

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-18/0006  
of 15 June 2018

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

Fassa Combi Fix Plus

Product family  
to which the construction product belongs

Nailed-in plastic anchor for fixing of external thermal  
insulation composite systems with rendering in concrete  
and masonry

Manufacturer

FASSA S.r.l.  
Via Lazzaris 3  
31027 SPRESIANO (TV)  
ITALIEN

Manufacturing plant

EJOT manufacturing plant 1,2,3,4

This European Technical Assessment  
contains

13 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

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**Specific Part**

**1 Technical description of the product**

The nailed-in anchor Fassa Combi Fix Plus 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 galvanised steel with an overmoulding of polyamide. The serrated expanding part of the anchor sleeve is slotted.

The anchor may in addition be combined with the anchor plates SBL 140 plus and VT 90.

An illustration and the description of the product are 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 verification 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 tension resistance	See Annex C 1
Edge distances and spacing	See Annex B 2
Plate stiffness	See Annex C 2
Displacements	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+

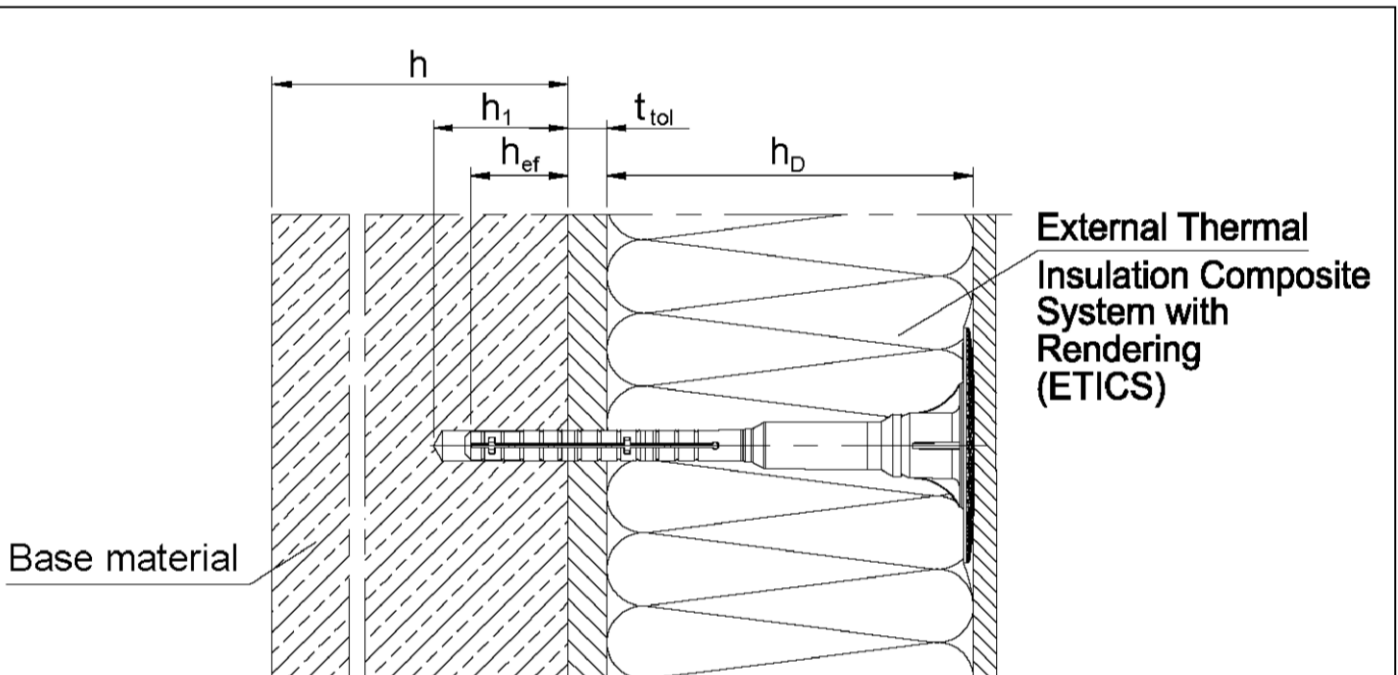
**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

