

# Glass Connect L

Glass fibre L connector for CRM strengthening.

Glass Connect L, featuring Glass Fiber Reinforced Polymers, ensures the connection of Glass Net glass fibre meshes to the structural elements to be strengthened with CRM technique using the Resinglass chemical anchoring agent.



1. Certified for CRM structural strengthening
2. Excellent tensile strength
3. High level of durability
4. Easy to install
5. For the strengthening of masonry and concrete structures

## Areas of application

→ Intended use:

- Static and seismic upgrade or improvement of masonry and concrete structural elements with CRM reinforced plaster/render technique by grouting with Resinglass in combination with meshes from the Glass Net range, Glass Net A305 corner pieces and lime- or cement-based mortars

- Consolidation of masonry arches, vaults and domes
- Compressive and flexural stress and shear for wall panels

## Instructions for use

→ Preparation of substrates

The substrate must be meticulously prepared and cleaned in accordance with the technical data sheet of the chosen mortar: Geocalce G Antisismico, Biocalce Muratura, Geolite, Metric R3 Tixo or Metric R4 Tixo.

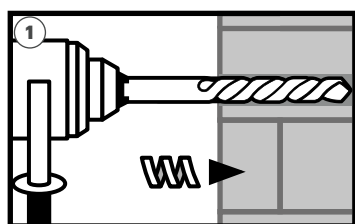
For applications on masonry, it is necessary:

- remove all finishing coats until the masonry is exposed;
- remove all weakened parts and inconsistent rendering mortars until a solid, resistant substrate is obtained; roughen it by mechanical scarification or hydro-demolition to a depth of at least 5 mm, equivalent to level 8 of the Test kit for preparation of reinforced concrete and masonry substrates;
- repair any missing parts of the masonry using fragment-filling or break-fill techniques;
- to saturate with water until the substrate is saturated yet with no excess water on the surface;
- on dusty substrates or substrates that are not compact, to apply Primer Uni diluted 1:4 using water until fully saturated
- on strongly uneven substrates, a layer of levelling mortar can be applied.

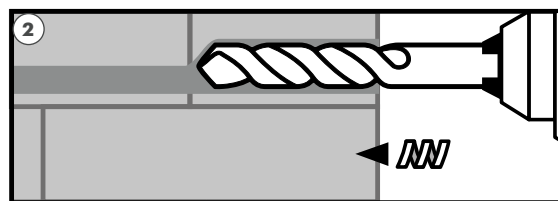
→ Installation of Glass Connect L connectors

In case of through-connections:

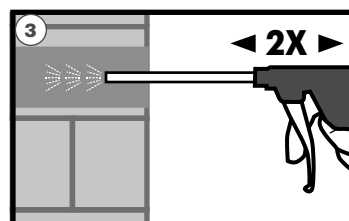
- ① Drill a first through-bore with a diameter of 10 mm for Glass Connect L8 or 12 mm for Glass Connect L10.



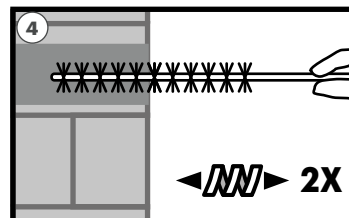
- ② Flare the bore on the side where the shorter connector is to be applied, with a depth sufficient to ensure a 100 mm-overlap between the two connectors. The flare must have a diameter of 20 mm for Glass Connect L8 or 24 mm for Glass Connect L10.



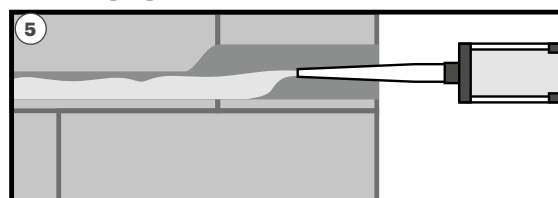
- ③ Clean the bore by blowing with compressed air (min. 6 bars) for a minimum of two times until the return air flow is free of visible dust.



- ④ Choose a metal pipe cleaner with a diameter appropriate to the diameter of the bore and brush along the entire diameter of the bore and the entire depth at least twice in a rotary motion.

