

# MasterBrace 4000

Epoxy resin adhesive for MasterBrace Laminate system

## Material Description

**MasterBrace 4000** is the adhesive for the MasterBrace Laminate system and a filling compound for irregular surfaces. The MasterBrace Laminate system is based on ready to use carbon fibre laminate strips that provide high tensile strength and are suitable for supplemental, externally bonded reinforcement of concrete, timber and masonry elements.

## Areas of Application

**MasterBrace 4000** is used as an adhesive for the MasterBrace Laminates to concrete, steel and wood.

## Characteristics and Benefits

- Long pot-life – allows installation of long laminates
- Thixotropic with high adhesive strength – self-supporting requiring no external propping and with minimal drips and runs
- High cured bond strength – creating true composite with substrate

## Properties

Compressive strength	>60 MPa
Flexural strength	>30 MPa
Bonding, ASTM D 4541	
Concrete	>3.5 MPa (concrete failure)
Steel	>5 MPa
Electrical resistivity	10 <sup>14</sup> Ω m
Composition	Two component epoxy based adhesive
Mix ratio	3A : 2B by weight
Colour	Grey
Specific Gravity @ 23°C	1.5
Full Cure @ 23°C	7 days
Pot Life @	
- 23°C	40 mins
- 40°C	20 mins
Tack Free @	
- 23°C	5 hours
- 40°C	2 hours

*The performance data is typical and based upon controlled laboratory conditions. Actual performance on the job site may vary from these values based on actual site conditions.*

## Application

### Surface Preparation

Remove oils, grease, dust or any other loose material from the surface that may impair adhesion. Application of external reinforcement should only take place if the substrate has an inherent tensile strength of at least 1.5 MPa.

The surfaces of elements that are still in good condition or restored with repair mortar should be roughened sufficiently with grit blasting or similar. Angle grind, grit blast, or needle gun repaired surfaces, to remove smooth, cement paste rich surface layers (laitance) and ensure aggregate is exposed and substrate surface has a sufficient profile. A surface profile of CSP 3-4 is desirable. With degraded substrates, the whole damaged layer should be removed by scarifying, hydro-demolition or similar and then structural restoration carried out with a suitable mortar eg. MasterEmaco S 5400CI, MasterBrace 1446 or MasterBrace 4000 to ensure surfaces are within allowable levelness and flatness tolerances..

### Mixing

Mechanically pre-mix Part A before adding all of Part B and mixing for two minutes or until a homogeneous mix is produced using a slow speed drill and mixing paddle.

### Method of Use

Ensure a maximum substrate humidity of 4% and substrate temperature is at least 30C above dew point. If necessary, apply a levelling coat of **MasterBrace 4000** using a putty knife, to fill any bug holes or imperfections. Recheck surface tolerances.

Apply a layer of MasterBrace P 3500 by roller or brush, and apply the **MasterBrace 4000** while the primer is still tacky. Maximum layer thickness of MasterBrace 4000 for re-profiling is 20 mm.

Remove the peel ply protective coating from the laminate surface before application of the **MasterBrace 4000**.



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If after removal and before installation the laminate has been contaminated clean with a white cloth and non-greasy solvent (like methylated spirits) before applying the MasterBrace 4000. Apply one layer of **MasterBrace 4000**, of 1-1.5 mm thick, to both substrate and laminate surfaces. Place the MasterBrace Laminate on the substrate surface and using a hard roller, exert a constant pressure by moving the tool both ways in the direction of the fibres to expel air. Aim for a final layer thickness of 1-3 mm of **MasterBrace 4000**. Clean up excess adhesive with non-greasy solvent prior to hardening. For further information about application, please obtain a copy of the Master Builders Solutions "Application Guide for MasterBrace Laminates" from our office or website.

## Estimating Data

A 5kg kit of **MasterBrace 4000** yields approximately 3.3 litres. This is sufficient for approximately 1m<sup>2</sup> of laminate or a 10-12 m length of 80 mm wide laminate.

MasterBrace 4000 Wet Film Thickness				
L	Thickness in mm /m <sup>2</sup>	m <sup>3</sup>	pails /m <sup>3</sup>	m <sup>2</sup> /mm thickness
3.3	3.3mm	(0.0033)	303	3.3 m <sup>2</sup>

## Disclaimer

MasterBrace-4000-ANZ-V12-0523

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