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 15 June 2018 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow  
Head of Department

*beglaubigt:*  
Ziegler



#### Intended use

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

Legend:

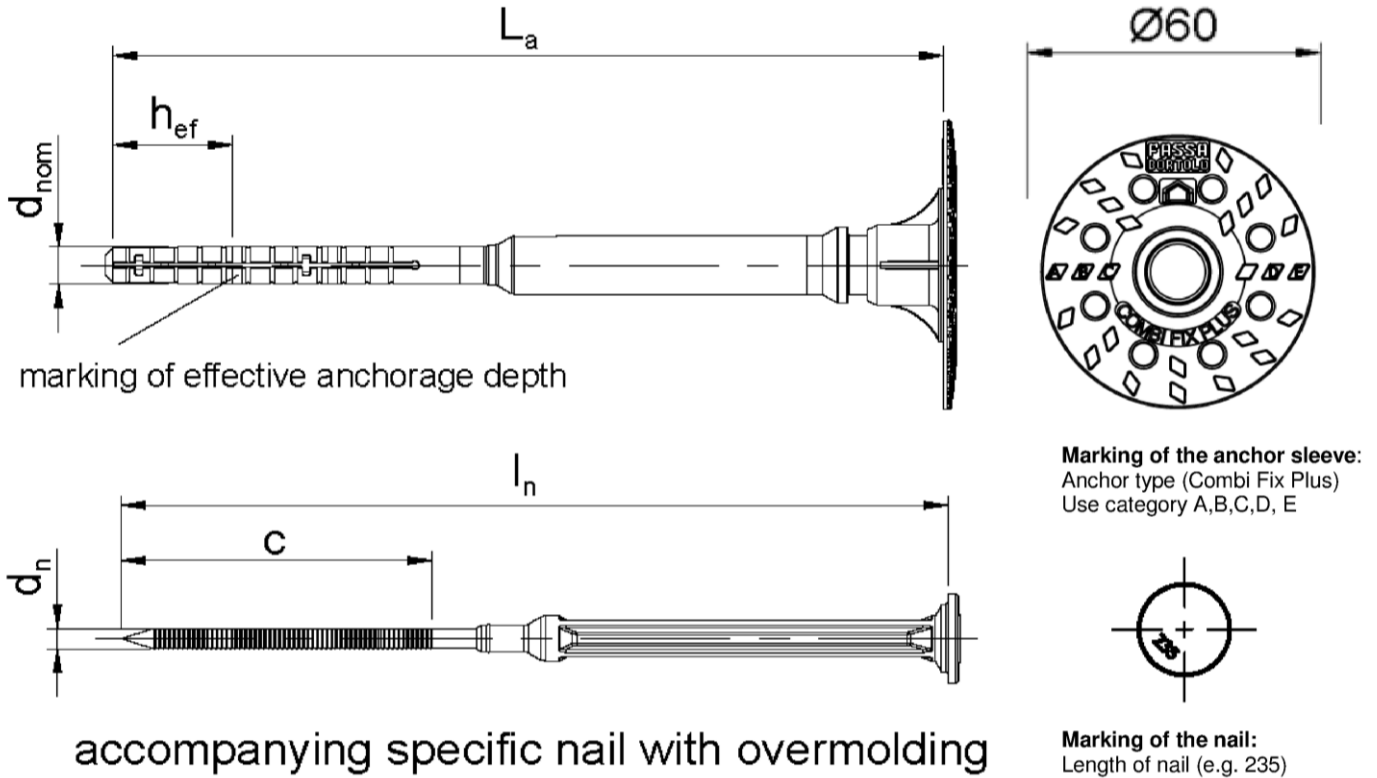
- $h_D$  = thickness of insulation material
- $h_{ef}$  = effective anchorage depth
- $h$  = thickness of member (wall)
- $h_1$  = depth of drilled hole to deepest point
- $t_{tol}$  = thickness of equalizing layer or non-load-bearing coating

