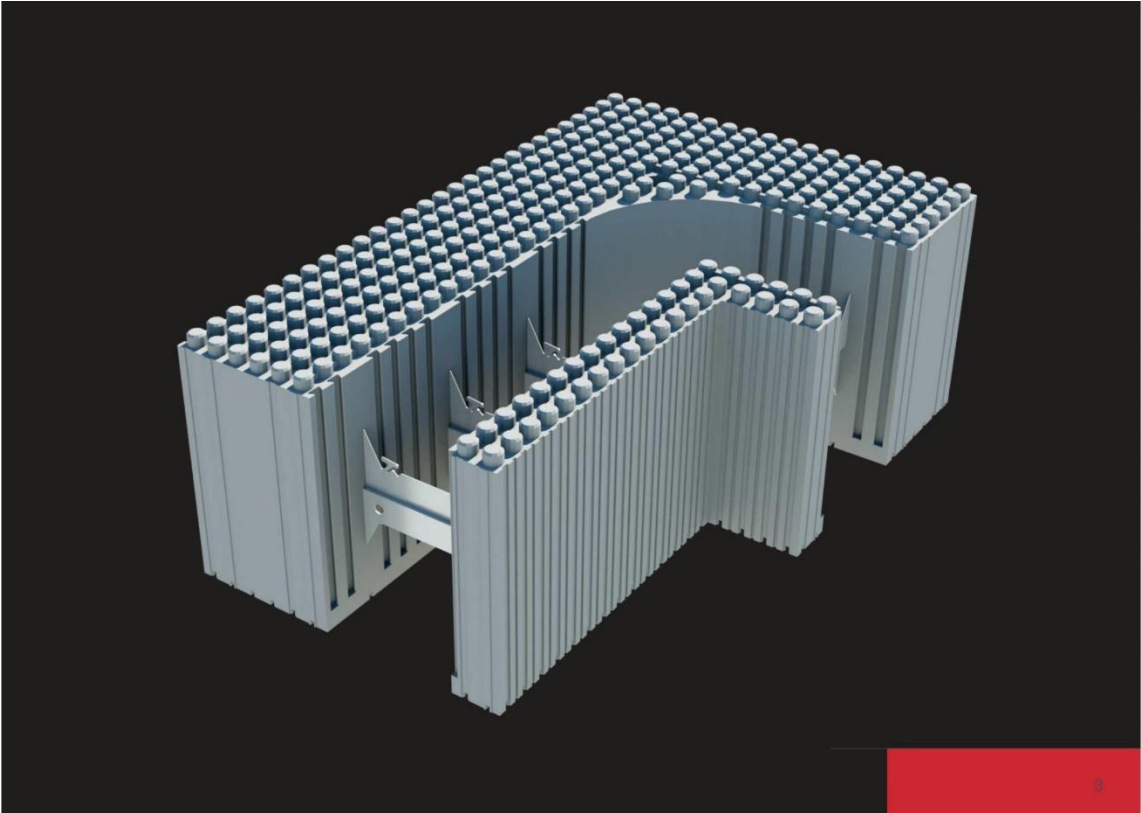


THE BLOCK





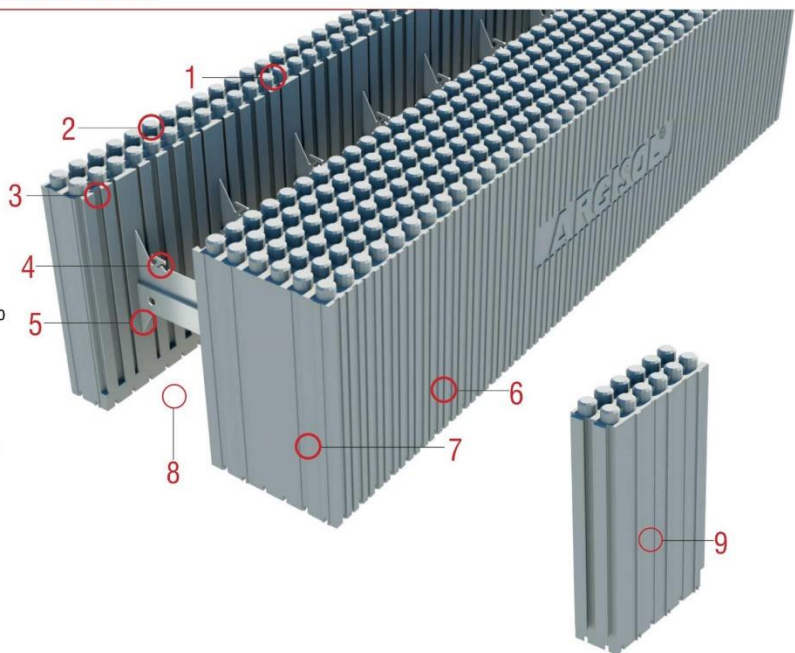
Innovation for the Future of Modern Building Wall

