
AUTOMOTIVE APPLICATION PROFILE

Body Stiffeners and Crash Inserts

We understand that in the automotive industry, you need reliable materials that perform to a higher standard. Ascend offers a comprehensive portfolio of engineered plastics for challenging automotive applications. We work with our customers to achieve the very best from our products. That's why we offer a worldwide support network of application specialists and technical experts. Our material knowledge and expertise in automotive systems can help you improve part performance and reduce material usage and cycle times.

Products Used: R530H, R533H, R535H, R540H, R550H, R413H, R433H

Application Description

Made of steel or aluminum, the body in white (BIW) structure accounts for nearly half the total weight of a vehicle. Reducing the mass of that steel or aluminum via downgauging is a major opportunity to reduce overall vehicle weight. But simply downgauging metal can compromise its structural integrity and reduce its ability to absorb vibration or withstand crashes.

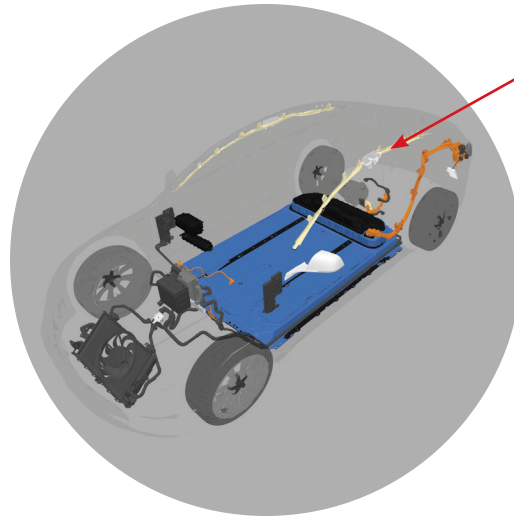
Strategically placing body stiffeners or crash inserts within the BIW structure can overcome that challenge while significantly reducing weight and maintaining passenger safety and comfort. These inserts aid in absorbing crash energy and reducing vibration. And in preparation for their use in the BIW structure, these plastics must withstand high temperatures during the e-coating process. That's why Ascend's Vydyne PA66 is the preferred engineered plastic for body stiffeners and crash inserts.

The Vydyne Difference

When used in body stiffeners, Vydyne glass-filled grades help reduce noise, vibration and harshness and improve passenger comfort. For crash inserts, glass-filled and impact-modified Vydyne nylon 6,6 helps absorb energy during a crash and keep passengers safe. Often, body stiffeners and crash inserts are bulky and designed with thick walls to ensure the part is completely filled. Vydyne's best-in-class flow allows you to design parts with thinner walls, thereby reducing material cost, cycle time and part weight. Our simulation experts use state-of-the-art FEA and flow analysis to help you design a part right, the first time.

Benefits

- Light weighting
- Reduced NVH
- Stiffness
- High flow
- High temperature resistance
- Crash energy absorption



Body stiffener

Image provided by



Product Properties

| R530H, R533H, R535H, R540H, R413H, R433H | | | | | | | | |
|--|-------------|-------------------|-------|--------|--------|--------|-------|-------|
| Property* | Test Method | Units | R530H | R533H | R535H | R540H | R413H | R433H |
| Density | ISO 1183 | g/cm ³ | 1.37 | 1.40 | 1.41 | 1.46 | 1.21 | 1.33 |
| Tensile Strength | ISO 527-2 | MPa | 195 | 205 | 210 | 220 | 110 | 144 |
| Flexural Modulus | ISO 178 | MPa | 9,600 | 10,200 | 10,500 | 12,300 | 4,800 | 9,100 |
| Charpy Unnotched Impact Strength | ISO 179 | kJ/m ² | 75 | 80 | 80 | 90 | 80 | 100 |
| Notched Izod | ISO 180 | kJ/m ² | 11 | 12 | 12 | 14 | 12 | 25 |
| DTUL @ 1.8 MPa | ISO 75-2/A | °C | 250 | 250 | 250 | 252 | 235 | 245 |

*Dry as molded (DAM)



Ascend Performance Materials is the world's largest fully integrated producer of nylon 6,6 resin. We manufacture and reliably supply world-class plastics, fibers and chemicals that are used in thousands of everyday applications such as car parts, electronics and cable ties.

North America

1010 Travis Street
Suite 900
Houston, TX 77002
United States

+1 713 315 5700

Europe

Watson & Crick Hill Park
Rue Granbonpré 11 – Bâtiment H
B-1435 Mont-Saint-Guibert
Belgium

+32 10 608 600

Asia

Unit 3602,
Raffles City Office Towers
268 Xi Zang Road (M)
Shanghai 200001
China

+86 21 2315 0888



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