

Glasal-T

The following tunnel lining sheets are available

- GLASAL-T for straight tunnel lining (thickness 5 or 7.5 mm)
- GLASAL-TS for straight tunnel lining (thickness 5 mm glued on 15 mm ETER-BOARD HD)
- GLASAL-TR for curved tunnel lining (thickness 5 or 7.5 mm with metal strips with aluzinc protection on the backside)

1 Product composition

GLASAL-T sheets consist of the following:

- Portland cement
- mineral fillers
- organic reinforcing fibres
- functional additives
- coating with mineral pigments on the front side with a PU coating on top
- vapour tight and watertight varnish on the back side

2 Production method

GLASAL-T sheets are manufactured on a Hatschek machine, are double pressed, autoclaved and polished. The front side is finished with a water based coating with mineral pigments and with a PU coating on top. The surface is smooth, not glossy. The surface has a high resistance against abrasion. The back side is finished with a vapour and watertight varnish.

3 Dimensions, weight and tolerances

Standard thicknesses available from stock : 5 and 7.5 mm

Rectified
1,220 x 2,500 mm
1,220 x 3,000 mm

	Rectified
Thickness	+/- 10%
Length and width	+/- 1.5 mm and +/- 1.0 mm if L x W < 1 x 1 m
Squareness	1.0 mm/m

Weight (ex-works)

Thickness (mm)	Weight (kg/m ²)	1,220 x 2,500 mm (kg/sheet)	1,220 x 3,050 mm (kg/sheet)
5	8.8	26.8	32.2
7.5	13.2	40.3	48.3
5 mm + 15 mm*	36.7	112.0	134.3

* = Glasal-T 5mm + Eter-Board HD 15mm

4 Colour

GLASAL-T sheets have a smooth silky gloss surface. See the most recent EURO PANELS OVERSEAS NV colour chart for an overview of the standard colours. Other colours are available on request in minimum quantities.

Glasal-T

5 Technical properties

Average values according to the European standard EN 12467 'Fibre-cement flat sheets', which describes classification and most testing methods.

<i>A. Testing according to ISO quality management system</i>				
Density	Dry	EN 12467	1,600	kg/m ³
Bending strength	Ambient, ⊥	EN 12467	35.0	N/mm ²
	Ambient, //	EN 12467	26.0	N/mm ²
Modulus of elasticity	Ambient, ⊥	EN 12467	17,000	N/mm ²
	Ambient, //	EN 12467	15,000	N/mm ²
Hygic movement	0-100%, mean		1.5	mm/m
Porosity	0-100%		23	%
<i>B. Classification</i>				
Durability classification		EN 12467	Category A	
Strength classification		EN 12467	Class 4	
Fire reaction		EN 13501-1	A2-s1-d0	
<i>C. Type test or best estimate</i>				
Impermeability test		EN 12467	Ok	
Warm water test		EN 12467	Ok	
Soak dry test		EN 12467	Ok	
Freeze thaw test		EN 12467	Ok	
Thermal conductivity λ			0,312	W/mK
<i>D. Coating tests</i>				
Gloss (85°)		ISO 2813	15 - 25	
Falling sand test		ISO 679	No defects	
Mohs scratch hardness		NBN EN 101	2 - 3	
Resistance to neutral salt spray		ISO 9227	No defects	
Resistance to humid atmospheres containing sulphur dioxide (Kesternich)		DIN 50 018	No defects	
Weather-O-Meter accelerated weathering		ASTM G155	Slight homogenous aging of colour	
Resistance to chemicals (24h)	10% HCl	ASTM 1308	No defects	
	10% H ₂ SO ₄	ASTM 1308	No defects	
	10% HNO ₃	ASTM 1308	No defects	
	Soap J-Clean	ASTM 1308	No defects	
	Strew Salt	ASTM 1308	No defects	
Water absorption by Karsten tube (48h)	Front side		0.2	ml
	Backside		0.1	ml

6 Advantages

Providing the application guidelines are followed, EURO PANELS OVERSEAS NV fibre cement sheets have the following superior mix of properties compared to other materials:

- fire safe (no fire ignition, no spread of fire)
- sound insulating
- resistant to extreme temperatures
- water resistant (if in compliance with application guideline)
- resistant to many living organisms (fungi, bacteria, insects, vermin, etc.)
- resistant to many chemicals

Glasal-T

- environmentally friendly, no harmful gas emissions

In addition, GLASAL-T has the following specific properties:

- strong and rigid sheet
- smooth aesthetic surface with natural hues
- durable coating
- high abrasion resistance
- high and diffuse light reflection

7 Applications

GLASAL-T is specially developed for tunnel lining in tunnels with aggressive environments.

