment and telematics applications.

The "open" platforms for the automotive world constitute the basis for advanced in-vehicle information, entertainment and connectivity functions and enable sophisticated navigation, telematic and multimedia devices inside the automobiles.

In particular the GENIVI open source platform standard aims to make available to automobile manufacturers and their suppliers a common underlying framework in order to reduce time-to-market and development costs, allowing, at the same time, the complete customization and the personalization of devices, functionalities and user interfaces

Magneti Marelli Powertrain

Magneti Marelli Powertrain is the business area which produces engine components for cars, motorbikes and light vehicles.

Its historic headquarters have been based in Bologna since 1923, and today it has 3 Research & Development centres, 3 application centres and 12 plants in 7 countries: Brazil, China, Germany, France, Italy, India and the U.S.A.

The most important part of the product range is engine control systems for gasoline and diesel engines.

Magneti Marelli Powertrain produces both hardware components, the electronic control units that pilot the engine, and their sophisticated software.



The systems supplied to car manufacturers also include certain parts which are crucial for engine performance and emissions: injectors, air-gasoline and air-diesel manifolds, throttle bodies.

Magneti Marelli Powertrain is the world leader in certain key areas regarding the environmental impact of automotive technology, such as gasoline direct injection (GDI) and Flexfuel technology.

Launched in 2003 in Brazil, under the name of Flexfuel SFS, this technology allows the car to use ethanol, the plant-based fuel, produced and used in great quantities in Brazil, and gasoline, in variable proportions from 0 to 100%. In 2007, all new cars in Brazil will run on Flexfuel technology, while in Brazil Magneti Marelli is the leader of this market with a share of 58%.

Magneti Marelli has also developed Flexfuel technology with the TetraFuel system, which allows a car's engine to run on four different types of fuel (gasoline, gasolina – a blend of petrol and 22% ethanol – pure ethanol or compressed natural gas), thanks to the use of a special microprocessor in the engine control unit.

Magneti Marelli Powertrain produces also the AMT gearbox (Freechoice), an electro-hydraulic automation technology for manual transmissions, derived from Formula 1, that combines comfort of use with reduction in consumption. Apart from applications on many vehicles with a small to medium engine capacity, versions of the AMT gearbox have been installed on several supercars such as Ferrari, Lamborghini and Aston Martin.

The customers of Magneti Marelli Powertrain include all the main car manufacturers in Europe and America. The company is the market leader in Brazil. Its customers also include emerging Chinese and Indian companies such as Chery, Suzuki-Maruti, and Tata. Some of the motorbike manufacturers who rely on Magneti Marelli Powertrain are Piaggio, Ducati, and Harley Davidson.

Magneti Marelli Exhaust Systems

This division of Magneti Marelli develops and produces exhaust systems for cars and motor vehicles using high quality, high performance technologies.

Exhaust Systems has 10 production plants, 2 Research & Development centres and 3 application centres in Argentina, Brazil, China, Italy, Poland, Spain, South Africa and India.

An exhaust system has two purposes: on the one hand it reduces the pollutants contained in exhaust gases (by means of catalytic converters), and on the other, it reduces noise (by means of the silencing system).

Pollutants are reduced by designing catalytic converters able to comply with the increasingly stringent laws, and carrying out the necessary adaptations to incorporate them into the exhaust system.

In Europe, emissions are currently regulated by the Euro 5 specifications. The products which comply with these regulations are some of the most innovative on the market.



For example, for diesel engines there are anti-particle filters in the engine compartment (compact system), while in the future, the diesel exhaust system will be further enhanced by other NOx reduction systems such as the SCR (Selective Catalytic Reduction converter with the additive Ad blue).

As far as noise reduction is concerned, Magneti Marelli produces a wide range of silencers manufactured using different technologies which vary according to customers' requirements.

Innovative solutions are also being studied for both the "hot" and "cold" parts of the exhaust system. These include new technical solutions and new production technologies to improve quality, reduce weight and cut costs.

Magneti Marelli Suspension Systems

The Suspension Systems business area designs and manufactures vehicle suspension modules and components. The division is based in Turin, has 10 production plants, 3 research centres and 3 application centres in Brazil, Italy, Poland, United States and India.

It is divided into three product lines: suspensions, shock absorbers and Synaptic Damping Control (electronically controlled shock absorbers).

The suspensions line covers products which range from individual components (control arms, cross members, axles, knuckles, brake discs and drums) to assemblies (wheel groups, semicorners). A structured design and testing department can meet all our customers' technical demands, and parts can be developed according to specifications, or improvements can be made on existing drawings.