· easy, flexible, forward-looking



Standard Element

1. Sealing ribs prevent cement milk from leaking out and therefore eliminate the danger of thermal bridges
2. Nubs at a short distance permit aligned and exact fitting
3. Dove tail shaped inner surface provides perfect bonding to concrete
4. Spacer supports for reinforcing bars
5. Sheet metal inserts are precisely fused into the NEOPOR®
6. Spacing grooves allow for easy trimming of the building blocks in grids of 2,5 cm
7. Due to the different thickness of insulation excellent inside and outside performance from the point of view of construction physics
8. Filling material concrete C25/30 XC4 XF1 XA1 F3 8
9. Separation or end elements for insertion between the two NEOPOR® panels



NEOPOR® = registered trademark of BASF SE

Uncompromising Stability and Insulation in one Operation



Build-up...



Concreting...



Finish!



Creative Planning with ARGISOL® Building Elements for Massive Construction Walls

Standard element wall system 25 cm

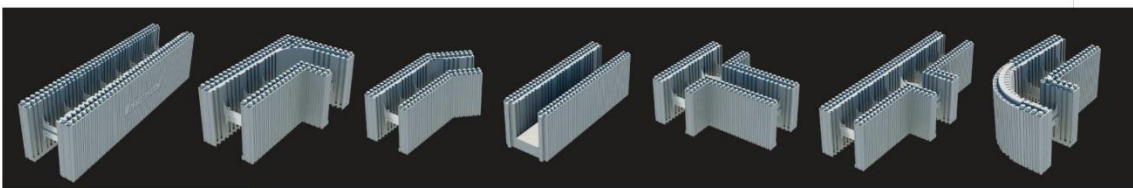
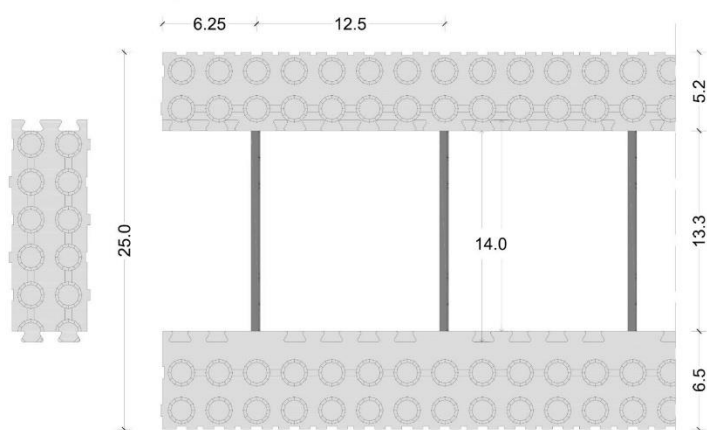
U-value: 0,27 W/m²K

Our product range...

Wall system 25 cm

- | | |
|--------------------------------|-----------------------|
| 1. Standard element | (100,0 x 25,0 x 25,0) |
| 2. Height compensation element | (50,0 x 5,0 x 5,0) |
| 3. End element | (14,0 x 5,0 x 25,0) |
| 4. ARGISOL dowel | |
| 5. T-element | (50,0 x 62,5 x 25,0) |
| | (100,0 x 37,5 x 25,0) |
| 6. Angle element 45° | (50,0 x 25,0 x 25,0) |
| 7. Corner element | (60,0 x 35,0 x 25,0) |
| 8. Rounded corner element | (60,0 x 35,0 x 25,0) |
| 9. End profile for ceilings | (75,0 x 10,0 x 20,0) |
| 10. Single boards | |
| inside | (100,0 x 4,5 x 25,0) |
| outside | (100,0 x 6,5 x 25,0) |
| 11. Lintel element | (75,0 x 25,0 x 25,0) |

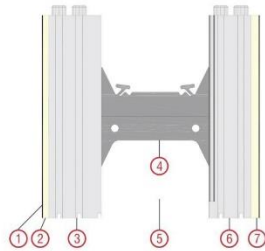
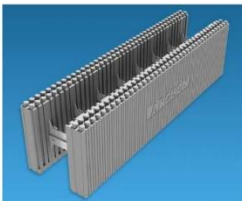
Length x width x heights (all measurements in cm)



