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**FIRST PLASTIC-METAL HYBRID FRONT END STRUCTURE NAMED  
2019 SPE® AUTOMOTIVE INNOVATION AWARDS “HALL OF FAME” WINNER**

**Troy, (DETROIT) MICH.**— The first Plastic-Metal Hybrid (PMH) front end structure, used on the 1999 C170 Ford Focus GOR from Ford Motor Company, has been named the 2019 Hall of Fame winner by the Automotive Division of the Society of Plastics Engineers (SPE®). This will be celebrated by honoring the technology and the companies and people originally involved in developing this application during SPE’s 49<sup>th</sup> annual Automotive Innovation Awards Competition & Gala on November 6, 2019. The plastic-metal front end structure, made with Durethan® BKV30H2.0 (30% glass filled PA6/heat stabilized) resin from LANXESS (formerly Bayer from 1999-2004) with a steel insert enabled a 40% weight reduction, 30% cost reduction, high function integration with reduced process steps, higher accuracy and quality, and higher load capacity compare to a 100% steel structure. To be considered for a Hall of Fame Award, an automotive plastic or composite component must have been in continuous service in some form for at least 15 years and broadly adopted in the automotive industry. This application certainly qualifies as there have been more than 70 applications and 70 million manufactured parts to date worldwide.

The companies involved in developing the first PMH front end application include: OEM - Ford Motor Co.; System Supplier – Visteon; Molder/Processor – Visteon; Toolmaker – Misslbeck; and Material Supplier – LANXESS (formerly Bayer). Boris Koch is the inventor and designer of the PMH innovation with Bayer/ LANXESS and Dr. Hubert Goldbach is the inventor and designer for the PMH innovation with Bayer.

The LANXESS PMH technology combined the great design freedom, good flexibility and low density of glass filled PA 6 with the high strength, stiffness and low thermal expansion of metal. This thermoplastic and metal integration enabled a part with higher load capacity compared to sheet metal profiles, higher torsional stiffness compared to open sheet metal profiles, higher precision in production and use, and higher integration of functional elements.

Key design features include an injection molded rib structure, in the thin wall metal sheet profile, with form closure grips, lay-on surfaces, overmolded edges and supporting ribs on the outside of the profile (providing a mechanical adhesion) resulting in improved part strength and support.

Other key design features, enabling a mechanical connection of the thermoplastic and metal structures, include: conical piercing in the sheet metal creating ports for the thermoplastic ribs to be secured; fixing area at sheet metal flange for the thermoplastic ribs to snap in place; and the thermoplastic rib structure providing additional strength and support inside the metal profile.

The LANXESS PMH front end structure technology permitted the integration of features (piercings in the metal for connecting 21 different parts to the structure) in a single operation greatly improving production efficiency, cost effectiveness, and part performance.

***On Wednesday, November 6, 2019, representatives from Ford Motor Corporation, Visteon, Misslbeck and LANXESS will accept the award on behalf of the original team that worked to develop the first Plastic-Metal Hybrid (PMH) Front End Structure on the 1999 C170 Ford Focus GOR at the 49<sup>th</sup> annual SPE Automotive Innovation Awards Program, at the Burton Manor in Livonia, Michigan. [www.burtonmanor.net](http://www.burtonmanor.net)*** This is the oldest and largest competition of its kind in the world. Dozens of teams made up of OEMs, tier suppliers, and polymer producers submit nominations describing their part, system, or complete vehicle and why it merits the claim as the *Year's Most Innovative Use of Plastics*. This annual event typically draws over 800 OEM engineers, automotive and plastics industry executives, and media. As is customary, funds raised from this event are used to support SPE educational efforts and technical seminars, which help educate and secure the role of plastics in the advancement of the automobile.

The mission of SPE is to promote scientific and engineering knowledge relating to plastics worldwide and to educate industry, academia, and the public about these advances. SPE's Automotive Division is active in educating, promoting, recognizing, and communicating technical accomplishments in all phases of plastics and plastic-based composite developments in the global transportation industry. Topic areas include applications, materials, processing, equipment, tooling, design, and development.

For more info on the ***SPE Automotive Innovation Awards Competition and Gala*** see [www.speautomotive.com/innovation-awards-gala](http://www.speautomotive.com/innovation-awards-gala) For more info on the ***Society of Plastics Engineers***, see [www.Aspe.org](http://www.Aspe.org). SPE® is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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