

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0373
of 7 February 2023

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

Fixplug 8 and Fixplug 10

Product family
to which the construction product belongs

Plastic anchor for fixing of external thermal insulation
composite systems with rendering

Manufacturer

Klimas Sp. z o.o.
Kuznica Kiedrzynska
ul. Wincentego Witosa 135/137
42-233 MYKANÓW
POLEN

Manufacturing plant

Plant 1, Plant 2 Poland

This European Technical Assessment
contains

12 pages including 3 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

EAD 330196-01-0604, edition 10/2017

This version replaces

ETA-15/0373 issued on 30 September 2016

European Technical Assessment

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English translation prepared by DIBt

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Specific part

1 Technical description of the product

The nailed-in anchor Fixplug consists of an anchor sleeve with an enlarged shaft, spreading zone subsequently, an insulation plate made of virgin polyethylene and an accompanying specific nail of virgin glass fibre reinforced polyamide. The serrated expanding part of the anchor sleeve is slotted.

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic load bearing capacity <ul style="list-style-type: none"> - Characteristic resistance under tension load - Minimum edge distance and spacing 	See Annex C 1 See Annex B 2
Displacements	See Annex C 2
Plate stiffness	See Annex C 2

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C 2

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 330196-01-0604, the applicable European legal act is: [97/463/EC].

The system to be applied is: 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

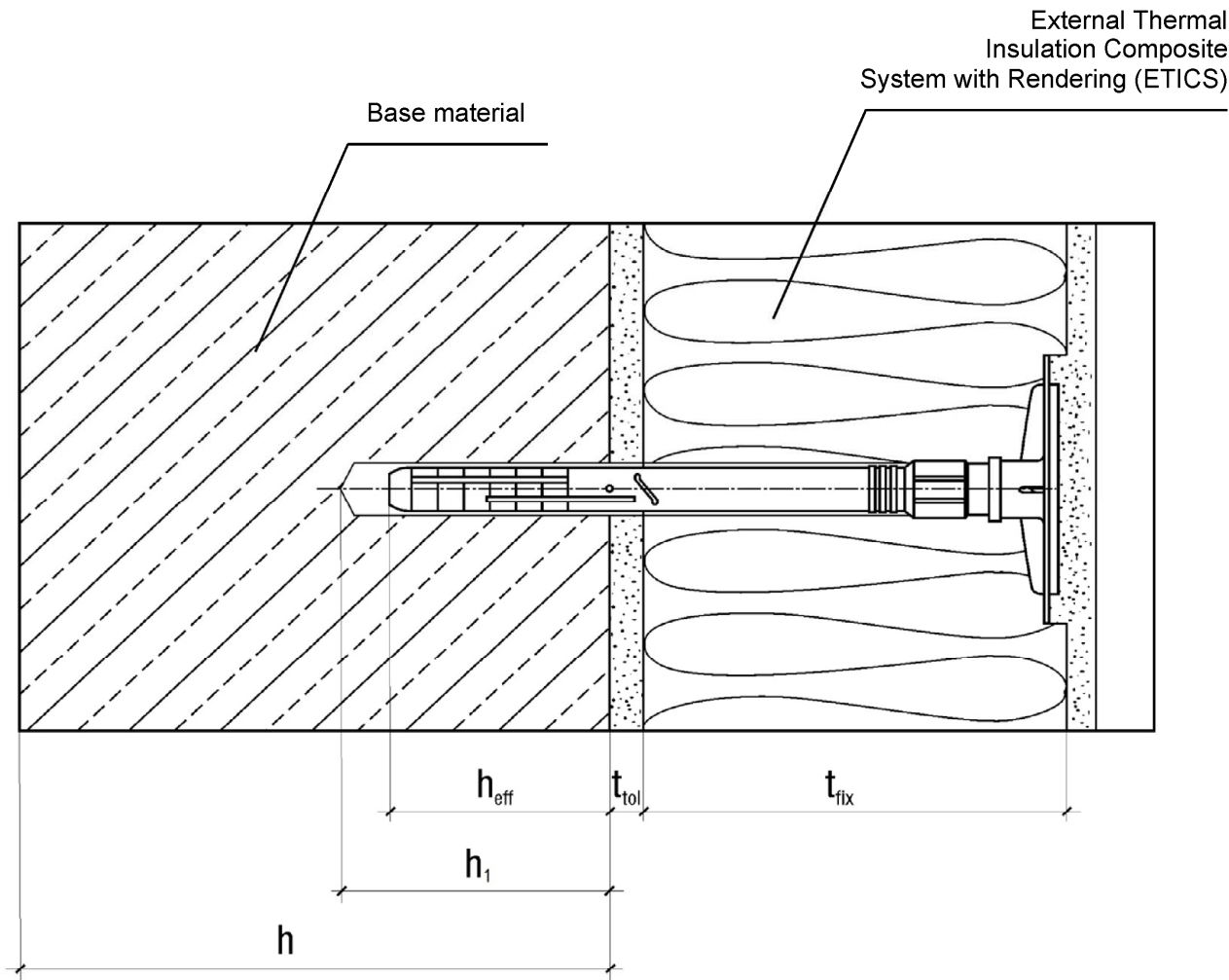
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 7 February 2023 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Ziegler