... for almost unlimited freedom in planning

Technical Specifications

-Element 25



1. Plastering /Synthetic resin plaster 3 mm
2. Reinforcement or insulation plaster 5 - 7 mm
3. NEOPOR® exterior shell 65 mm
4. Sheet metal insert
5. Concrete core 133 mm
6. NEOPOR® inner shell 52 mm
7. Interior plaster 10 mm

Thickness of the wall:	25 cm, not rendered
Weight of the wall:	330 kg/m ² , not rendered 360 kg/m ² , rendered both sides
Amount of concrete:	140 l/m ² (0,14 m ³ /m ²) wall space Concrete C25/30 XC4 XF1 XA1 F3 8 according to EN 206 (formerly B25/08 KR)
Material:	Expandable polystyrol rigid foam board made from NEOPOR®, flame resistant, specific gravity 30 kg/m ³ with laid in galvanized metal bars
Weight of building elements:	Standard element 25 cm: 1 m long, 25 cm high, 25 cm wide, approximately 1,3 kg
U-Value:	U = 0,27 W/m ² K
Thermal conductivity:	λ = 0,031 W/mK
Water vapor diffusion resistance coefficient:	μ = 60
Heat storage capacity:	1500 J/kgK
Sound absorption:	Proven sound absorption parameter for buildings of R'W = 45 dB. Test certificate of the Swiss Federal Laboratories for Materials Science and Technology (EMPA) in Dübendorf
Reaction to fire :	Classification REI 90 (F90), Licensed for high-rise building levels, licensed to be used as a fire wall, certified by the Material Testing Office for the Building Industry, Braunschweig
Authorization:	ETA - 05/0170. German Institute for Construction Technology (DIBt)

NEOPOR® = registered trademark of BASF SE



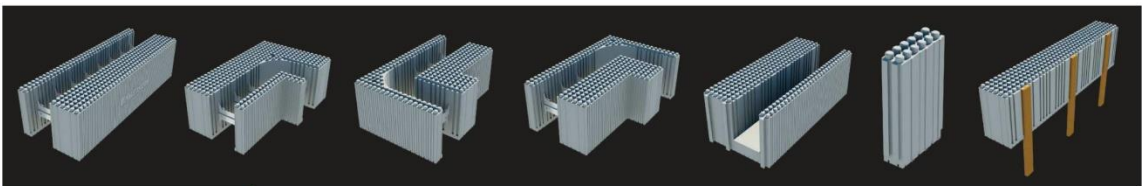
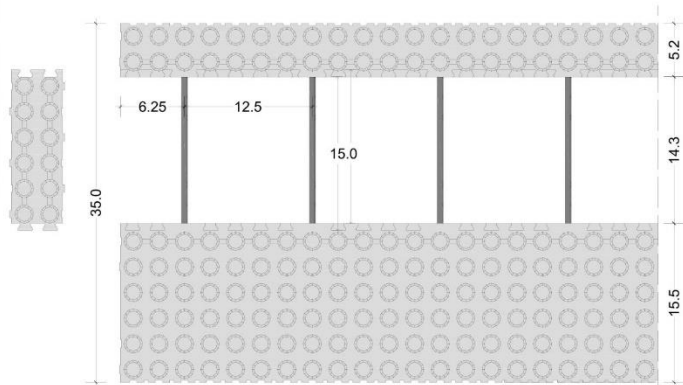
Wall system 35 cm

1. Standard element (100,0 x 35,0 x 25,0)
2. Corner element (70,0 x 45,0 x 25,0)
3. Internal corner element (70,0 x 45,0 x 25,0)
4. Lintel element (75,0 x 35,0 x 25,0)
5. End element (15,0 x 5,0 x 25,0)
6. Single board outside (100,0 x 15,5 x 25,0)

Length x width x height (all measurements in cm)

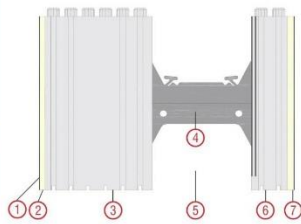
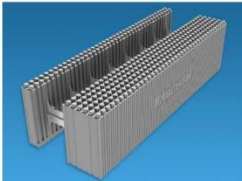
Standard element wall system 35 cm

U-value: 0,15 W/m²K



Technical Specifications

-Element 35



1. Plastering / Synthetic resin plaster 3 mm
2. Reinforcement or insulation plaster 5 - 7 mm
3. NEOPOR® exterior shell 155 mm
4. Sheet metal insert
5. Concrete core 143 mm
6. NEOPOR® inner shell 52 mm
7. Interior plaster 10 mm

