PRESS RELEASE

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Sogefi Group revolutionises vehicle suspension with a new, eco-friendly innovation: FRP Coil Springs

Sogefi Group has launched the industry's first coil springs produced with composite material aimed at Passenger Vehicle (PV) and Light Commercial Vehicle (LCV) suspension applications. The FRP Coil Springs are an extremely environmentally-friendly innovation: weighing up to 70% less, they contribute to a real reduction in fuel consumption compared with traditional steel coil springs. In addition the production of FRP Coil Springs is 3 to 5 times less energy intensive, and ensures a drastic reduction in wastage and use of consumables. The lightweight FRP Coil Springs also allow mass production whilst delivering real environmental benefits.

The coil springs industry for mass production applications is currently based on steel. Despite some weight reduction during the last 20 years, this material has reached its physical limits. Steel's manufacturing process is also labour intensive with high energy consumption for heat and surface treatment, shot peening, etc. These reasons inspired Sogefi Group, which is renowned for its innovative vehicle technologies, to invest in the development of a completely new technology to improve the product and its features: the FRP Coil Spring.

Sogefi's new FRP Coil Springs

The main principle behind Sogefi´s innovation is to apply the advantages of composite material - based on **glass fibre and epoxy resin (FRP)** - to automotive coil springs. This included the development of a new, environmentally-friendly process with reduced energy consumption as a prime objective.

Lifecycle analysis carried out by Sogefi shows that the benefits of FRP Coil Springs are significant. The product characteristics are considerable:

- Weight reduction: between 40% and 70% lighter, equivalent to a reduction of 4 to 6 kg per car, which also reduces fuel consumption

- Higher durability: no oxidation and elimination of corrosion
- Improved comfort, ride and handling characteristics: better noise reduction on hard surfaces and higher Eigen frequencies
- Increased safety, thus eliminating the risk of sudden breakage

The production process of FRP Coil Springs is also more environmentally-friendly than that for standard steel coil springs:

- No heat treatment: energy usage is 3 to 5 times less than with the traditional steel process (polymerisation of composite material is around 170°C compared with 1,000°C and 450°C for steel)
- Reduction in CO_2 emissions: up to 0.5g less CO_2 is emitted during production
- Fewer steps in the process: reduction in the number of risks and use of consumables (no shot peening, no painting)
- No surface treatment: drastically less waste and 100% recyclable

Sogefi´s FRP Coil Spring design and manufacturing process have been patented. They are also already impressing vehicle manufacturers, whilst respecting their specifications and guaranteeing profits beyond their expectations.

Audi was the first manufacturer to accept Sogefi´s revolutionary FRP Coil Springs. In a joint development, the fiberglass reinforced plastic (FRP) spring was adapted to Audi´s requirements and will find use in an upcoming model.

“Following Sogefi Group’s tradition of innovation, we are very proud to introduce the industry’s first composite coil spring” said **Emanuele Bosio, Chief Executive of Sogefi**. “We are confident that our pioneering technology will play an important role in future generations of environmentally-friendly vehicles.”

About Sogefi S.p.A.

Sogefi is a worldwide leader in the automotive parts industry. An Italian Group, Sogefi was founded 30 years ago and is listed on the Milan Stock Exchange. The company specialises in engine systems and suspension components for both original equipment and the aftermarket. Overall turnover in 2011 rose to 1,158.4 million euros in 2011; up by 25.3% from the figure of 924.7 million euros in 2010. The increase was due to the acquisition of Systèmes Moteurs and to the organic growth of the group’s businesses. In fact, on the same basis of consolidation as last year, revenues would have totalled 1,021.2 million euros, with an increase of 10.4%.

Sogefi Group is partner to the world's major car and commercial vehicle manufacturers, and is the market leader in Europe and South America. Sogefi Suspension Components Division is the third largest suspension components provider worldwide, with the Filter Division amongst the top five suppliers in the world. In July 2011, Sogefi Group acquired Mark IV Systèmes Moteur Group, one of the main worldwide producers of air intake and cooling engine systems.

Following the acquisition, Sogefi Group employs around 6,708 employees worldwide. The company has a global presence, encompassing 44 production sites in 16 countries on five continents (France, Germany, Netherlands, Italy, Spain, UK, Romania, Slovenia, USA, Canada, Mexico, Brazil, Argentina, Egypt, India, China). Find out more at: www.sogefigroup.com

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For more details on the Audi FRP coil spring development story, visit: https://www.audi-mediaservices.com/publish/ms/content/en/public/hintergrundberichte/2012/02/29/0/frp_coil_springs.standard.gid-oeffentlichkeit.html