Fixplug 8 / Fixplug 10



Intended use

Anchorage of ETICS in concrete, masonry and in autoclaved aerated concrete

Legend:

- h_{eff} = effective anchorage depth
- h_1 = depth of drilled hole to deepest point
- h = thickness of member (wall)
- t_{fix} = thickness of insulation material
- t_{tol} = thickness of equalizing layer or non-load-bearing coating

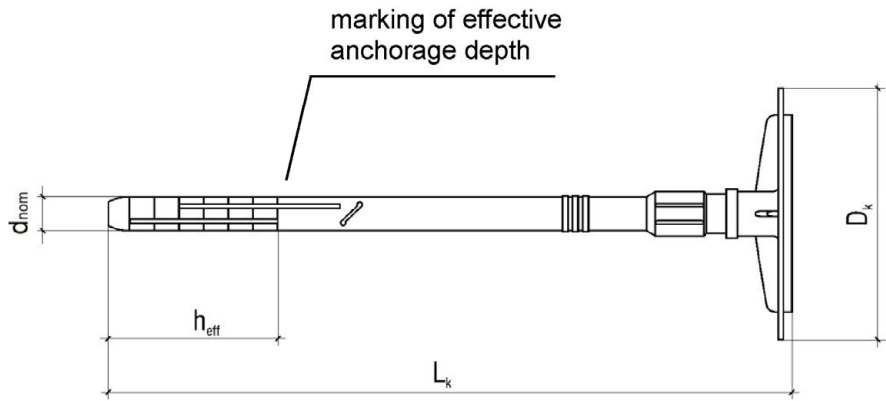
FIXPLUG 8 and FIXPLUG 10

Product description
Installed condition

Annex A 1

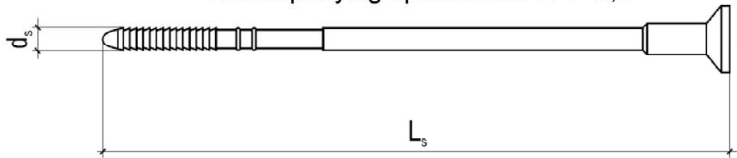
Marking of the anchor sleeve
Marking of effective anchorage depth

