



GLAPOR – INSULATION SYSTEM
as load-bearing thermal insulation for under
foundation and floor slabs

GLAPOR FOAM GLASS GRAVEL

SYSTEM DESCRIPTION:

GLAPOR SG 800 P foam glass gravel as load-bearing thermal insulation for under foundation and floor slabs with horizontal frost protection.

Safe:

- Resistant to insects and rodents
- High compressive strength
- Sustained thermal insulating properties

Economic:

- Flexible installation/levelling of uneven substrates
- Reduction of layers and processes
- Reduced installation time

Sustainable:

- Produced using 100 % recycled glass
- Minimizes transport costs and logistics due to simple floor construction

High quality:

- Permanent production process control
- Unique ecologic insulation system for under the floor slab
- Comprehensive consultation and full support during construction

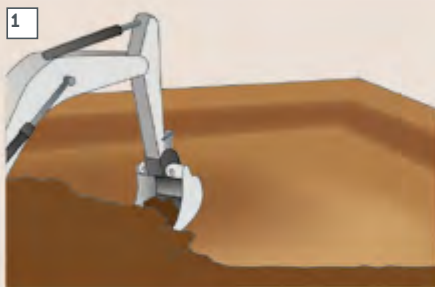
Functional:

- Simple and flexible installation of foam glass gravel
- Easy levelling of uneven substrates
- Delivery options for foam glass gravel
 - Loose
 - Big Bag
 - Textile unloading chute

INSTALLATION OF GLAPOR FOAM GLASS GRAVEL:

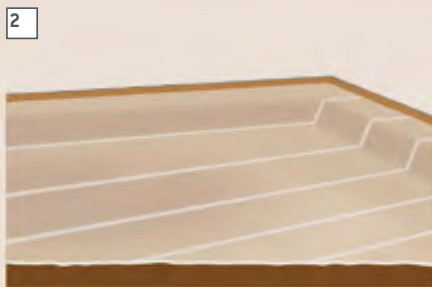


The quick installation guide: with horizontal frost protection



Excavation

The load bearing (compacted) ground should be slightly raised in the middle.



GLAPOR Geotextile

Lay geotextile separating membrane overlapping joins by 10cm. Allow enough to run up the edges and fold back onto the GLAPOR foam glass gravel layer.



GLAPOR foam glass gravel

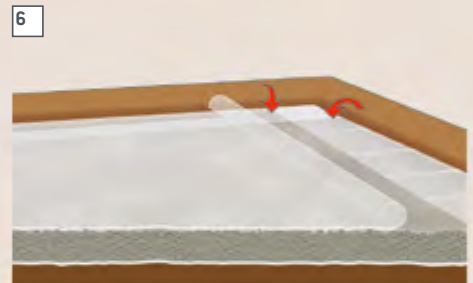
The loose foam glass gravel is deposited directly into the construction site. A crane is necessary when using a textile chute or for delivery of big bags.



Distribution - GLAPOR foam glass gravel is deposited working from the back to the front using an excavator shovel or manually with a wooden rake in order to avoid a pre-compaction.



Compaction - The compaction of the GLAPOR gravel layer is executed by a light plate vibrator recommended by Glapor* with a compaction ratio of 1,3 : 1.



Separation layer and formwork - Fold over the edges of the first layer of geotextile. Lay the PE-Membrane over the compacted fill as a separation layer in preparation for laying of the floor slab.

*Recommended plate vibrators:

- Amman AVP1850 ~110 kg 18 kN 85 Hz 500 mm
- Bomag BP 20/50 (D) ~108 kg 20 kN 90 Hz 500 mm
- Bomag BVP 18/45 ~ 90 kg 18 kN 90 Hz 450 mm
- Dynapac LF 140 ~125 kg 21 kN 85 Hz 500 mm
- Wacker DPS 1850H Basic ~110 kg 18 kN 90 Hz 500 mm
- Wacker DPS 2350 169 kg 23 kN 90 Hz 500 mm
- Wacker DPS 2360 179 kg 23 kN 90 Hz 600 mm
- Weber CF 3 ~114 kg 18 kN 90 Hz 500 mm

The soil characteristics may have an additional impact on the selection of the plate vibrator.

