CI/SfB | | Yr4 |
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construction solutions

High-strength aramid reinforcement sheet for structural strengthening

weber.tec force aramid sheet

enforce aramid A120 sheet

About this product

weber.tec force aramid sheet is an aramid-fibre, uni-directional sheet for structural confinement and repair of structures. Available in two grades with Twaron® aramid fibres and compliant with Highways Agency advice note on bridge column strengthening.
Recommended application with **weber.tec force EP primer** and **weber.tec force EP bonding adhesive** to form part of the **weber.tec force composite strengthening system**.

Technical data

Physical properties

	S&P A120/290	S&P A120/420
Aramid areal weight	290 g/m²	420 g/m²
Polyester weft	30 g/m²	30 g/m²
Total sheet weight	320 g/m²	450 g/m²
Colour	Yellow	Yellow
Size	300 mm width	300 mm width
Fibre density	1.45 g/cm³	1.45 g/cm³
Thickness for design	0.2 mm	0.29 mm
Cross section for design*	200 mm²	290 mm²
Delivery	150 m rolls	150 m rolls

Mechanical properties

Aramid fibre elastic modulus	120 kN/mm²
Mean sheet elastic modulus	116 kN/mm²
Characteristic elastic modulus	104 kN/mm²
Mean tensile strength of sheet	2400 N/mm²
Charateristic tensile strength	> 2100 N/mm²
Strain capacity of fibre	2.5%
Mean strain capacity of sheet	2 – 10%

*based upon 1000 mm width of sheet
NB. A further Grade 850 is available on request – 850 g/m²

Uses

- Confinement reinforcement
- Confinement and strengthening of bridge columns and piers
- Strengthening of silos, cooling towers, water tanks, and walls
- Impact strengthening of concrete and masonry structures
- Blast strengthening of masonry walls

Typical applications

- Bridge columns
- Bridge piers
- Silos
- Towers

Features and benefits

- Lightweight and easy to apply
- High-strength, lightweight material
- Tolerant to damage and impact resistant
- Excellent chemical resistance
- Non-conductive material
- Factory produced with consistent mechanical properties
- Uni-directional fibres allowing utilisation of high-strength fibres
- Two grades of aramid sheet fabric to allow economy of application with number of layers

FM 1209

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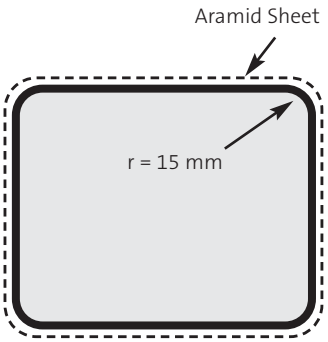
weber.tec force aramid sheet

Preparation

Before the application of the S&P aramid sheet, the quality of the substrate has to be checked. The surface tensile strength of the substrate has to be tested with a pull-off bond test. For load transference into the aramid sheet, the substrate needs to be sound and dust free.
Minimum surface tensile strength is 1 N/mm^2.

The substrate must be roughened by light grit blasting or sand blasting or grinding to remove any surface contamination and surface cement laitance. The flatness of the substrate must be checked with a straight edge, maximum deviation shall be 5 mm over a 2 metre straight edge. Any blow-holes or depressions must be filled with **weber.tec EP highbuild** or **weber.tec EP structural adhesive**, prior to application of **weber.tec force aramid sheet**.

The edges of the structural member must be rounded by grinding to achieve a minimum radius of 15mm.



The substrate must be cleaned of any dust and the moisture content must be less than 4%. Ensure all surfaces are clean and free from any contamination.

Application

weber.tec force EP primer
The epoxy resin primer must be mixed in accordance with the product data sheet and applied to the prepared substrate. Allow to touch-dry – normally up to 2 hours.

weber.tec force EP bonding adhesive
The epoxy resin adhesive must be mixed in accordance with the data sheet and applied evenly to the primed substrate as a first coat.

Immediately after the adhesive is applied, the first layer of aramid sheet is applied by hand and pressed into the surface with a rubber roller and squeegee.

Another layer of adhesive is applied by brush or roller over the first layer and is pressed into the sheet with a squeegee. Additional layers are applied in the same way onto uncured, wet epoxy resin adhesive.

For multiple layers, use the wet lay-up process. Pre wet the aramid sheet with **weber.tec force EP bonding adhesive** and place the wetted-out sheet onto the first coat of adhesive.

Roller and squeege into position, taking care to align the fibres correctly.

Encapsulate this layer with a second coat of **weber.tec force EP bonding adhesive**.

For multiple layers, repeat the above steps.

Pre-wetting of the aramid sheet can be achieved by either:

1 Manual lamination on a table protected with plastic sheeting.

2 Machine lamination using the **weber.tec force laminator**, details available on request.

Allow the epoxy resin adhesive to fully cure.

Cleaning

Clean tools carefully, using **weber.tec solvent 3**.

Packaging

S&P aramid sheets are supplied in 150 m long rolls at 300 mm width.

Coverage

Area coverage is 45 m^2 per roll.

Storage and shelf life

Store the aramid sheets in dry conditions and protect from exposure to direct sunlight.

Unlimited shelf life if stored correctly.

Health and safety

Sheet reinforcement material.

Loose fibres may be sharp, strong and irritating. Always wear gloves when handling fibre sheets and avoid contact with the skin. Cut the rolls by applying adhesive tape across the width of the roll and cut with industrial scissors through the tape to avoid fraying loose fibres.

For further information, please request the Material Safety Data Sheet for this product.

weber.tec force laminator machine

Technical services

Weber's Customer Services Department has a team of experienced advisors available to provide on-site advice both at the specification stage and during application. Detailed specifications can be provided for specific projects or more general works. Site visits and on-site demonstrations can be arranged on request.

Technical helpline
Tel: (01525) 722110

Sales enquiries

Weber products are distributed throughout the UK through selected stockists and distributors. For UK sales enquiries and overseas projects, contact **Weber's** Sales office.

Sales office
Tel: (01525) 722100
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