FIXPLUG 8



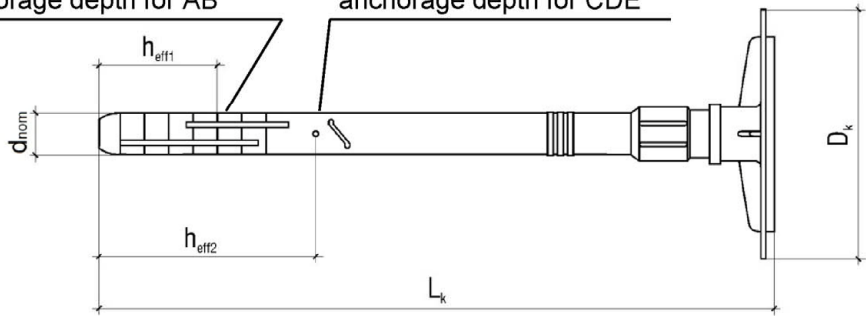
Marking:
(anchor plate)
Identifying mark (Wkret-met)
Anchor type (FIXPLUG)
Base material group (ABCDE)
diameter x length (e.g. 8x150)

Accompanying specific nail TFP-5,0



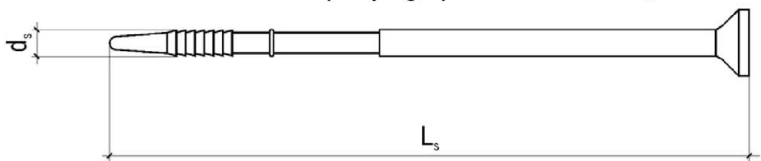
marking of effective
anchorage depth for AB

marking of effective
anchorage depth for CDE



Marking:
(anchor plate)
Identifying mark (Wkret-met)
Anchor type (FIXPLUG)
Base material group (ABCDE)
diameter x length (e.g. 10x160)

Accompanying specific nail TFP-6,1



FIXPLUG 8 and FIXPLUG 10

Product description
Marking of the anchor sleeve

Annex A 2

Table A1: Dimensions

Anchor type	Anchor sleeve					Nail		
	d_{nom}	min L_k	max L_k	D	h_{ef} (ABCDE)	d_s	min L_s	max L_s
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FIXPLUG 8	8	99	299	60	40	5,0	89	289

Determination of maximum thickness of insulation t_{fix} for base material group ABCDE:

$$t_{fix} = L_k - t_{tol} - h_{ef} \quad (\text{e.g. } L_k = 150 \text{ mm, } t_{tol} = 10 \text{ mm})$$

$$\text{e.g. } t_{fix} = 150 - 10 - 40$$

$$t_{fix} = 100 \text{ mm}$$

Anchor type	Anchor sleeve						Nail		
	d_{nom}	min L_k	max L_k	D	h_{ef1} (AB)	h_{ef2} (CDE)	d_s	min L_s	max L_s
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FIXPLUG 10	10	94	364	60	28,5	50	6,1	83	353

Determination of maximum thickness of insulation t_{fix} for base material group AB:

$$t_{fix} = L_k - t_{tol} - h_{ef} \quad (\text{e.g. } L_k = 160 \text{ mm, } t_{tol} = 10 \text{ mm})$$

$$\text{e.g. } t_{fix} = 160 - 10 - 28,5$$

$$t_{fix} = 121,5 \text{ mm}$$

Determination of maximum thickness of insulation t_{fix} for base material group CDE:

$$t_{fix} = L_k - t_{tol} - h_{ef} \quad (\text{e.g. } L_k = 160 \text{ mm, } t_{tol} = 10 \text{ mm})$$

$$\text{e.g. } t_{fix} = 160 - 10 - 50$$

$$t_{fix} = 100 \text{ mm}$$

Table A2: Materials

Element	Material
Anchor sleeve	Polyethylene (natural)
Plastic nail	Polyamide + GF (natural or black)

FIXPLUG 8 and FIXPLUG 10

Product description
Dimensions, materials

Annex A 3

Specifications of intended use

Anchorage subject to:

- The anchor may only be used for transmission of wind suction loads and shall not be used for the transmission of dead loads of the thermal insulation composite system.