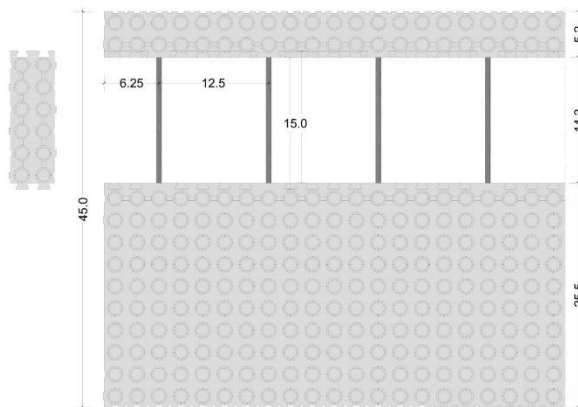
Thickness of the wall:	35 cm, not rendered
Weight of the wall:	350 kg/m ² , not rendered 380 kg/m ² , rendered both sides
Amount of concrete:	150 l/m ² (0,15 m ³ /m ²) wall space Concrete C25/30 XC4 XF1 XA1 F3 8 according to EN 206 (formerly B25/08 KR)
Material:	Expandable polystyrol rigid foam board made from NEOPOR®, flame resistant, specific gravity 30 kg/m ³ with laid in galvanized metal bars
Weight of building elements:	Standard element 35 cm: 1 m long, 25 cm high, 35 cm wide, approximately 2,1 kg
U-Value:	U = 0,15 W/m ² K
Thermal conductivity:	λ = 0,031 W/mK
Water vapor diffusion resistance coefficient:	μ = 60
Heat storage capacity:	1500 J/kgK
Sound absorption:	Proven sound absorption parameter for buildings of R'W = 45 dB, Test certificate of the Swiss Federal Laboratories for Materials Science and Technology (EMPA) in Dübendorf
Reaction to fire :	Classification REI 90 (F90), Licensed for high-rise building levels, licensed to be used as a fire wall, certified by the Material Testing Office for the Building Industry, Braunschweig
Authorization:	ETA - 05/0170, German Institute for Construction Technology (DIBt)

NEOPOR® = registered trademark of BASF SE



Standard element wall system 45 cm

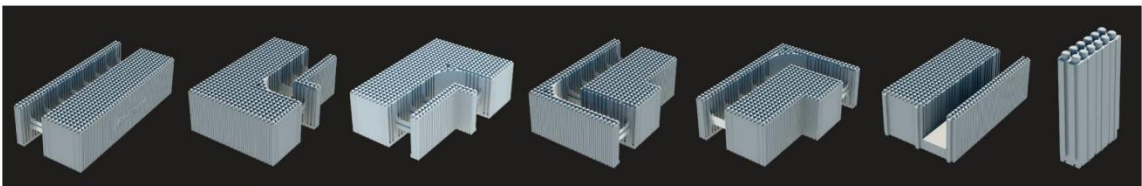
U-value: 0,10 W/m²K

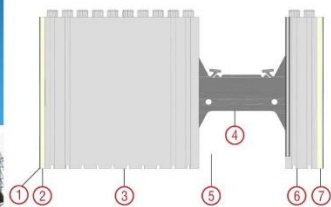
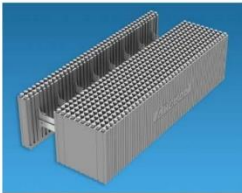


Wall system 45 cm

- 1. Standard element (100,0 x 45,0 x 25,0)
- 2. Corner element (70,0 x 55,0 x 25,0)
- 3. Internal corner element (70,0 x 55,0 x 25,0)
- 4. Lintel element (75,0 x 45,0 x 25,0)
- 5. End element (15,0 x 5,0 x 25,0)

Length x width x height (all measurements in cm)



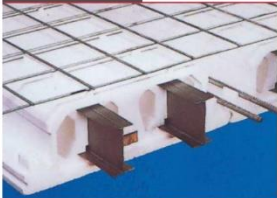


1. Plastering /Synthetic resin plaster 3 mm
2. Reinforcement or insulation plaster 5 - 7 mm
3. NEOPOR® exterior shell 255 mm
4. Sheet metal insert
5. Concrete core 143 mm
6. NEOPOR® inner shell 52 mm
7. Interior plaster 10 mm