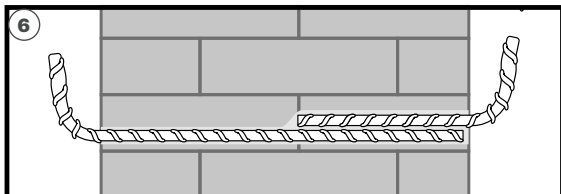


- ⑤ Completely fill the bore with Resinglass chemical anchoring agent.



## Instructions for use

- ⑥ Install the Glass Connect L connectors, of appropriate diameter and length on both sides of the substrate in a rotary motion, ensuring an overlap length of 100 mm between them and a distance between connector head and substrate of at least 15 mm.



In case of non-through-connections:

Drill a bore 2/3 the depth of the substrate and with a diameter of 10 mm for Glass Connect L8 and 12 mm for Glass Connect L10. Then clean the drilled bore of any residue and inject a suitable amount of Resinglass chemical anchoring agent and install the connector, ensuring a distance between connector head and substrate of at least 15 mm.

The quantity and arrangement of the connectors will be defined by the designer; 4 connectors per m<sup>2</sup> are recommended.

## Certificates and marks



## Abstract

### CRM Glass Net system

Supply and installation of a CRM (Composite Reinforced Mortar) system for double-sided, compressive strengthening of load-bearing walls, CE-marked, with European Technical Assessment (ETA), made with bi-directional FRP mesh consisting of AR glass fibre cords completely impregnated with thermosetting resin (total mass 315 g/m<sup>2</sup>) installed with hygroscopic and breathable inorganic mortar based on pure natural hydraulic lime NHL 3.5 – such as CRM Glass Net made with Glass Net 315 in combination with Geocalce G Antisismico by Kerakoll. Characteristics of the mesh: mesh size 50x52 mm, nominal cross-sectional area 8.33 mm<sup>2</sup> (weft) and 5 mm<sup>2</sup> (warp), typical tensile strength 486.11 MPa (weft) and 567.98 MPa (warp), typical ultimate strain 2.05% (weft) and 1.88% (warp), typical tensile elastic modulus 24.67 GPa (weft) and 28.78 GPa (warp), typical knot shear strength 0.62 (weft) and 0.84 kN (warp). Certified characteristics of the mortar: G/M15 mortar class (EN 998/2), R1 PCC resistance class (EN 1504-3), permeability to water vapour 15 to 35 (EN 1745), compressive strength after 28 days  $\geq 15$  N/mm<sup>2</sup> (EN 1015-11), elastic modulus 9.23 GPa (EN 13412), adhesion to the substrate after 28 days  $> 1.0$  N/mm<sup>2</sup> – FB: B (EN 1015-12). Transversal connections are made with 4 elements per m<sup>2</sup>, using “L” shaped fiberglass rebars installed on both sides with an internal overlap of at least 10 cm, for an average thickness of the load-bearing wall of 50 cm, grouted with a chemical anchoring agent – such as Glass Connect L8 in combination with Resinglass by Kerakoll. Characteristics of the rebar: nominal section area 50.24 mm<sup>2</sup>, typical tensile strength 727.3 MPa, elastic modulus 44 GPa, break warp 2.38%, anchoring length 100 mm. Characteristics of the resin: CE-marked, suitable for seismic applications compliant with C1 and C2 performance levels, axial tensile strength 24,3 N/mm<sup>2</sup>. The procedure will be conducted as follows: eventual preparation of the surfaces to be strengthened by demolishing and removing the existing plaster/render; repair of any cracks by binding and/or consolidating with injection of fluid mortar (to be accounted for separately) and final dusting by low-pressure water washing; creation and cleaning of the through-bore of a suitable diameter according to the diameter of the rebars, taking into account the overlapping of the rebars inside the bore; insertion of the connectors inside the bore and fastening by means of a chemical anchoring agent; positioning of the mesh, taking care to distance it from the substrate by means of fastening to the connectors; preparation and laying of the mortar with a plastering machine in a total thickness of 3-5 cm on each side.