Base materials:

- Compacted normal weight concrete without fibres (base material group A) according to Annex C 1
- Solid masonry (base material group B), according to Annex C 1
- Hollow or perforated masonry (base material group C), according to Annex C 1
- Lightweight aggregate concrete (base material group D), according to Annex C 1
- Autoclaved aerated concrete (base material group E), according to Annex C 1
- For other base materials of base material groups A, B, C, D or E the characteristic resistance of the anchor may be determined by job site tests in accordance with EOTA Technical Report TR 51 edition April 2018.

Temperature Range:

- 0°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C)

Design:

- The anchorages are designed under the responsibility of an engineer experienced in accordance and masonry work with the partial safety factors $\gamma_m = 2,0$ and $\gamma_F = 1,5$ if there are no other regulations.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings of thermal insulation composite systems.

Installation:

- Hole drilling by the drill modes according to Annex C 1
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site
- Installation temperature from 0°C to +40°C
- Exposure to UV due to solar radiation of the anchor not protected by rendering ≤ 6 weeks

FIXPLUG 8 and FIXPLUG 10

Intended use
Specifications

Annex B 1

Table B1: Installation parameters

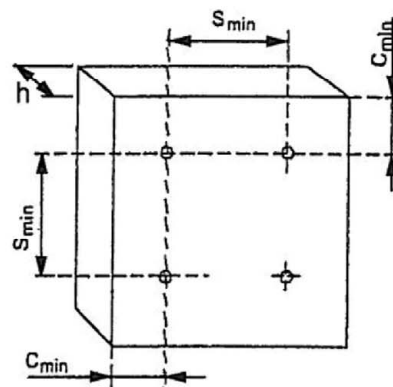
Anchor type		FIXPLUG 8
Drill hole diameter	d_0 [mm] =	8,0
Cutting diameter of drill bit	d_{cut} [mm] ≤	8,45
Depth of drill hole to deepest point for base material group ABCDE	h_1 [mm] ≥	50
Effective anchorage depth in the base material group ABCDE	h_{ef} [mm] ≥	40

Anchor type		FIXPLUG 10
Drill hole diameter	d_0 [mm] =	10,0
Cutting diameter of drill bit	d_{cut} [mm] ≤	10,45
Depth of drill hole to deepest point for base material group AB	h_1 [mm] ≥	40
Effective anchorage depth in the base material group AB	h_{ef1} [mm] ≥	28,5
Depth of drill hole to deepest point for base material group CDE	h_1 [mm] ≥	60
Effective anchorage depth in the base material group CDE	h_{ef2} [mm] ≥	50

Table B2: Minimum thickness of member, spacing and edge distance

Anchor type		FIXPLUG 8, 10
minimum thickness of member	h_{min} = [mm]	100
minimum spacing	s_{min} = [mm]	100
minimal edge distance	c_{min} = [mm]	100