Thickness of the wall:	45 cm, not rendered
Weight of the wall:	360 kg/m ² , not rendered 390 kg/m ² , rendered both sides
Amount of concrete:	150 l/m ² (0,15 m ³ /m ²) wall space Concrete C25/30 XC4 XF1 XA1 F3 8 according to EN 206 (formerly B25/08 KR)
Material:	Expandable polystyrol rigid foam board made from NEOPOR®, flame resistant, specific gravity 30 kg/m ³ with laid in galvanized metal bars
Weight of building elements:	Standard element 45 cm: 1 m long, 25 cm high, 45 cm wide, approximately 2,8 kg
U-Value:	U = 0,10 W/m ² K
Thermal conductivity:	λ = 0,031 W/mK
Water vapor diffusion resistance coefficient:	μ = 60
Heat storage capacity:	1500 J/kgK
Sound absorption:	Proven sound absorption parameter for buildings of R'W = 45 dB, Test certificate of the Swiss Federal Laboratories for Materials Science and Technology (EMPA) in Dübendorf
Reaction to fire :	Classification REI 90 (F90), Licensed for high-rise building levels, licensed to be used as a fire wall, certified by the Material Testing Office for the Building Industry, Braunschweig
Authorization:	ETA - 05/0170, German Institute for Construction Technology (DIBt)

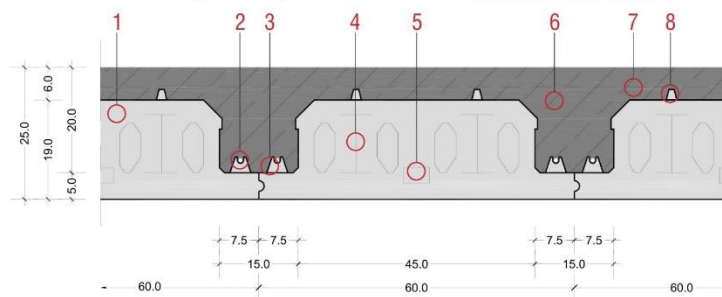
NEOPOR® = registered trademark of BASF SE

Eurorip-Ceiling Element



ARGISOL® Eurorip-ceiling element

U-value: 0,25 W/m²K



1. ARGISOL®-Eurorip-ceiling element (shuttering body)
2. Rib reinforcement according to static calculations
3. Spacers for reinforcement rib
4. Double I-beam made of sheet steel
5. Insertion option for wooden slats
6. in-situ concrete C25/30 XC4 XF1, rule consistency, granulation 0/08
7. Transverse reinforcement according to Eurocode 2
8. Spacer for mesh reinforcement

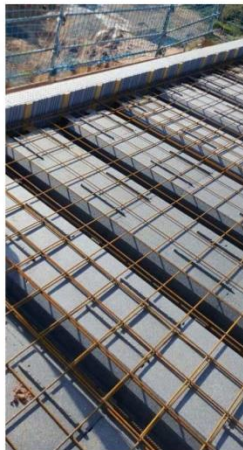


Technical Specifications

-Ceiling



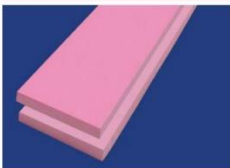
- Ribbed slab according to Eurocode 2:
Carrying capacity of the ceiling by individual reinforcement of the ribs and the plate
- Underside of the ceiling surface can be plastered or smoothed over.
- Easiest possible assembly of coverings and wooden ceilings by inserting roof slats from the side of the building
- It takes just 1 minute to put up one sqm (two people), thus making it the fastest ever ceiling to put up.



From static point of view, ARGISOL® Eurorip-ceiling element are permanent shutterings of rib ceilings according to Eurocode 2.

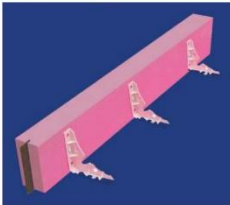
Widths/elements:	60 cm
Heights/elements:	19 cm (without covering concrete slab)
Lengths/elements:	Factory tailored to building or room dimensions. Rule length 6,00 m; Special lengths possible
Rib height:	20 cm
Rib width:	15 cm
Weight/element:	ca. 4,8 kg/fm
Material/element:	Polystyrene rigid foam, flame resistant, volumetric weight 22 kg/m ³
Material/double-T plates:	ST 52 d = 1 mm
Self-bearing capacity during assembly:	(incl. 6 cm concrete cover and man load) max. 3,00 m
Concrete needs at 6 cm concrete cover:	95 l/m ² (0,095 m ³ /m ²)
Concrete quality:	Concrete C25/30 XC4 XF1 XA1 F3 8 according to EN 206 (formerly B25/08 KR)
Steel quality:	Rib reinforcement BST 420/500 Slab reinforcement BSTG 500/500
Board thickness (with concrete cover):	6 cm or more according to static requirements
Fire protection:	according to DIN 4102
Soundproofing:	according to DIN 4109
Heat protection:	according to DIN 4108

Thermo System - Base Plates Insulation Panelling



Thermo system floor element XPS 300

Insulation:
extruded polystyrene (XPS),
Thickness:
100-160 mm
(other thicknesses on request);
shiplap, smooth surface,
Compressibility:
300 kPa
(500 kPa + 700 kPa on request)
Floor element:
1250 x 600 mm



