

MBRACE C-BAR® & G-BAR®

Ready-to-use Carbon Rods and Glass Fibre (Fibre Reinforced Polymer) for the reinforcement of concrete, masonry and timber elements

DESCRIPTION OF PRODUCT

C-BAR is ready-to-use pultruded carbon fibre rods that provide a high tensile strength (that is higher than steel bars used in the pre-cast industry) and are used for flexural reinforcement of concrete, masonry and timber elements.

G-BAR is a family of lightweight glass fibres rods particularly designed for structural strengthening of concrete structures especially when durability is not a critical factor (in these cases Carbopree rod is preferred).

FEATURES AND BENEFITS

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

Ideal when the cover of the steel bars is very low, as C-BAR 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
- Limit or cover the fissuring states (increase in durability)
- C-BAR is supplied with peel ply, which gives better adhesion to the substrate and to the subsequent coatings
- Can be buried in the structure Ideal for use in historical structures
 - The C-BAR 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

G-BAR OFFERS:

- Non-magnetic properties
- Damage tolerance
- Easiness of transportation and handling
- Potential for real-time monitoring

PERFORMANCES OF C-BAR HS (HIGH STRENGTH RODS):

	C-BAR HS 5	C-BAR HS 7.5	C-BAR HS 10
Tensile strength, MPa:	2300	2300	2300
Tensile modulus of elasticity, GPa:	130	130	130
Ultimate deformation:	1.8%	1.8%	1.8%
Nominal diameter, mm:	5	7.5	10
Nominal area, mm ² :	19	44	78
Ultimate load, KN:	44	101	180
Linear weight, g.m ⁻¹ :	40	75	130

PERFORMANCES OF C-BAR HM (HIGH MODULUS RODS):

	C-BAR HM 5	C-BAR HM 7	C-BAR HM 10
Tensile strength, MPa:	3000	3000	3000
Tensile modulus of elasticity, GPa:	200	200	200
Ultimate deformation:	1.5%	1.5%	1.5%
Nominal diameter, mm:	5	7	10
Nominal area, mm ² :	19	38	78
Ultimate load, KN:	57	114	234
Linear weight, g.m ⁻¹ :	40	65	130

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Performances of G-BAR:

	G-BAR 12	G-BAR 16	G-BAR 20	G-BAR 25	G-BAR 28
Tensile strength, MPa,	1000	1000	1000	950	950
Tensile modulus of elasticity, GPa:	40	40	40	40	40
Ultimate deformation, %:	2.8	2.8	2.8	2.8	2.8
Nominal diameter, mm:	12	16	20	25	28
Nominal area, mm ² :	113	200	314	490	615
Ultimate load, KN	113	200	314	460	550
Linear weight, gxm ⁻¹ :	220	390	612	955	1200

Other diameters are available upon request.

MBRACE PUTTY

MBRACE PUTTY is a non-shrink, three-component, solvent-free tixotropic epoxy putty. MBRACE PUTTY can be used for masonry, concrete and it can be placed for both vertical and overhead applications. MBRACE PUTTY has very high mechanical performances even at high temperature. In case of fire MBRACE MBAR PUTTY shows excellent fire extinguishing performances.

Performances of MBRACE PUTTY:

Composition:	Three component epoxy-base
Colour:	Grey
Specific gravity at 20°C:	1.80
Glass transitional temperature:	>65°C
Modulus of elasticity:	10 GPa
Lap shear strength to CFRP:	>17 Mpa
Water absorption:	<0.3%
Tensile strength:	32 MPa
Compressive strength:	>60 MPa
Flexural strength:	>35 MPa
Full cure 25°C:	7 days
Bonding, ASTM D4541:	>3.5 MPa (concrete failure) • concrete • steel
Pot life at 25°C:	50 minutes
40°C:	25 minutes
Cure rate at	
25°C:	5 hours
40°C:	2 hours
Full cure at	
25°C:	5 days
40°C:	3 days

Note

Values above are typical mean values obtained from regular testing. Some variation may occur dependent on batch, size and test method sensitivity. Allowance should be made for this in the design process.

The designer is advised to satisfy himself, by prior testing if necessary, that the grade chosen will conform to the performance criteria for his specific design.

PACKAGING

C-BAR and G-BAR are available in 3m rolls.

Other lengths are available upon request.

APPLICATIONPROCEDURE PREPARATION OF SUBSTRATE:

The surfaces to be strengthened with C- BAR and G- BAR should be prepared to receive the – C- BAR or G- BAR. All chases should be cleaned cut to the required width. A minimum of 3mm should be left around MBRACE PRIMER may be required on porous substrates.

Mix the MBRACE Putty following application procedure outlined in the technical datasheets. Apply the adhesive to the prepared chase and place the C- BAR or G- BAR into putty

Level MBRACE PUTTY to ensure that smooth surface is achieved.

SOTRAGE AND LIMITATIONS

Store at ambient temperatures, out of direct sunlight, in cool, dry warehouse conditions.

MBRACE C-BAR[®] & G-BAR[®]

SHELF LIFE

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).

Trainee and experienced specialist contractors should only carry out installation. Site quality control should be the responsibility of an independent organization appointed by the client or his representatives.

NOTE

Field service, where provided, does not constitute Supervisory responsibility. For additional information, contact your local Master Builders Solutions representative.

Master Builders Solutions reserves the right to have the true cause of Any difficulty determined by accepted test methods.

QUALITY STATEMENT

All products manufactured by Master Builders Solutions Egypt, or imported from Master Builders Solutions affiliate companies worldwide, are manufactured to procedures certified to conform to the quality, environment, health & safety management systems described in the ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 standards.

* Properties listed are based on laboratory controlled tests.

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