Scheme of spacing and edge distances

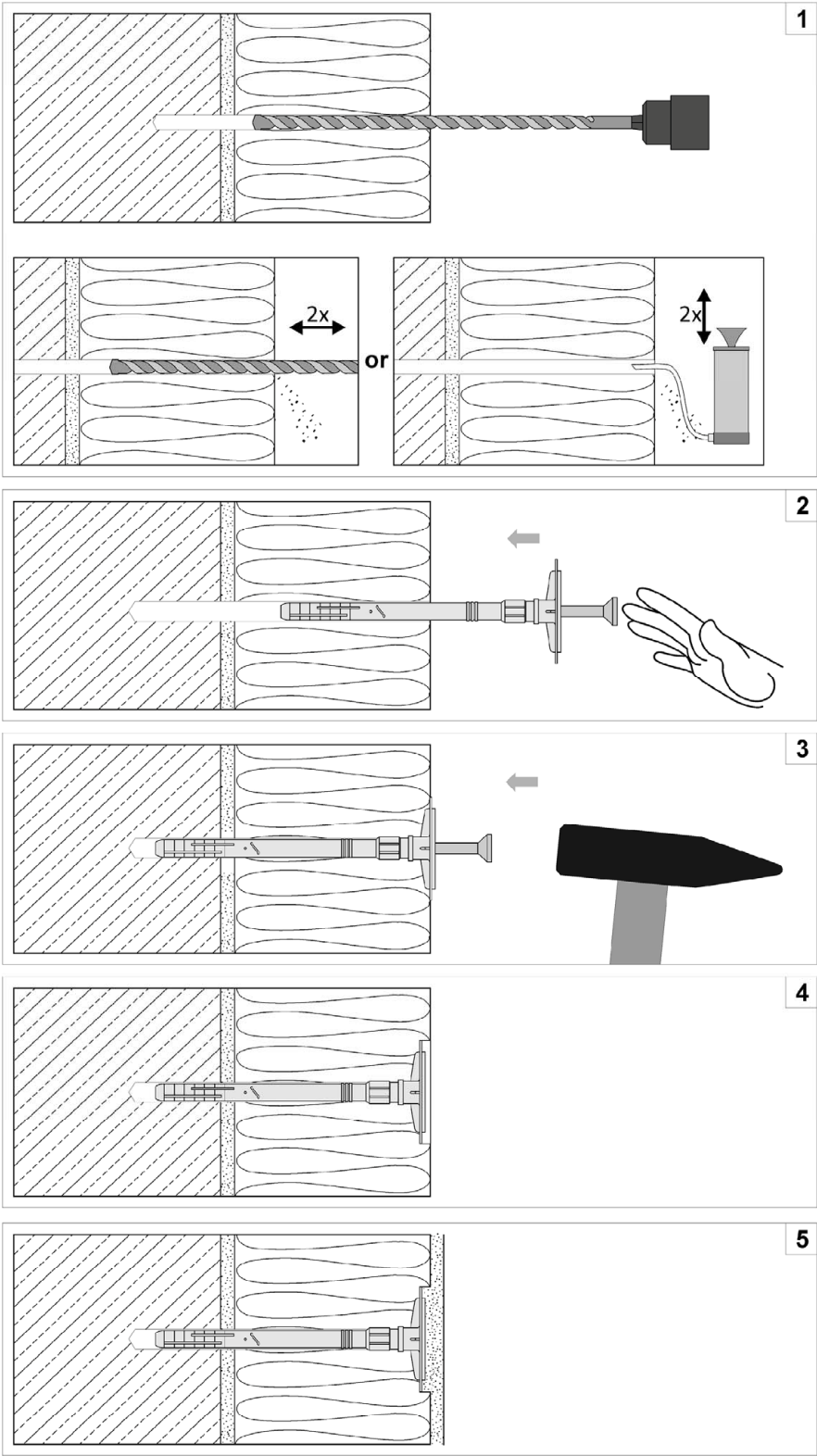


FIXPLUG 8 and FIXPLUG 10

Intended use
Installation parameters
Minimum thickness of member, edge distance and spacing

Annex B 2

Installation instructions

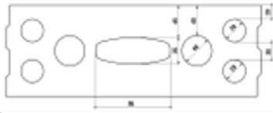




FIXPLUG 8 and FIXPLUG 10

Intended use
Installation instructions

Annex B 3

Table C1: Characteristic resistance to tension loads N_{Rk} for use in concrete and masonry for a single anchor

