MasterBrace MBar

Carbon Fibre Reinforced Polymer (CFRP) system for structural strengthening of concrete, masonry and timber structures as part of MasterBrace System; CR Carbon ROD according to AS 5100.8

Material Description

MasterBrace MBar is a ready to use pultruded carbon fibre rod, which provides a high tensile strength (that is higher than steel reinforcement used in the concrete industry) and can be used for flexural reinforcement of concrete, masonry and timber elements. **MasterBrace MBar** system is in compliance with AS 5100.8: 2017.

Areas of Application

To replace or augment steel reinforcement in concrete structures. To add reinforcement to timber and masonry elements. Suitable for NSM (near surface mounted reinforcement) of structures.

- Ideal when the cover of the steel bars is very low, as **MasterBrace MBar** does not corrode.
- Can be used for slim or narrow architectural concrete.
- Reduce deformation under working loads (increase in rigidity)
- Increase the load-bearing capacity (e.g. structural conversion following a change in capacity load)
- Increase the fatigue strength
- Improve the performance of cracked structures (increase in durability)
- **MasterBrace MBar** is supplied with peel ply, which gives better protection during handling and improved adhesion to the substrate.
- Can be buried in the structure
- Ideal for use in historical structures
- MasterBrace MBar enables the amount of reinforcement to be calculated in relation to the performance required or the stress flow
- Allows faster installation, thereby reducing costs
- Increases the durability of the structure by protecting it against the aggressive action of chlorides and freezing and thawing cycles

Performance Data

Performance Properties	AS 5100.8 Table A2.2.1 Type CR	MasterBrace MBar 8 CR MasterBrace MBar 10 CR MasterBrace MBar 12 CR
Tensile Strength (EN 2561)	2200MPa	2500MPa
Tensile Strength (ISO 10406)		3200 MPa
Tensile Modulus (EN 2561)	140GPa	165 GPa
Tensile Modulud (ISO 10406)		155 GPa
Diameter mm with peel ply		8, 10, 12, -
Diameter mm without peel ply		7.7, 9.7, 11.7
Section area mm^2		46.6, 73.9, 110, -
Ultimate elongation (strain)EN 2561	1.3%	1.5%
Elongation at Break (ISO 10406)		1.8
Fibre content %	65%	70±3
Density g/cm^3		1.60±0.1
Glass transition temperature	70°C	>80°C

Note: Values given in the Performance Data table are minimum values obtained from regular, quality assurance testing. Some variation may occur dependent on batch, size, and test method sensitivity. Allowance should be made for this in the design process. The structural designer is advised to satisfy themselves, by prior testing if necessary, that the grade chosen will conform to the performance criteria for their specific design requirements.

Application

The surfaces to be strengthened with **MasterBrace MBar** should be prepared adequately to receive to the **MasterBrace MBar**. All chases should be clean cut to the required width (and depth). A minimum of 3mm should be left around the **MasterBrace MBar** to allow for adequate adhesive. A coat of MasterBrace P 3500 may be required on porous substrates. Remove the protective peel-ply from the **MasterBrace MBar** before application.

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Provided the **MasterBrace MBar** remains clean, there is no need to solvent wipe before application. Mix the MasterBrace 4000 as directed. Apply the adhesive to the prepared chase and place the **MasterBrace MBar** into the adhesive. Level the adhesive to ensure that a smooth surface is achieved.
The adhesive normally used for **MasterBrace MBar** is the MasterBrace 4000, a two component epoxy based adhesive. Refer to separate technical data sheet for technical properties. Depending on the application, other Master Buiders Solutions adhesives may be used to suit a variety of installation conditions (eg MasterBrace 1444 or MasterEmaco 2525). Please contact your local Master Buiders Solutions Technical Sales Representative for further information.

Packaging

MasterBrace MBar is available in max length 11.7m pre-cut pieces (for all diameter bars), depending on project requirements*. **MasterBrace 4000** is available in 5kg units.
* For special lengths please contact your local Master Builders Solutions Technical Sales Representative.

Storage & Shelf Life

Store at ambient temperatures, out of direct sunlight, in cool, dry warehouse conditions. **MasterBrace 4000** has a shelf life of up to 12 months if stored according to manufacturer's instructions.

Watchpoints

Design and detailed specification should be carried out by appropriately qualified and competent person(s). Trained and experienced specialist contractors should only carry out installation. Site quality control should be the responsibility of an independent organisation appointed by the client or his representatives.Technical details of other adhesives, primers and coatings can be found on the technical data sheets for the respective products.

Specification Clause

Ready to use peel ply pultruded carbon fibre rod, which provides a high tensile strength and complying with Type CR in table A2.2.1 of AS 5100.8: 2017; to replace or augment steel reinforcement in concrete structures or to add reinforcement to timber and masonry elements.

Disclaimer

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