

Automotive Sector

Mass Production, Compression Moulding and Logistic Support

Objectives

To support Porsche with composite parts and materials technology using mass production manufacturing processes.

Concept Development

Polytec nominated ACG as their chosen composite material partner because of our 30 years of composite application development experience in the automotive industry, coupled with extensive technical support covering functions from design to process engineering, ensuring that material choice is optimized both for performance and cost.

As part of their on-going cost reduction and quality improvements for Porsche, Polytec Composites (Sweden) now press mould several of the carbon composite applications that were originally developed as oven or autoclave cured parts, realizing significant cost and quality advantages in the process.

ACG supplies twelve different materials to Polytec, automatically configured in 183 unique templates. Nesting is optimized and material kits are delivered on a JIT basis to Polytec Composites in Sweden.

Polytec's proactive and flexible engineering development approach and manufacturing expertise have been used to great effect and allow them to offer composite parts using a variety of different composite processing technologies. A continuous improvement policy allowed them to work with the Porsche vehicle engineering team and ACG to develop the final process & materials solutions.

Detailed technical and commercial application development shows continuous fibre composite applications are competitive and can be very cost effective compared with other more traditional materials up to production volumes of between 25,000 and 30,000 per year.

Total programme cost is lower than with traditional materials and processes due primarily to the dramatically lower tooling investment. Ease of component and system integration significantly simplifies vehicle manufacture to reduce costs even further.

The greater design integration opportunities, together with the flexibility of styling and manufacturing, result directly in programme cost savings, significant fuel economy and/or emission reductions.

Benefits

The major technical benefits are the significant structural improvements available from carbon fibre composites, associated with very low weight solutions. Producing the parts from low investment tooling using low pressure matched die compression moulding processing offers additional benefits of far faster cycle times, higher quality, repeatability, and defined A and B surface positions that are rarely possible with single sided oven or autoclave cured processes.

The components can be designed to integrate additional functionality from local hard point reinforcements through to moulded-in holes to minimise the expense of secondary operations resulting in improved part quality, dimensional stability and repeatability.



Air Routing Centre



Air Extractor Duct Middle



Transmission Oil Cooler Bracket



Condenser Bracket



POLYTEC GROUP

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