Thermo system edge board XPS 300

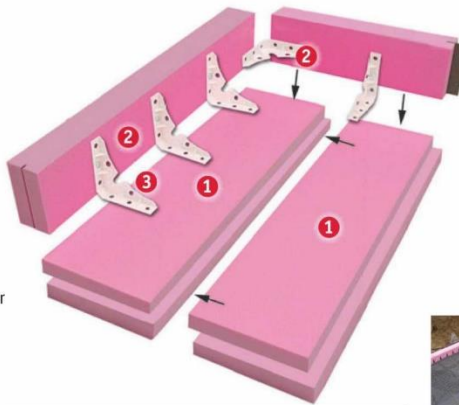
Insulation:
extruded polystyrene (XPS),
Thickness:
50/60/120 mm
(other thicknesses on request);
shiplap, honeycomb surface,
Compressibility:
300 kPa
(500 kPa + 700 kPa on request)
Element length:
1250 mm, three angle brackets per
element pre-installed
Accessories:
speed screws for fastening on the
bottom plate and plug springs for
connecting the edge board



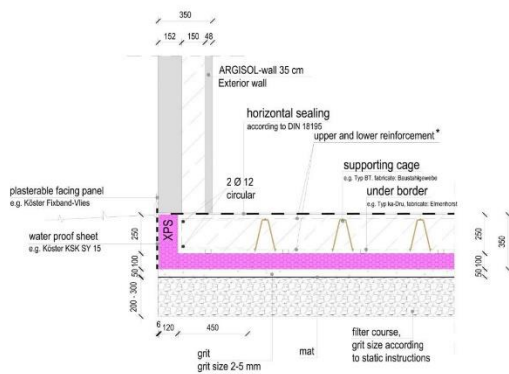
Floor element 10 cm: *U-value: 0,339 W/m²K*
Edge board 12 cm: *U-value: 0,285 W/m²K*

Assembling the base plate formwork

- 1 The floor elements with shiplap are assembled to complete the base plate
- 2 Edge boards with plug springs are placed and plugged together
- 3 Angle brackets and speed screws connecting the edge boards and floor elements securely to each other



Technical Specifications Base Plates Insulation Panelling



Base plates insulation panelling with ARGISOL®- wallsystem 35 cm – WITHOUT CELLAR –

Horizontal and vertical sealing of the bottom plate and the ARGISOL-wall are in accordance to DIN 18195! The execution shall take place under control of the project management only and after evaluation of soil conditions. The presentation given here does not apply to the execution actually required.

* Type description for lower and upper reinforcement, such as cross section/dimension according to static instructions

Insulation:	extruded polystyrene (XPS), shi lap, smooth surface (floor element) honeycomb surface (edge board)
Compressibility:	300 kPa (500 kPa + 700kPa on request)
Load capacity group:	BG 30
Thermal conductivity:	0,035 W/mK (30 - 60 mm) 0,036 W/mK (70-120 mm) 0,038 W/mK (140-220 mm)
Minimum density:	≥ 30 kg/m ³
Compressive stress at 10%:	CS(10/Y) 300 kPa = 30 t/m ²
Creep: (according to EN 1606 corresponding permissible continuous compressive strength of 50 years)	CC(2/1,5/50) 130 kPa = 13 t/m ²
Closed cells:	≥ 95 %
Modulus of elasticity:	12 N/mm ² = 12000 kPa
Capillary water absorption:	0
Water absorption by diffusion:	WD(V)3 Vol.%
Freeze-thaw cycle resistance:	FTCD 1
Flammability:	B1
Smoke density class:	Q3
Drop formation class:	Tr1
Fire behavior EN 13501-1:	E

Better Insulation with NEOPOR® - the New Silver-Grey Insulation Material by BASF

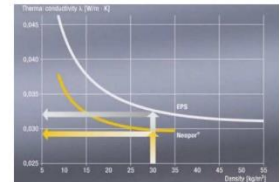
Benefits NEOPOR®

- up to 20% better insulating performance than conventional EPS
- proven high environmental efficiency and cost
- water repellent, non-aging and non-rotting, stable and dimensionally
- easy to use and processing



