TATA AUTOCOMP SYSTEMS

WEIGHT REDUCTION OF VEHICLE BY THIN WALL PLASTIC

IMPLEMENTED INNOVATIONS

Tata AutoComp is setting a new industry benchmark with its thin wall plastic technology, which has resulted in the lowest-weight interior trims in a car and hence, a substantial improvement in fuel efficiency.

THE CONTEXT

Fuel efficiency is one of the key considerations for Indian car buyers, especially when it comes to buying small and mid-sized cars. Since fuel efficiency is directly linked to a vehicle's weight, Tata AutoComp innovated a new technology to reduce the weight of a car's polymer-based trims without compromising on performance.

THE INNOVATION

The company came up with a new 'thin wall' technology, which helps reduce the thickness and weight of the plastic parts, resulting in the lowest-weight trim parts for a car's interiors. While existing plastic parts have a thickness of around 2.4mm on average, the company achieved a thickness of 1.6mm to 2.2mm, thus reducing the overall weight of the interior trims by 3kg. It did so by combining innovative design and material, and by ensuring that this met the mechanical and aesthetic requirements. The reduced weight helps improve a car's fuel efficiency and also lowers carbon emissions.

KEY CHALLENGES

TO DESIGN AND MANUFACTURE LOW-WEIGHT TRIMS THAT MEET EXISTING PERFORMANCE AND AESTHETIC REQUIREMENTS

The company designed parts with a variable thickness to meet the desired strength and DVP requirements.

TO DEVELOP A MATERIAL THAT IS SUITED FOR THE THIN WALL AND THAT CAN MEET ALL DVP AND AESTHETIC REQUIREMENTS

The team held discussions with various RM suppliers to develop a material that met these requirements. It did extensive mould-flows and CAE with different combinations of materials before arriving at the final material. It then developed a soft tool for the pillar trim and undertook extensive moulding trials to test the new material, besides performing DVP on the soft tool parts as well.

THE IMPACT

Tata AutoComp's thin wall technology has reduced the car's weight by 3kg. Thin wall trims are now a feature of all of Tata Motors' upcoming vehicles, and will set a new benchmark for the automotive industry.

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