Mastery of the major technological processes in the car industry, and careful management of suppliers and partners, allows the Business Line to produce suspension components in a very wide range of materials, and control their quality and performance.

Innovative products include new suspension concepts such as F.L.E.C.S (Flexible Link, Elevated Compliance Suspension) and T.O.R.C.S (Torsion Rod Compliant Suspension). Simple to calibrate and with optimal kinetic performance, these systems are real alternatives to the traditional solutions used by car makers.

The shock absorbers product line includes the two main groups of "structural" shock absorbers (essentially for McPherson suspensions) and "conventional" shock absorbers (for all the rest), as well as the niche market for gas springs.

The recently-formed Synaptic Damping Control product line is based on the concept of developing an electronically-controlled shock absorption system with an electrovalve that adapts in real time to the passage of damping fluid, thus adjusting the response in accordance with various parameters (including those from the relevant sensors).



This produces a real improvement in the vehicle's dynamic performance, by reducing the compromise between suspensions designed more to provide comfort than "sporty" driving.

Plastic Components and Modules

Plastic Components and Modules designs, develops and produces complex systems in plastic, such as dashboards, central consoles, bumpers and fuel systems. This area has 17 production plants and 1 R&D Center in 4 countries: Brazil, Italy, Poland and Turkey.

Marelli After Market Parts and Services

Magneti Marelli After Market Parts and Services is the division of Magneti Marelli devoted to all the activities related to the automotive aftermarket and service networks.

The company has about 480 employees, and a turnover that reached a total of about 286.9 million euros in 2010. A similar sales volume is developed through OES activities directly with the carmakers.

Magneti Marelli AMPS has business activities in Italy, Germany, Greece, France, Poland, Spain, Russia, Turkey, India, Argentina, Brazil and USA. Moreover, the company exports its products in over 80 countries.

Magneti Marelli Aftermarket Parts and Services distributes spare parts, automotive components and information to the Independent Aftermarket, through a network of spare parts dealers; and provides the drivers with assistance, services, products and know-how through a network of authorised workshops. Magneti Marelli AMPS also provides the workshops with professional training courses.

Magneti Marelli Aftermarket Parts and Services operates on the repair market under the trademark of Magneti Marelli Checkstar Service Network in Europe, while in Latin America, in addition to the Checkstar name, Magneti Marelli also operates under the Cofap name.

Putting together all the various trademarks, the network has almost 4,800 workshops worldwide, about 1,800 of which in Italy, about 1,600 in Europe and about 1,400 in South America.

Concerning spare parts for allmakes, Magneti Marelli After Market Parts and Services catalogue lists about 30,000 parts numbers divided into 30 product lines, in the following sectors: Electrics & Electronics, Mechanical, Bodywork, Consumables.

Brands distributed: Magneti Marelli, Veglia Borletti, Spica, Bradi, Siem, Axo Scintex, Vitaloni, Lodge, Weber, NGK NTK, Savara, Cofap, Seima, Yorka, Borletti



Climatizzazione, Route Planner, Jaeger, Solex, Descam, Carello, Automotive Lighting, Cromodora, Golden Lodge, Denso, Mahle, Pagid

Magneti Marelli delivers Professional Training Courses and trains mechanics in the field of Diagnostic Tools and equipment: for information requests, a Call Center is providing Online support to mechanics.

Magneti Marelli MotorSport

Magneti Marelli Motorsport Department designs and produces electronic and electro-mechanical systems for two and four wheels racing vehicles. In particular, it supplies hi-tech systems for engine control and data acquisition (ECUs, injectors, sensors etc.), telemetry systems, electro-hydraulic systems for gear box automation and control. It also provides displays, dashboards, alternators, voltage regulators, ignition coils, pressure regulators, fuel pumps and software applications.

Between 2008 and 2009 Magneti Marelli Motorsport also developed a kinetic energy recovery system (KERS) for Formula 1 cars applications, which is adopted by some top F1 team also in the 2011 championship.

The business line is based in Corbetta (MI), with plants at Venaria (TO) and Bologna, and application centres in France, UK and USA.

Magneti Marelli has been involved in motorsports since its very beginning in 1919, and throughout its history the company has been supporting several world champion teams in their two-wheel and four-wheel victories.

Magneti Marelli's involvement with motor racing is connected to the great impulse which Magneti Marelli has always devoted to innovation – of which motor racing is the perfect exponent.

In the recent seasons of motorsport championships, Magneti Marelli Motorsport has supplied systems and components to the winners of several world championships of Formula 1, MotoGP, WRC, Superbike, FIA GT1, WTCC .