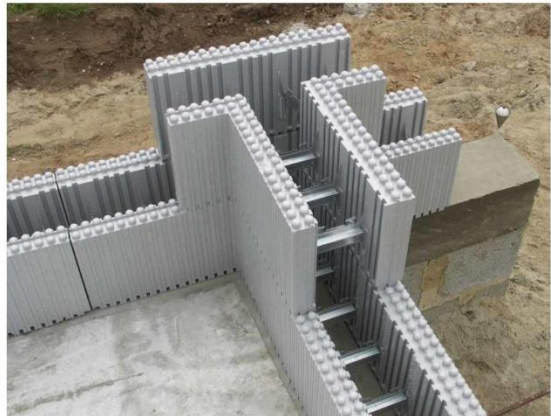
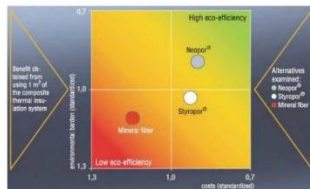
Better thermal conductivity

NEOPOR® - products with a foam density of 30 kg/m³ (like ARGISOL® shuttering elements) achieve a coefficient of thermal conductivity parameter of 0,029 W/mK. Using regular EPS with the same foam density a heat conduction parameter of only 0,032 W/mK is achieved.



Building materials compared

Compared to alternative materials NEOPOR® demands up to 50% less raw materials, which reduces cost as well as pollution. Using NEOPOR® the same insulation performance is achieved by a reduced insulation thickness of 15-20%. According eco-efficient solutions achieve an up-to-date thermal protection.



Building with

Represents a Sum of Convincing Advantages

1. Energy-conscious

Building in a traditional way means that high demands on heat protection can only be met by using additional heat insulation. Using double-sided NEOPOR® shuttering ARGISOL® allows to achieve an incredible **U-result of 0,15 W/m²K** (35 cm wall). With ARGISOL® you will always get a low-energy house.



2. Fast, easy, cost-efficient

One decisive advantage of skin concrete building are low wage costs: they are only 1/3 in comparison to traditional ways of building. To build with ARGISOL® is child's play: due to the nubs even a layman is able to build in a truly aligned and plump way. Furthermore, elements are very lightweight and therefore make heavy building work much easier. ARGISOL® shuttering elements can be set up and filled in shortest time compared to brick walls. Last but not least, the ARGISOL® building system is more cost-efficient than traditional ways of building.

3. Comfortable room atmosphere

By insulating the inside wall, the wall surface temperature differs only by 1° Celsius from the room temperature. As a result, there is hardly any air circulation caused by temperature differences in the room. Therefore a comfortable feeling is achieved at any season of the year, summer and winter alike.

Due to the solid concrete core a reliable sound absorption parameter of $R_w = 45$ dB is achieved – a guarantee for quiet living.



4. Effective building

ARGISOL® provides an optimum of heat and sound insulation although the wall thickness is only 25 cm. Your advantage, an increase in **living space!** With an assumed floor space of 100 m² about 4,5 m² space is gained in comparison to a 36,5 cm wall.

5. Creatively planning

ARGISOL® building elements can be shortened in grids of 2,5 cm by a simple saw. The diversity of ARGISOL® special elements (corner, angle and arched elements) allows realisation of any ground-plan.

6. Building for the future

The ARGISOL® building system fulfills all demands, which are addressed nowadays to a recent construction material. Certification and inspection reports confirm the technological superiority of the ARGISOL® construction system.

Approvals, Expert's Report and Test Reports

Deutsches Institut für Bautechnik

Member of EOTA

European Technical Assessment

ETA-05/0170

of 30 October 2015

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment: **Deutsches Institut für Bautechnik**

Trade name of the construction product: **ARGISOL**

Product family to which the construction product belongs: **Non load bearing shuttering kit "ARGISOL" based on shuttering elements of EPS**

Manufacturer: **BEWA GmbH
ARGISOL-Systeme
Grünfelder Straße 2
67271 Oberzöben
DEUTSCHLAND**

Manufacturing plant: **BEWA GmbH
ARGISOL-Systeme
Grünfelder Straße 2a
67271 Oberzöben
DEUTSCHLAND**

This European Technical Assessment contains 27 pages including 20 annexes which form an integral part of this assessment.

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

Guideline for European technical approval of "Non-load-bearing permanent shuttering systems based on hollow blocks or panels of insulating materials and sometimes concrete", ETAG 005, June 2002, used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011.

