

voestalpine on the fast track with future-oriented phs-ultraform product

The success story continues for phs-ultraform, a hot-dip galvanized high-strength steel developed by voestalpine for lightweight construction of car body panels. A revolutionary enhancement of this patented product innovation will be presented at the Geneva Motor Show. voestalpine AG, a company with global operations that is listed on the Vienna Stock Exchange, is the only manufacturer able to produce phs-ultraform components using both the indirect and direct process – a newly added capability. An entire industry is showing intense interest.

The idea for phs-ultraform (**p**ress **h**ardening **s**teel) originated in 2002. In 2003, the research and development team at voestalpine began the first series of tests. Five years later came the breakthrough and in 2008, the first major orders from the automotive industry arrived. Now revolutionary progress has been made. “For the first time, press-hardened components made of phs-ultraform can be manufactured using either the direct or the indirect process,” explained Peter Schwab, R&D Director for the voestalpine Group. He added: “With this development, we are definitely once again a big step ahead. The advantage in terms of know-how is secured by 21 patent families.” This means that voestalpine is the only manufacturer in the world to offer phs-ultraform steel using the “direct process with simultaneous cathodic corrosion protection”. This technical innovation from Austria will be presented to the experts for the first time at the Geneva Motor Show. In conjunction with Swiss prototype manufacturer Rinspeed, led by Frank Rinderknecht, a laser-welded door made of phs-ultraform will be on display.

A new dimension in lightweight construction “made in Austria” – with no aluminum or carbon

With phs-ultraform components, voestalpine combines the advantages of high-strength yet lightweight components with the proven corrosion protection of galvanized steel strip. The groundbreaking solution sets completely new standards in automotive construction for safety-relevant components subject to heavy corrosion. Premium carmakers use phs-ultraform for longitudinal members, A and B pillars, side and front walls, sills, doors and hatches. The technology contributes greatly to reducing fuel consumption while significantly enhancing occupant safety. With phs-ultraform, steel is consolidating its position as a leading material in the field of mobility, particularly in the automotive industry, and is a very successful alternative to aluminum

and carbon.

Patented technological leadership from voestalpine

“Thanks to new materials such as phs-ultraform, we have managed to create car components with totally unique properties. And we have only just begun to develop this new product family,” says Wolfgang Eder, Chairman of the Management Board of voestalpine AG, summing up the company’s technological lead. The highly demanding automotive components are produced and processed on four continents. “I expect us to double the turnover of 1.1 billion euros in the automotive sector over the next few years,” says Eder. To develop the phs-ultraform components, 30 million euros were invested up to 2008 alone, and now a further 100 million euros will be added to this figure. The research budget for the current fiscal year amounts to 121 million euros; a total of 670 researchers work for the voestalpine Group throughout the world.

phs-ultraform – the hot-dip galvanized and high-strength steel for body panels

The patented and future-oriented product phs-ultraform is a hot-dip galvanized and heat-treatable steel that can be processed into components using either the direct or indirect process. In the direct hot forming process (stamping method), steel blanks are heated to around 900 degrees Celsius and then shaped into their final geometry and hardened in a cooled form-hardening tool. “voestalpine already has fully developed prototypes of car components that are produced using the direct process,” says Peter Schwab. The indirect process already in use involves one additional step. The steel blanks are first formed and cut to their final geometries using conventional cold-forming technology and then heated to 900 degrees Celsius. By cooling the parts down to 70 degrees within a few seconds, they become extremely hard and their component geometry is finalized. voestalpine is the only company in this product field to supply series deliveries and has the approval of almost every premium manufacturer in Europe.

Despite their lightweight construction, the corrosion-resistant phs-ultraform components display a range of convincing advantages such as extreme strength (up to 1,800 megapascals), cathodic corrosion protection and the possibility of processing blanks with various combinations of strength and thicknesses (“tailored property parts”). “phs-ultraform therefore contributes significantly to the field of lightweight construction and is therefore extremely relevant with respect to applications in electric mobility,” says Eder.

The voestalpine Group

voestalpine is a globally active group with a variety of specialized and flexible companies which produce, process, and further develop high-quality steel products. The group is represented by 360 production and sales companies in more than 60 countries on five continents.

With its highest quality flat steel products, voestalpine is one of Europe's leading partners to the automotive, white goods, and energy industries. Furthermore, voestalpine is the world market leader in turnout technology, tool steel, and special sections, as well as number one in Europe in the production of rails. In the business year 2010/11, the voestalpine Group generated revenues of around EUR 11 billion, and achieved an operating result (EBIT) of almost EUR 1 billion; the Group has around 47,000 employees worldwide.

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