

weber.tec force LOLA UHM plate



UHM high performance carbon-fibre plates for structural strengthening

About this product

The **weber.tec force LOLA UHM plate** system is a range of high quality, high performance carbon-fibre plates. These plates are purpose-built to client dimensions and available in ultra high modulus and high UTS format. The plates are produced from impregnated vacuum process with autoclave or oven cure regimes. The plates are applied using **weber.tec EP structural adhesive** available in two grades depending upon temperature conditions.

Technical data

Typical data for **weber.tec force LOLA plate**, actual values determined by coupon tests

Typical physical properties

Composition	Carbon fibre reinforced bespoke plate Carbon fibre UD prepreg plies Glass fibre woven prepreg intermediate ply peel ply surface
Colour	Black
Thickness	2 mm – 40 mm standard
Width	Nominally up to 500 mm
Length	To suit design requirements

Typical mechanical properties

Carbon fibre UD plates (Grade 640)	Laminated		
	Pre-preg	Oven	Autoclave
Elastic modulus	640 GPa – 360 GPa [typical values]	640 GPa – 360 GPa 320 – 365 GPa	up to 385 GPa 360 – 390 GPa
Tensile strength	2600 MPa	1030 MPa	1120 MPa
Elongation at break	0.4%	0.26%	0.3%

Uses

To strengthen metallic structures and high strength concrete members for flexural strengthening

- Increase flexural capacity of metallic beams
- Reduce deflections
- Change in use of structure
- Increase load capacity due to new imposed loads

Typical applications

- Metallic railway bridges
- Metallic frame structures
- Steel floor beams

Can be used in conjunction with **weber.tec force carbon sheet C640** UHM wrap for columns and struts.



Preparation

The carbon plates as supplied have a layer of peel ply release fabric on all external surfaces. The purpose of this material is to ensure that the bonding surface (and all other surfaces) remains clean and uncontaminated.

The peel ply layer is a glass or polyester scrim material which to all intensive purposes looks to be an integral part of the panel. The resin from the panel manufacturing process will have flowed into the fabric, effectively binding it to the panels surface.

Before removing the peel ply, all other preparation work on the mating surface should be completed.

Where possible apply the adhesive to the beam before removing the peel ply from the panel.

To remove the peel ply fabric, tear the entire layer from the surface of the panel making sure that any overlapping areas have been removed and that no fibres or small areas remain. At all times ensure that only the peel ply surface material is being removed and not the adjacent carbon/glass layers.

After the peel ply has been removed, great care must be taken not to contaminate the panel's surface.

Application

After the peel ply has been removed and the panel inspected, the panel is ready to be bonded. Ideally the panel should be bonded within 2 to 3 hours of the peel ply being removed.

Adhesive should be applied to the carbon panel and the surface to be bonded to unless otherwise stated.

Finishing

Unless the panels have become contaminated no cleaning of the panel is required by the contractor.

If the panels have become contaminated then specific advice must be obtained from the manufacturer as to an acceptable cleaning/preparation regime.

Storage and shelf life

The panels should remain crated and be stored in cool dry conditions. The panels must be stored in these conditions until immediately prior to installation.

Stored correctly the panels will have an almost indefinite shelf life.

Health and safety

For further information, see Health and Safety section, starting on page 304.

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Features and benefits

- ▲ High strength and high performance carbon fibre plates for strengthening metallic structures
- ▲ Manufactured using impregnation vacuum process with either oven or autoclave cure
- ▲ Autoclave plates up to 7.5 metre lengths
- ▲ Oven cure plates over 7.5 metre length
- ▲ Lightweight plates to replace traditional heavy steel plate options
- ▲ Manufactured in quality controlled conditions to ISO 9002
- ▲ Delivery nationwide

Packaging

The general packing of the panels is bubble wrapping of individual plates followed by wooden crate.

In addition, the exposed carbon surface is covered in peel ply release glass cloth, which appears to be an integral part of the surface of the panel. At all times the plates should be supported adequately over their entire length. When lifting/jacking/bracing in position, spreader plates/packers should be used to avoid point loading of the plate.

Under no circumstances should the plates be subjected to any form of either local or systemic shock loading. When lifting into position it should be remembered that the plates can be of a fairly significant mass depending on their size. At all times clean leather gloves should be worn to ensure that the plates remain clean and that any sharp panel edges do not cut hands