Deutsches Institut für Bautechnik
Kalenbergstraße 38 | 10829 Berlin | GERMANY | Phone: +49 30 7070-0 | Fax: +49 30 7070-300 | Email: dibt@dibt.de | www.dibt.de
27/019_19 8.0.05-5015

Item	Value	Unit	Test Method	Result	Remarks
1	1.1	kg/m ³	EN 12607	1.1	
2	1.2	kg/m ³	EN 12607	1.2	
3	1.3	kg/m ³	EN 12607	1.3	
4	1.4	kg/m ³	EN 12607	1.4	
5	1.5	kg/m ³	EN 12607	1.5	
6	1.6	kg/m ³	EN 12607	1.6	
7	1.7	kg/m ³	EN 12607	1.7	
8	1.8	kg/m ³	EN 12607	1.8	
9	1.9	kg/m ³	EN 12607	1.9	
10	2.0	kg/m ³	EN 12607	2.0	
11	2.1	kg/m ³	EN 12607	2.1	
12	2.2	kg/m ³	EN 12607	2.2	
13	2.3	kg/m ³	EN 12607	2.3	
14	2.4	kg/m ³	EN 12607	2.4	
15	2.5	kg/m ³	EN 12607	2.5	
16	2.6	kg/m ³	EN 12607	2.6	
17	2.7	kg/m ³	EN 12607	2.7	
18	2.8	kg/m ³	EN 12607	2.8	
19	2.9	kg/m ³	EN 12607	2.9	
20	3.0	kg/m ³	EN 12607	3.0	
21	3.1	kg/m ³	EN 12607	3.1	
22	3.2	kg/m ³	EN 12607	3.2	
23	3.3	kg/m ³	EN 12607	3.3	
24	3.4	kg/m ³	EN 12607	3.4	
25	3.5	kg/m ³	EN 12607	3.5	
26	3.6	kg/m ³	EN 12607	3.6	
27	3.7	kg/m ³	EN 12607	3.7	

Certificate of ARGISOL in method of building

Object of certificate: **ARGISOL non-load bearing shuttering kit consisting of panels and also used to ARGISOL shuttering elements for walls and ceilings**

Field of certificate application: **Non-load-bearing permanent shuttering systems based on hollow blocks or panels of insulating materials and sometimes concrete", ETAG 005, June 2002, used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011.**

Certificate description: **...**

Issued on: **30/10/2015**

Item	Value	Unit	Test Method	Result	Remarks
1	1.1	kg/m ³	EN 12607	1.1	
2	1.2	kg/m ³	EN 12607	1.2	
3	1.3	kg/m ³	EN 12607	1.3	
4	1.4	kg/m ³	EN 12607	1.4	
5	1.5	kg/m ³	EN 12607	1.5	
6	1.6	kg/m ³	EN 12607	1.6	
7	1.7	kg/m ³	EN 12607	1.7	
8	1.8	kg/m ³	EN 12607	1.8	
9	1.9	kg/m ³	EN 12607	1.9	
10	2.0	kg/m ³	EN 12607	2.0	
11	2.1	kg/m ³	EN 12607	2.1	
12	2.2	kg/m ³	EN 12607	2.2	
13	2.3	kg/m ³	EN 12607	2.3	
14	2.4	kg/m ³	EN 12607	2.4	
15	2.5	kg/m ³	EN 12607	2.5	
16	2.6	kg/m ³	EN 12607	2.6	
17	2.7	kg/m ³	EN 12607	2.7	
18	2.8	kg/m ³	EN 12607	2.8	
19	2.9	kg/m ³	EN 12607	2.9	
20	3.0	kg/m ³	EN 12607	3.0	
21	3.1	kg/m ³	EN 12607	3.1	
22	3.2	kg/m ³	EN 12607	3.2	
23	3.3	kg/m ³	EN 12607	3.3	
24	3.4	kg/m ³	EN 12607	3.4	
25	3.5	kg/m ³	EN 12607	3.5	
26	3.6	kg/m ³	EN 12607	3.6	
27	3.7	kg/m ³	EN 12607	3.7	

20

- Manufacturing Plant





- Machine AR 1412 for Standard Elements



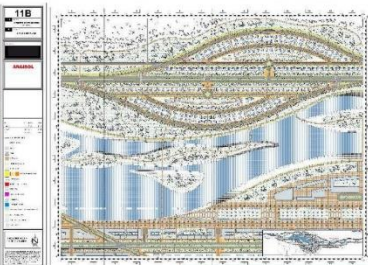


Punching Machine



Development





International References



Abidjan, Ivory Coast



Romania



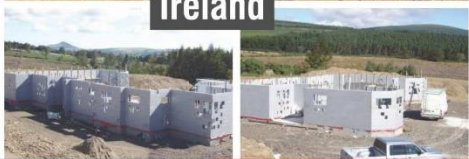
Rio de Janeiro



Turkey



Ireland



- International References



Abu Dhabi

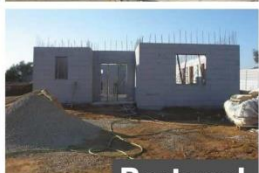




Sudan



Greece



Portugal







Multi-Family House "Ludwigshafen - Melm"