General laying instructions:

- The levelled ground must be at least 30 cm above the highest ground-water level.
- The geotextile should have a quality of at least 150 g/m².
- For planned thicknesses exceeding 300 mm the fill must be installed and compacted in layers. The thickness per layer must not exceed 300 mm.
- A compaction beyond the normal dimension increases the material consumption but does not provide an advantage for the load-carrying capacity.
- The geotextile should reach about 1.0 m under the floor slab when folded over the fill.
- The formwork for the floor slab is placed onto the prepared area.
- Please note drainage according to DIN 4095 depending on the ground conditions.

Load-bearing thermal insulation under foundation slabs as per General building approval Germany No. Z-23.34-1778
Light stone fill according to DIN 13 055-2 ☐

GLAPOR PERIMETER INSULATION BRICK

SYSTEM DESCRIPTION:

GLAPOR perimeter insulation brick and load-bearing foam glass gravel as load-bearing thermal insulation for under foundation and floor slabs

Safe:

- Resistant to insects and rodents
- High compressive strength
- Sustained thermal insulating properties

Economic:

- Cost savings due to reduction in the perimeter area
- Reduction of layers and processes
- Reduced installation time

Sustainable:

- Produced using 100 % recycled glass
- Minimizes transport costs and logistics due to simple floor construction

High quality:

- Reduction of lateral moisture penetration into the thermal insulation
- Permanent production process control
- Unique ecologic insulation system for under the floor slab
- Comprehensive consultation and full support during construction

Functional:

- Easy processing of draining systems
- Enables use of the working area around the floor slab
- Combined formwork and insulation element

INSTALLATION OF GLAPOR PERIMETER INSULATION BRICK:



The quick installation: with vertical frost shielding

1



GLAPOR Perimeter insulation brick

Install Perimeter insulation brick as the insulating formwork element and vertical frost protection. Bricks should be laid in wet concrete.

2



GLAPOR Geotextile

Lay geotextile separating membrane overlapping joins by 10 cm. Allow enough at the edges to run up the perimeter insulation brick by 15 cm.

3



GLAPOR foam glass gravel

The loose foam glass gravel is deposited directly into the construction site. A crane is necessary when using a textile chute or for delivery of big bags.

4



Distribution - GLAPOR foam glass gravel is deposited working from the back to the front using an excavator, shovel or manually with a wooden rake in order to avoid a pre-compaction.

5



Compaction - The compaction of the GLAPOR gravel layer is executed using a light **plate vibrator as recommended by Glapor*** with a compaction ratio of 1,3 : 1.

6



Separation layer - Lay a PE- membrane over the installed foam glass gravel and run halfway up remaining formwork to prevent any concrete slurry contaminating the foam glass gravel layer below.

*Recommended plate vibrators:

- Amman AVP1850 ~110 kg 18 kN 85 Hz 500 mm
- Bomag BP 20/50 (D) ~108 kg 20 kN 90 Hz 500 mm
- Bomag BVP 18/45 ~ 90 kg 18 kN 90 Hz 450 mm
- Dynapac LF 140 ~125 kg 21 kN 85 Hz 500 mm
- Wacker DPS 1850H Basic ~110 kg 18 kN 90 Hz 500 mm
- Wacker DPS 2350 169 kg 23 kN 90 Hz 500 mm
- Wacker DPS 2360 179 kg 23 kN 90 Hz 600 mm
- Weber CF 3 ~114 kg 18 kN 90 Hz 500 mm

The soil characteristics may have an additional impact on the selection of the plate vibrator.