**Fassa Combi Fix plus**

**Product description**  
Installed condition

**Annex A 1**

**Fassa Combi Fix plus in use category A, B, C**



**Table A1: Dimensions**

Anchor Type	Colour	Anchor sleeve			Specific nail		
		$d_{nom}$ [mm]	$h_{ef}$ [mm]	min $L_a$ max $L_a$ [mm]	$d_n$ [mm]	$c$ [mm]	min $l_u$ max $l_u$ [mm]
Fassa Combi Fix plus	blue	8	25	95 295	4,13	60	95 295

Determination of maximum thickness of insulation  $h_D$  [mm] for Fassa Combi Fix plus:

$$h_D = L_a - t_{tol} - h_{ef} \quad (L_a = \text{e.g. } 155; t_{tol} = 10)$$

e.g.  $h_D = 155 - 10 - 25$

$$h_{Dmax} = 120$$

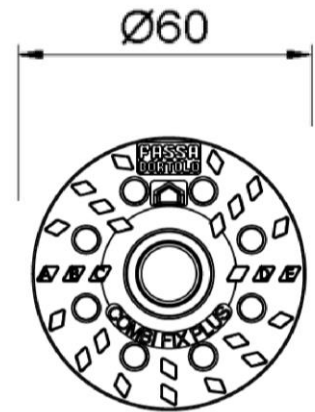
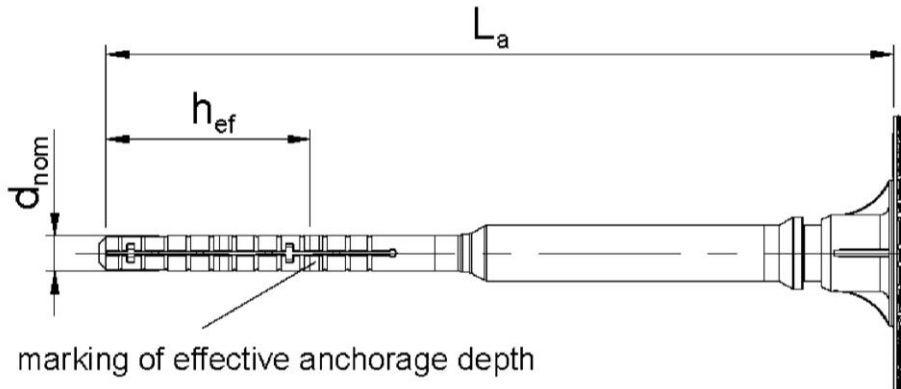
**Fassa Combi Fix plus**

**Product description**

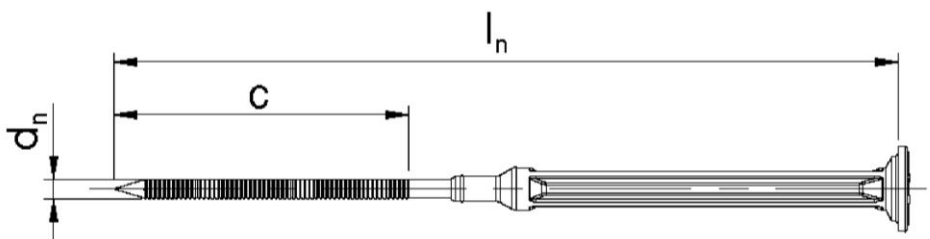
Marking and dimension of the anchor sleeve, use category A, B, C expansion element

**Annex A 2**

**Fassa Combi Fix plus in use category D and E**



**Marking of the anchor sleeve:**  
Anchor type (Combi Fix Plus)  
Use category A,B,C,D, E



accompanying specific nail with overmolding



**Marking of the nail:**  
Length of nail (e.g. 235)

**Table A2: Dimensions**

Anchor Type	Colour	Anchor sleeve			Specific nail		
		$d_{nom}$	$h_{ef}$	min $L_a$ max $L_a$	$d_n$	$c$	min $l_u$ max $l_u$
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
Fassa Combi Fix plus	blue	8	45	95 295	4,13	60	95 295

