

## WE THINK INNOVATION

### Manufacturing with structural adhesives can save time and money whilst improving aesthetics and performance

Careful consideration of the right material selection criteria and through understanding what different adhesives can achieve, it is possible to make the process of adopting adhesives a simple and valuable strategic decision for your business.

Adhesives are a commercially attractive and rapidly growing area of manufacturing technology due to reducing costs, increasing manufacturing speed and imparting performance benefits in comparison to conventional joining technologies, such as mechanical fastening and welding.

Automotive, aerospace, wind energy, land transport and marine are all examples of applications where lightweight bonded structures are required to withstand demanding load

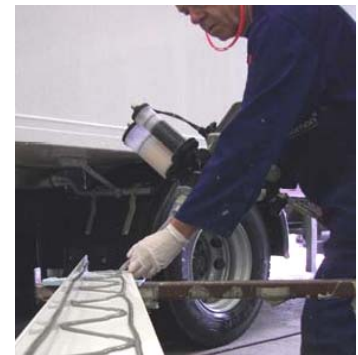
conditions, for the lifetime of the structure.

There is a vast range of adhesive types and grades available, each of which may have both positive and negative attributes in use or service. A guideline of considerations when adopting adhesives is included below;

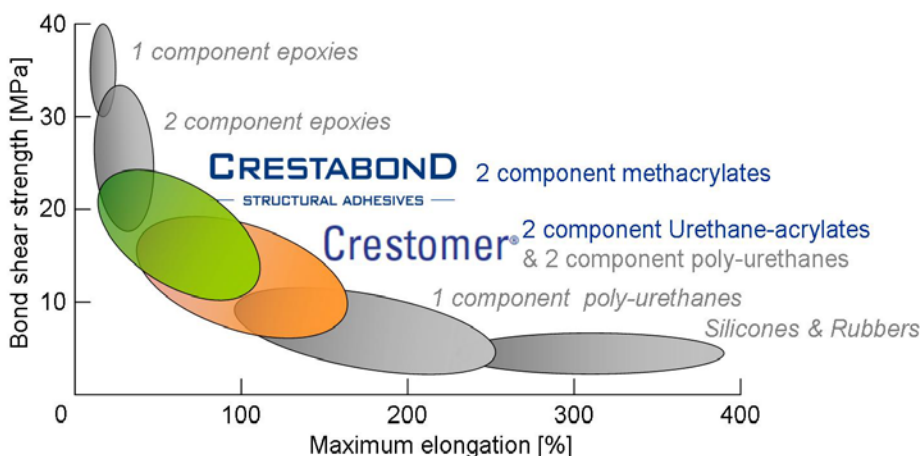
- *what are the in-service loading, environmental and thermal performance requirements?*
- *how to design a suitable bond area in to the component?*
- *how to store and handle the adhesive and parts?*
- *how to achieve part positioning, alignment and access?*
- *do the adhesive processing requirements match the planned manufacturing scale, timings and capabilities?*
- *what surface preparation is required for the parts to be bonded with the adhesive selected?*
- *how to minimise unwanted movement during cure?*
- *how to inspect and certify a bonded component, if required?*

Commonly, the primary criteria for adhesive selection will be the fundamental ability of the adhesive to bond the specific substrates and the mechanical performance of the bonded joint itself. For this purpose the graph below is a useful comparison, demonstrating the common adhesive types available and their relative performance in terms of bond strength (load bearing capability) and elongation (ability to deform before failure).

The range of Crestomer® and Crestabond® adhesives can be seen to balance bond strength and elongation, also achieving excellent ultimate performance and long term durability under harsh loading conditions.



Adhesive bonding of a truck fairing using Crestabond structural adhesives



The new Crestabond range of toughened acrylic adhesives also achieve high performance bonding on a range of dissimilar substrates, such as composites, metals and plastics. This adhesive demonstrates excellent impact, peel, shear and fatigue resistance properties across all bonded parts. Crestabond is also a primer-less adhesive requiring minimal surface preparation before bonding, helping to reduce overall production costs and increase productivity.

For more information contact Scott Bader directly using the details below