General laying instructions:

- The levelled ground must be at least 30 cm above the highest ground-water level.
- The geotextile should have a quality of at least 150 g/m².
- For planned thicknesses exceeding 300 mm the fill must be installed and compacted in layers. The thickness per layer must not exceed 300 mm.
- A compaction beyond the normal dimension increases the material consumption but does not provide an advantage for the load-carrying capacity.
- Please note drainage according to DIN 4095 depending on the ground conditions.
- Installation of foundation grounding electrodes into the foundation bed

Load-bearing thermal insulation under foundation slabs as per General building approval Germany No. Z-23.34-1778
Light stone fill according to DIN 13 055-2 ☐☐

NOTE: The geologic characteristics of the site and the machinery used may influence the compaction ratio. Further guidance and assistance can be obtained on request from our qualified sales engineers in the field. Data sheets, detailed solutions and texts for invitation to tender can be seen on our homepage.

We reserve the right to change the technical specifications at any time. You will find the current and in each case valid values at www.glapor.com

GLAPOR DÄMMSYSTEM

für lastabtragende Wärmedämmung unter Boden- oder Gründungsplatten



Technische Daten PG 900 / SG 800 P

ANWENDUNGSGEBIET: Bodenplattenkopfdämmung und Schalungselement für die Verwendung in Verbindung mit GLAPOR Schaumglasschotter

Produkt aus Glasschaum (CG) DIN EN 13167:2009-02

Schaumglasplatte – Allgemeine bauaufsichtliche Zulassung: Z-23.15-1756

Schaumglasschotter – Allgemeine bauaufsichtliche Zulassung: Z-23.34-1778



Eigenschaften	Wert	Einheit	Prüfnorm			
Rohdichte Wärmedämmplatte	130 - 150	kg/m³	EN 1602			
Schüttgewicht Schaumglasschotter, lose	150 - 170	kg/m³	EN 1097-3			
Gewicht im verdichtetem Zustand	195 - 220	kg/m³	Verdichtung 1,3:1			
Korngrößenverteilung, lose	32 - 63	mm	EN 933-1			
Auftrieb im verdichtetem Zustand	6,5	kN/m³	Verdichtung 1,3:1			
Frostbeständig			DIN 52104-1, Verfahren G			
KapillARBrechende Schüttung						
Brandverhalten - Baustoffklasse	A1	Klasse	EN 13501-1			
Bemessungswerte	Wert	Einheit	Prüfnorm			
Wärmeleitfähigkeit Schaumglasplatte, λ	0,067	W/(mK)	EN12667 / EN 12939			
Wärmeleitfähigkeit Schaumglasschotter, λ	0,115	W/(mK)	EN12667 / EN 12939			
Spezifische Wärmekapazität	850	J/kgK				
Druckfestigkeit Schaumglasplatte 6 im Mittel	> 1050	kPa	EN 826			
Bemessungswert der Druckfestigkeit	350	kPa	EN 826			
Punktlast (Eindrückung bei 1000 N)	≤ 0,2	mm	EN 12430			
Druckfestigkeit Schaumglasschotter						
f _{c,Nenn} bei 10% Stauchung	≥ 800	kPa	EN 826			
Bemessungswert der Druckfestigkeit						
f _{cd} Stauchung < 2 %	370	kPa	EN 826			
Aufnehmbare Horizontalkräfte der Schotterschicht						
Zulässiger Bemessungswert	≤ 30% der vorhandenen Normalspannung					
Elastizitätsmodul Schaumglasplatten [E _s]	90	N/mm²				
Steifemodul Schotterschicht [E _s]	13 000	kPa				
Verarbeitung Schaumglasschottersystem						
Verdichtungsfaktor Dämmschotter	1,3 : 1	Faktor				
Mindestdicke, verdichtet	15	cm				
Maximale Dämmstoffdicke, verdichtet	90	cm				
Mindestdicke der Bettung des Randdämmsteins	20	cm				
Randdämmstein Dicke 2 x 120 mm werkseitig verklebt (weitere Formate auf Anfrage, verlängerte Lieferzeiten)						
Bezeichnung:	Bauhöhe:	Baulänge:	Deckbreite:	Schotterschichthöhe	Bodenplatten	Gewicht
	[mm]	[mm]	[mm]	[mm]	höhe [mm]	[kg]
80 / 55	800	720	600	500/ 550 - 600/ 650	200 - 250	ca. 15
60 / 30	600	920	800	250/ 300 - 350/ 400	250 - 300	ca. 16
50 / 25	500	920	800	200/ 250 - 300/ 350	200 - 250	ca. 12
40 / 20	400	920	800	150/ 200 - 250/ 300	150 - 200	ca. 9
Verpackung Randdämmstein:				Europalette		
Verpackung Schotter:				lose, BigBag 1,5 cbm, BigBag 3,0 cbm		

