

# MasterBrace ADH 4000

Thixotropic adhesive recommended for structural bonding of the MasterBrace LAM.

## MATERIAL DESCRIPTION

MasterBrace ADH 4000 is a two-part solvent-free thixotropic epoxy resin featuring high bonding strength to various types of substrate.

## FIELDS OF APPLICATION

MasterBrace ADH 4000 is applicable, by means of toothed metal trowel or steel spatula, to achieve both horizontally and vertically:

- bonding of concrete, metal, wood, stone and many other building materials in combination with each other;
- tackles steel (only bolted);
- bonding of precast reinforced concrete blocks;
- surfaces and surface regularization;
- grouting of crawl spaces;
- sealing of cracks to be injected with MasterInject 1360;
- localized reconstruction of edges, chipping and cavities of concrete elements.

MasterBrace ADH 4000 is recommended as a structural adhesive for all applications with the pull-extruded carbon fibre laminates of MasterBrace LAM system to reinforce structures in concrete, masonry, natural stone, wood and steel.



## FEATURES AND BENEFITS

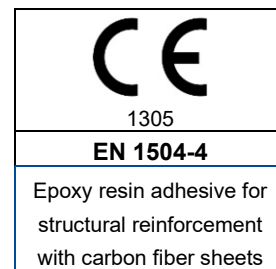
The features are:

- excellent adhesion: this requirement, also guaranteed the absence of solvent, obtains the consistency with the support;
- high mechanical performance and compression

tensile strength;

- dielectricity;
- resistance to most common acids, alkalis, solvents and hydrocarbons;
- waterproof: the material is also suitable for permanent contact with water.

In compliance with the European Regulation (EU No 305/2011 and EU No. 574/2014) the product is provided with the CE marking according to UNI EN 1504-4 and the relative DoP (Declaration of Performance).



## COVERAGE

For applications such as structural adhesive

1.6 kg/m<sup>2</sup> per mm of thickness.

For applications with the MasterBrace LAM

- 0.16 ÷ 0.25 kg/m for MasterBrace LAM with 5 cm width
- 0.32 ÷ 0.5 kg/m for MasterBrace LAM with 10 cm width

## PACKAGING

5 kg pack consisting of:

- comp. A 3,25 kg.
- comp. B 1,75 kg.

## STORAGE

Store in a sheltered, cool, dry place (10÷30 °C) out of direct contact with sunlight, fire or naked flames. Should the temperature fall below 10°C the viscosity of the resin could increase and lumps form. In this case, before using the product, warm the containers (tightly closed) by standing them in hot water until the lumps disappear.

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Technical Information			
Colour		Grey	
Mixing ratio		A / B = 1,85 / 1	
Density ASTM D1505-85		1,7 g/cm <sup>3</sup>	
Pot life ASTM C881/C881M		60 min	
- 22°C		60 min	
- 30°C			
Workability		A 22°C: 90 minuti A 30°C: 35 minuti	
Application temperature		5 ÷ 30°C	
Packaging		- comp. A 3,25 kg bucketlet - comp. B 1,75 kg bucketlet	
Coverage		- 0.16 ÷ 0.25 kg/m for MasterBrace LAM with 5 cm width - 0.32 ÷ 0.5 kg/m for MasterBrace LAM with 10 cm width	
Essential characteristic in accordance to 1504-4			Performances
Adhesion at 7 days	Resin-concrete	UNI EN 1542	≥ 3.5 MPa
	Concrete-resin-concrete	UNI EN 12615	≥ 12 MPa
	Concrete-resin-steel	UNI EN 12615	≥ 5.4 MPa
	Steel-resin-steel	UNI EN 12615	≥ 16 MPa
Compressive strength		UNI-EN 12190	>73 MPa
Elastic modulus (compressive)		UNI-EN 13412	8700 MPa
Elastic modulus (bending)		UNI-EN ISO 178	4260 MPa
Oblique shear resistance		UNI-EN 12188	50° : > 78 MPa 60° : > 86 MPa 70° : > 106 MPa
Shear resistance:		UNI-EN 12188	>70 MPa
Thermal expansion coefficient		ASTM D696	0,45*10 <sup>-6</sup> °K <sup>-1</sup>
Glass transition temperature Tg		EN 12614	52.3°C
Thermal compatibility (heating cycles)		EN 13733	> 8,50 MPa
Fresh concrete-hardened concrete			> 11,50 MPa
Hardened concrete-hardened concrete			
Thermal compatibility (wet cycles)		EN 13733	> 6,00 MPa
Fresh concrete-hardened concrete			> 8,50 MPa
Hardened concrete-hardened concrete			

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## APPLICATION SHEET

### APPLICATION

- Bonding:

If necessary, apply the bonding layer of MasterBrace P 3500 roller or by brush application can be done on a dry support using steel spatula or metal toothed trowel kept constantly clean using specific diluent E100. Do not apply the product at temperatures below 5° C as curing time would be extremely stretched.

- MasterBrace LAM:

Apply a coat of MasterBrace P 3500 PTB by roller or by brush (necessary for wood); mechanically stir component A of MasterBrace ADH 4000 before adding its component B (mixing ratio 4A:1B by weight); once component B has been added, mix until a uniform, grey compound is obtained; use a notched spreader to apply a millimeter thick coat of MasterBrace ADH 4000 on the side of the laminate that has not been sandblasted (after having cleaned it with acetone or nitro thinner and left to dry thoroughly) and then on the substrate; lay MasterBrace LAM on the substrate and pass a hard rubber roller with constant pressure in the two directions of the fibres until all excess adhesive is squeezed out; remove the excess resin and clean the laminate.



### RECOMMENDATIONS AND PRECAUTIONS

With the MasterBrace LAM system, working conditions must be carefully considered during the winter months and in cold climates. Do not apply the product at temperatures below 5°C, as polymerisation time could become extremely long.

Damp and humidity can hinder bonding of the adhesive. Do not apply the system when rain or even dew is forecast.

### SAFETY INSTRUCTION

For information on the correct and safe use, transport, storage and disposal of the product, consult the most recent Safety Data Sheet.

- Always wear gloves, goggles and suitable work clothes during mixing in order to avoid contact with the skin.
- In the event of accidental contact, thoroughly wash the affected parts with water and soap or an appropriate detergent.
- Do not use solvents or thinners.
- Do not inhale the vapours and sprays; a continual change of air should be ensured for application in a closed environment.
- Under no circumstances drink, eat or smoke during use.
- Comply with safety regulations on the use of products that are inflammable or contain solvents.

### OTHER SERVICES

For price analysis, specifications, supplementary brochures, references, reports and technical assistance, visit the website [www.master-builders-solutions.com/it-it](http://www.master-builders-solutions.com/it-it) or contact [infomac@mbcc-group.com](mailto:infomac@mbcc-group.com).

Scan the QR code to visit the product page and download the latest version of this datasheet.



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Since 16/12/1992, Master Builders Solutions Italia Spa has been operating under a Certified Quality System compliant with the UNI EN ISO 9001 Standard. Furthermore, the Environmental Management System is certified according to the UNI EN ISO 14001 Standard and the Safety Management System is certified according to the UNI ISO 45001 Standard.

**Master Builders Solutions Italia Spa**

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For further information, please consult the local Technician of Master Builders Solutions. The technical advice on how to use our products, either written or verbally given, are based on the current state of our scientific and practical expertise, and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products.

Therefore, the customer is not exempted from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes.

This version supersedes all the previous ones.