



## Glass

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Although not as strong or as rigid as carbon fibre, glass fibres are used as a reinforcing agent for many polymer products, to form a very strong and relatively lightweight composite material called glass-reinforced plastic (GRP).

The most common types of glass fibre used in fibreglass is E-glass, which is mainly used for glass-reinforced plastics. Other types, including A-glass, D-glass, R-glass and S-glass are used for various composites applications, one type being preferred over another according to the requirements of the application.

Glass fibre is supplied normally in one of two forms: continuous-filament and chopped-strand staple. Splicing is used in the chopped-strand process, but only during manufacture. With continuous-filament glass, splices are used throughout the manufacturing chain, until the fabrication stage.

In the continuous filament process, after the fibre is drawn, a size – a kind of varnish - is applied. This size helps protect the fibre as it is wound onto a bobbin. Size may be applied sparingly or heavily, depending on the requirements of the application for which the glass is to be used. Individual glass filaments may be very fine, or coarse, again depending on the needs of the application.

In the context of splicing, all the forms of glass pose several problems, including:

- Brittleness
- Heavy count (in some cases)
- Sizing
- Coarse filaments (in some cases)

Airbond research has solved the problem of brittleness, and the problem of heavy count (counts of greater than 10000 tex are commonly spliced).

Heavy sizing usually requires that higher air pressures be used for splicing – to break up the strong adhesive bond between filaments.

Coarse filaments also require that higher air pressures be used for splicing. Coarser filaments are stiffer, and are therefore more difficult to bend – and repeating bending is a fundamental element of the splicing process.

Airbond research has developed solutions for the vast majority of glass yarns; our technical experts are always at your disposal, if you need to address some new problem in your market.