Stand: 01.01.2013

Hinweis: Unsere Angaben entsprechen dem Wissensstand zum Zeitpunkt der Drucklegung. Änderungen bleiben vorbehalten.

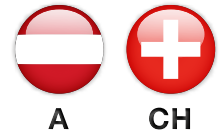


DGNB
Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
German Sustainable Building Council



GLAPOR INSULATION SYSTEM

for load-bearing thermal insulation for under floor and foundation slabs



Technical Data PG 900 / SG 800 P

APPLICATION AREA: Floor slab insulation and formwork element in combination with GLAPOR Foam glass gravel

Product made of foam glass (CG) DIN EN 13167:2009-02

Foam glass board – Product made of foam glass (CG) EN 13167:2008
Foam glass gravel – Product made of foam glass gravel EN 13055-2



Properties	Value	Unit	Test standard			
Density thermal insulation board	130 - 150	kg/m³	EN 1602			
Bulk density foam glass gravel, loose	150 - 170	kg/m³	EN 1097-3			
Weight, compacted	195 - 220	kg/m³	Compaction 1,3:1			
Particle size, loose	32 - 63	mm	EN 933-1			
Flotation, compressed fill	6,5	kN/m³	Verdichtung 1,3:1			
Frost resistance			DIN 52104-1, Process G			
Anti-capillary fill						
Combustibility - Material class	A1	Class	EN 13501-1			
Related values	Value	Unit	Test standard			
Thermal conductivity foam glass board, λ _D	0,060	W/(mK)	EN12667 / EN 12939			
Thermal conductivity foam glass gravel, λ _D	0,085	W/(mK)	EN12667 / EN 12939			
Specific heat capacity	850	J/kgK				
Average compressive strength foam glass board 6	> 1050	kPa	EN 826			
Rated compression strength	350	kPa	EN 826			
Point load (compression with 1000 N)	≤ 0,2	mm	EN 12430			
Compressive strength foam glass gravel						
f _{c,Nenn} with 10% compression	≥ 800	kPa	EN 826			
Rated compression strength						
f _{cd} compression < 2 %	370	kPa	EN 826			
Absorbable horizontal forces of the gravel layer						
permissible rated compression strength	≤ 30% of the existing normal strength					
Module of elasticity of the foam glass boards [E _s]	90	N/mm²				
Constrained modulus gravel layer [E _s]	13 000	kPa				
Processing foam glass gravel system						
Compaction factor insulating gravel	1,3 : 1	Factor				
Minimum thickness, compacted	15	cm				
Maximum thickness insulating material, compacted	90	cm				
Min. thickness of the bedding of the perimeter insulation brick	20	cm				
Standard formats perimeter insulation brick (further formats on request, further combinations as per matrix)						
Description:	Installation height: [mm]	Length: [mm]	Width: [mm]	Height of gravel layer [mm]	Floor slabs höhe [mm]	Weight [kg]
80 / 55	800	720	600	500/ 550 - 600/ 650	200 - 250	about 15
60 / 30	600	920	800	250/ 300 - 350/ 400	250 - 300	about 16
50 / 25	500	920	800	200/ 250 - 300/ 350	200 - 250	about 12
40 / 20	400	920	800	150/ 200 - 250/ 300	150 - 200	about 9
Packaging perimeter insulation brick:	Europallet					
Packaging gravel:	Loose, Big Bag 1,5 cbm, Big Bag 3,0 cbm					

Status: 01.01.2013

NOTE: The date above represents our standard of knowledge at the time of publication.
We reserve the right to make changes.





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