Base material	Bulk density [kg/dm ³]	Minimum compressive strength [N/mm ²]	General remarks	Drill method	Fixplug 8 N_{Rk} [kN]	Fixplug 10 N_{Rk} [kN]
Concrete C12/15 as per EN 206:2013+A1:2016	$\geq 2,25$	≥ 30	Concrete without fibres	hammer	0,6	0,75
Concrete C16/20 - C50/60 as per EN 206:2013+A1:2016	$\geq 2,30$	≥ 65	Concrete without fibres	hammer	0,9	1,2
Solid clay brick Mz as per EN 771-1:2011+A1:2015	$\geq 2,0$	≥ 20		hammer	0,9	0,9
Calcium silicate solid bricks KS as per EN 771-2:2011+A1:2015	$\geq 2,0$	≥ 20		hammer	0,9	0,9
Calcium silicate hollow block KSL as per EN 771-2:2011+A1:2015 	$\geq 1,6$	≥ 12	Cross section reduced by perforation vertically to the resting area $\geq 15\%$ and $\leq 50\%$	hammer	0,6 ¹⁾	0,6 ¹⁾
Vertically perforated clay bricks HLz) as per EN 771-1:2011+A1:2015 	$\geq 1,2$	≥ 12	Cross section reduced by perforation vertically to the resting area $\geq 15\%$ and $\leq 50\%$	rotary	0,4 ²⁾	0,4 ²⁾
Lightweight concrete hollow blocks HBL as per EN 771-3:2011+A1:2015 	$\geq 0,8$	≥ 2		rotary	0,75 ³⁾	0,9 ³⁾
Autoclaved aerated concrete as per EN 771-4:2011+A1:2015	$\geq 0,35$	≥ 2		rotary	0,5	0,5
Autoclaved aerated concrete as per EN 771-4:2011+A1:2015	$\geq 0,65$	$\geq 3,5$		rotary	0,75	0,75
Lightweight aggregate concrete LAC 5 – LAC 25 as per EN 1520:2011 / EN 771-3:2011+A1:2015	$\geq 1,05$	≥ 5		rotary	0,6	0,75

¹⁾ The value applies only for outer web thickness ≥ 20 mm; otherwise N_{Rk} shall be determined by job site tests.

²⁾ The value applies only for outer web thickness ≥ 17 mm; otherwise N_{Rk} shall be determined by job site tests.

³⁾ The value applies only for outer web thickness ≥ 32 mm; otherwise N_{Rk} shall be determined by job site tests.

FIXPLUG 8 and FIXPLUG 10

Performances
Characteristic resistance

Annex C 1

Table C2: Point thermal transmittance according EOTA Technical Report TR 025:2016-05

Anchor type	Insulation thickness t_{fix} [mm]	point thermal transmittance χ [W/K]
FIXPLUG 8	110-210	0
FIXPLUG 10	120-260	0

Table C3: Plate stiffness according EOTA Technical Report TR 026:2016-05

Anchor type	Diameter of the anchor plate [mm]	Load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
FIXPLUG 8	60	1,4	0,6
FIXPLUG 10	60	1,6	0,6

Table C4: Displacements

Base material	Bulk density [kg/dm ³]	Minimum compressive strength [N/mm ²]	Tension load N [kN]		Displacements $\Delta\delta_N$ [mm]	
			FIXPLUG 8	FIXPLUG 10	FIXPLUG 8	FIXPLUG 10
Concrete C12/15	≥ 2,25	≥ 30	0,2	0,25	0,45	0,46
Concrete C16/20 - C50/60	≥ 2,30	≥ 65	0,3	0,4	0,63	0,74
Solid clay brick Mz	≥ 2,0	≥ 20	0,3	0,3	0,73	0,78
Calcium silicate bricks KS	≥ 2,0	≥ 20	0,3	0,3	0,74	0,90
Calcium silicate hollow block KSL	≥ 1,6	≥ 12	0,2	0,2	0,66	0,64
Vertically perforated clay bricks HLz	≥ 1,2	≥ 12	0,13	0,13	0,84	0,79
Lightweight concrete hollow blocks HBL	≥ 0,8	≥ 2	0,25	0,3	0,81	0,75
Autoclaved aerated concrete	≥ 0,35	≥ 2	0,17	0,17	0,42	0,57
Autoclaved aerated concrete	≥ 0,65	≥ 3,5	0,25	0,25	0,76	0,87
Lightweight aggregate concrete LAC 5-25	≥ 1,05	≥ 5	0,2	0,25	0,80	0,84

FIXPLUG 8 and FIXPLUG 10

Performances

Point thermal transmittance, plate stiffness, displacements

Annex C 2