



Press Release

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Collaboration in high-speed RTM technology

Henkel partnership with Benteler-SGL pays off with composite leaf springs on more Volvo models

Düsseldorf, Germany – Volvo is adopting high performance, lightweight composite transverse leaf springs for more models following their successful introduction several months ago on its premium crossover SUV, the XC90. Volvo is now also using the innovative concept on its new S90 luxury sedan and V90 station wagon models.

Henkel's Loctite MAX 2 flagship two-component polyurethane composite matrix resin system has proved fundamental in enabling the development of this innovative leaf spring, produced by Benteler-SGL using high-speed resin transfer molding (RTM). Total volumes could reach close to 200,000 per year by the end of 2017.

In all three car models, the transverse leaf spring incorporated into the rear suspension saves a significant 4.5 kg compared to steel coil springs normally used in cars, leading to an important improvement in fuel efficiency and a reduction in carbon dioxide emissions. The leaf spring also helps provide a smoother ride and improved NVH (noise, vibration, harshness) behavior. Furthermore, by eliminating coil springs that would otherwise protrude into the trunk area, the transverse leaf spring leaves more space for luggage. Volvo operates on the basis of what it calls the "Scalable Platform Architecture" (SPA) principle, which makes it possible for innovative concepts that are successfully implemented on one vehicle to be easily adapted for use on other models.

Henkel's substantial experience and process know-how in resin transfer molding (RTM) was important in obtaining short cycle times necessary for high series production of the composite parts. The low viscosity of Loctite MAX 2 enables it to rapidly fill the mold and impregnate the fiber preform without disturbing its positioning. Its high cure rate — substantially faster than epoxy resins — further adds to the speed of production.



Commenting on the successful partnership, Frank Kerstan, Henkel's Global Program Manager Automotive Composites says: "Together with Benteler SGL, Henkel is very proud of this composite innovation and the fact that we now have our lightweight technology implemented in three Volvo models."

Frank Fetscher, Business Development Manager at Benteler adds: "The composite leaf springs are another example of how a close cooperation between our partner Henkel and us in development of new processes and matrix resins — as well as adhesives and binders — can lead to the successful large-scale production of new composite concepts."

This cooperation was further facilitated last year with the opening of Henkel's Composite Lab state-of-the-art test facility in Heidelberg, Germany. "Here, automotive customers can work with Henkel experts to develop and test composite parts, and also optimize production process conditions," Kerstan says. "They can carry out trials on Henkel's own HP-RTM equipment, which has resin injection units for polyurethanes and epoxies coupled to a 380-ton press."

About Henkel

Henkel operates globally with a well-balanced and diversified portfolio. The company holds leading positions with its three business units in both industrial and consumer businesses thanks to strong brands, innovations and technologies. Henkel Adhesive Technologies is the global leader in the adhesives market – across all industry segments worldwide. In its Laundry & Home Care and Beauty Care businesses, Henkel holds leading positions in many markets and categories around the world. Founded in 1876, Henkel looks back on more than 140 years of success. In 2016, Henkel reported sales of 18.7 billion euros, adjusted operating profit of 3.2 billion euros. Its three top brands, Persil (detergent), Schwarzkopf (hair care) and Loctite (adhesive) generated more than 6 billion euros in combined sales. Henkel employs more than 50,000 people globally – a passionate and highly diverse team, united by a strong company culture, a common purpose to create sustainable value, and shared values. As a recognized leader in sustainability, Henkel holds top positions in many international indices and rankings. Henkel's preferred shares are listed in the German stock index DAX. For more information, please visit www.henkel.com.

Photo material is available at www.henkel.com/press.

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The following material is available:



Henkel partnership with Benteler-SGL pays off with composite leaf springs on more Volvo models.



The rear axle with a transverse composite leaf spring, now also featured on Volvo's new S90 luxury sedan and V90 station wagon models.



Henkel's HP-RTM equipment, located at Henkel's Composite Lab in Heidelberg (German), where customers can carry out trials. The HP-RTM equipment has resin injection units for polyurethanes and epoxies coupled to a 380-ton press.