The warranty on the product is only valid if the EURO PANELS OVERSEAS NV application guidelines are respected. If in any doubt regarding the suitability of EURO PANELS OVERSEAS NV sheets in any given application, it is advisable to request specific recommendations from EURO PANELS OVERSEAS NV. Under no circumstances can EURO PANELS OVERSEAS NV be held liable for applications of their sheets implemented without approval from EURO PANELS OVERSEAS NV.

8 Available factory finishing

GLASAL-T can be supplied by EURO PANELS OVERSEAS NV cut to size. Holes 5 to 11 mm in diameter can be factory pre-drilled (for visible fixing).

9 General application data

Cutting/Sawing:

- circular saw
 - slow rotation with blade with carbide-tipped teeth
 - fast rotation with diamond cutting blade without teeth
 - universal cutting blade with carbide diamond-tipped teeth

Edge finish:

- fine emery cloth or sanding block

Drilling:

- for holes: carbide-tipped twist drill (or completely in carbide) with a 60° nose angle
- for round apertures: cup drill or circular cutter, carbide-tipped
The sheet should be supported around the hole to be drilled (e.g. by a wooden surface).

!!: Sawing and drilling must take place in a dry environment. For decorative applications, sawdust and drillings must be immediately removed from the sheet with a dry micro-fibre towel. Not removed sawdust and drillings can cause permanent stains.

Fastening accessories:

Depending on the application the following fastening accessories can be used (see application instructions for more information). The material (e.g. stainless steel, galvanised steel, phosphate-treated steel) is also chosen depending on the application.

- Adhesive: can be fixed with adhesive. The adhesive is to be used in accordance with the application guidelines and guarantee conditions of the adhesive supplier
- Screws: Can be used in completely pre-drilled holes only.
- Rivets: Can be used in completely pre-drilled holes only.

Sealant:

Only use neutral sealants. Non-neutral silicones or thiokols can result in spots.

Glasal-T

10 Health and safety aspects

During the mechanical machining of panels, dust can be released which can irritate the airways and eyes. Apart from this, the inhalation of fine (respirable size) quartz containing dust, particularly when in high concentrations or over prolonged periods of time can lead to lung disease and an increased risk of lung cancer. Depending on the working conditions, adequate machinery with dust extraction and/or ventilation should be foreseen. For more ample information, please check the Safety Data Sheet according to 91/155/EEC.

Glasal-T

11 Maintenance and cleaning

Please consult EURO PANELS OVERSEAS NV "Cleaning advice for tunnel lining".

12 Handling

The sheets are packaged on pallets. They are to be transported under a tarpaulin. The sheets must be horizontally stacked on a flat surface. The sheets must always be sufficient supported so that they do not sag. The sheets must be stacked in a dry ventilated space. If the sheets are stored outside, they must always be protected against rain by a tarpaulin or plastic cover. If the sheets do become wet in the packing, all packaging must be removed and placed in a way that they can dry out thoroughly. It is recommended to allow the sheets to acclimatise in the space where they are to be used. A sheet must always be lifted from a stack by two persons and then be carried vertically.

13 Certification

The manufacturer is able to deliver the CE declaration in terms of the European Construction Products Directive which guarantees the conformity to the standard NBN EN 12467 "Fibre-cement flat sheets".

This can also be downloaded from www.europanel.be.



14 More information

This product information sheet replaces any previous editions. EURO PANELS OVERSEAS NV reserves the right to amend this information sheet without prior notice. Readers should always satisfy themselves that they are referring to the most recent version of this document. No part of this text can be changed without permission of EURO PANELS OVERSEAS NV.

More technical information can be found in the EURO PANELS OVERSEAS NV application guidelines, EURO PANELS OVERSEAS NV treatment guidelines, EURO PANELS OVERSEAS NV cleaning guidelines, EURO PANELS OVERSEAS NV tender specifications, EURO PANELS OVERSEAS NV Material Safety Data Sheet, EURO PANELS OVERSEAS NV warranty declarations, EURO PANELS OVERSEAS NV price list, EURO PANELS OVERSEAS NV website, etc.

Euro Panels Overseas NV

Bormstraat 22

B-2830 Willebroek

Belgium

Tel 0032 (0)15 71 82 80

Fax 0032 (0)15 71 82 89

info@europanel.be

www.europanel.be



RPR 0 466 056 888, Mechelen – VAT BE 0 466 056 888 – Account 482-9098051-96