The quantification is calculated per unit area of reinforced masonry including any overlaps.

**Technical Data compliant with Kerakoll Quality Standard**

Material	AR glass impregnated with thermosetting resin
Nominal section:	
- Diameter 8 mm	50.24 mm <sup>2</sup>
- Diameter 10 mm	78.54 mm <sup>2</sup>
Density:	
- fibre	2.62 g/cm <sup>3</sup>
- matrix	1.2 g/cm <sup>3</sup>
Resin glass -transition temperature	+120 °C
Diameter	8, 10 mm
length	100, 200, 400, 600 mm
Shelf life	unlimited
Pack	100 pcs box

**Length of connectors to be used in relation to the thickness of the wall:\***

Thickness of the wall (cm)	Connector length 1 (cm)	Connector length 2 (cm)
< di 20	10	20
< 30	20	20
< 40	10	40
< 50	20	40
< 60	10	60
< 70	20	60
< 80	40	60
< 90	40	60
< 100	60	60
< 110	60	60

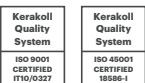
\*Note: connector lengths refer to the creation of a through-bore with a 10 cm overlap between the two Glass Connect L connectors

<b>Performance</b>		
<b>Technical characteristics of the connector:</b>		
<b>Mechanical characteristics</b>	<b>Test Method</b>	<b>Performance</b>
Tensile strength (average value)	ISO 10406-1	$\sigma_{u,con} = 809.3 \text{ MPa}$
Tensile strength (characteristic value)	ISO 10406-1	$\sigma_{u,con} = 727.3 \text{ MPa}$
Modulus of elasticity (average value)	ISO 10406-1	$E_{con} = 54.20 \text{ GPa}$
Elastic modulus (characteristic value)	ISO 10406-1	$E_{con} = 44 \text{ GPa}$
Break warp (average value)	ISO 10406-1	$\varepsilon_{u,con} = 2.60\%$
Break warp (characteristic value)	ISO 10406-1	$\varepsilon_{u,con} = 2.38\%$
Bonded length	<b>Annex E</b> EAD8340392-00-0104	$L_{anc} = 100 \text{ mm}$
Pull-out force, concrete substrates (average value)	<b>Annex E</b> EAD8340392-00-0104	$F_{anc} = 25.8 \text{ kN}$
Pull-out force, masonry substrates (average value)	<b>Annex E</b> EAD8340392-00-0104	$F_{anc} = 23.1 \text{ kN}$
Pull-out force, tuff substrates (average value)	<b>Annex E</b> EAD8340392-00-0104	$F_{anc} = 13.5 \text{ kN}$
Pull-out force, stone substrates (average value)	<b>Annex E</b> EAD8340392-00-0104	$F_{anc} = 19.6 \text{ kN}$
Overlap length	<b>Annex F</b> EAD8340392-00-0104	$L_{lap} = 100 \text{ mm}$
Maximum overlapping load (average value)	<b>Annex F</b> EAD8340392-00-0104	$F_c = 7.61 \text{ kN}$
Maximum overlapping tensile strength (average value)	<b>Annex F</b> EAD8340392-00-0104	$\sigma_{lap} = 151.47 \text{ MPa}$
<b>Installation conditions</b>		
Maximum temperature (air and substrate)		+ 50 °C
Minimum temperature (air and substrate)		- 5 °C
Relative air humidity		irrelevant
<b>Service conditions</b>		
Maximum temperature (air and surface)		+ 70 °C
Minimum temperature (air and substrate)		- 15 °C
Relative air humidity		irrelevant

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## Warning

- Abide by any standards and national regulations
- when handling the material wear protective clothing and goggles, and follow the instructions regarding methods for applying the material
- store the material under cover in a dry place, well away from substances that might damage it
- the product is an item according to the definitions of the EC Regulation No. 1907/2006 and therefore does not require a Safety Data Sheet
- for any other issues, contact Kerakoll Technical Customer Service: + 39 0536.811.516  
[www.kerakoll.com/contatti](http://www.kerakoll.com/contatti)



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