Determination of maximum thickness of insulation  $h_D$  [mm] for Fassa Combi Fix plus:

$$h_D = L_a - t_{tol} - h_{ef} \quad (L_a = \text{e.g. } 155; t_{tol} = 10)$$

e.g.  $h_D = 155 - 10 - 45$

$$h_{Dmax} = 100$$

**Fassa Combi Fix plus**

**Product description**

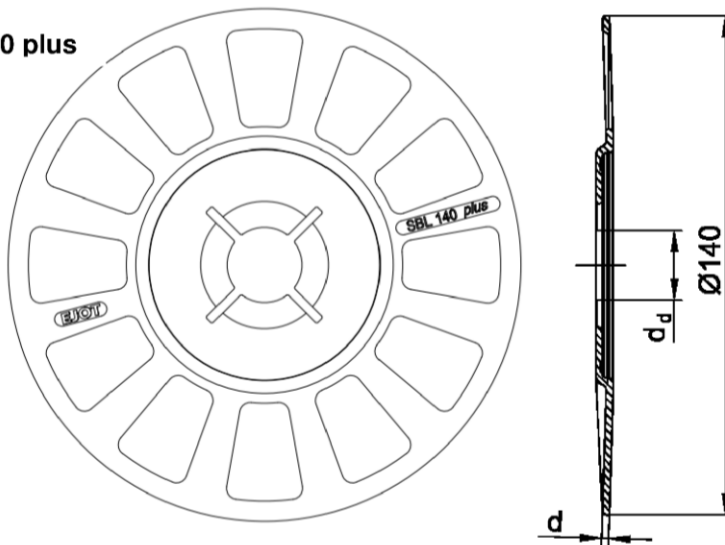
Marking and dimension of the anchor sleeve, use category D and E expansion element

**Annex A 3**

**Table A3: Materials**

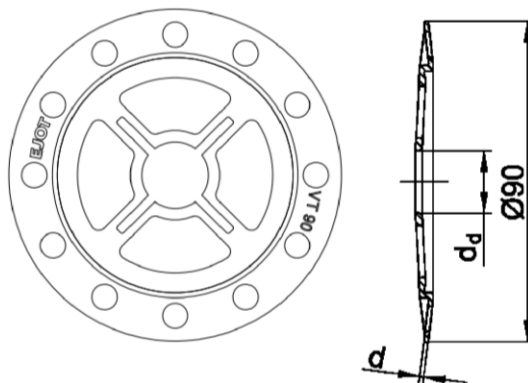
Name	Materials
Anchor plate	virgin polyethylene (PE-HD), blue
Anchor sleeve	virgin polyethylene (PE-HD), anthrazit / grey
Specific nail - overmoulding	polyamide, PA GF 50
Specific nail	Steel, electro galvanized $\geq 5 \mu\text{m}$ according to EN ISO 4042:1999, blue passivated $f_{yk} \geq 670 \text{ N/mm}^2$

**SBL 140 plus**



SBL 140 plus	
colour	nature
$d_d$ [mm]	20,0
$d$ [mm]	2,0
Material	1) 2)

**VT 90**



VT 90	
colour	nature
$d_d$ [mm]	17,5
$d$ [mm]	1,2
Material	1) 2)

- 1) polyamide, PA 6  
2) polyamide, PA GF 50

**Fassa Combi Fix plus**

**Product description**

Materials,  
Slip on plates with Fassa Combi Fix plus

**Annex A 4**



### 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:

- Normal weight concrete (use category A) according to Annex C 1
- Solid masonry (use category B), according to Annex C 1
- Hollow or perforated masonry (use category C), according to Annex C 1
- Lightweight aggregate concrete (use category D) according to Annex C 1
- Autoclaved aerated Concrete (use category E), according to Annex C 1
- For other base materials of the use categories A, B, C, D or E the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051 edition December 2016.

#### 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 anchorages and masonry work with the partial safety factors  $\gamma_M = 2,0$  and  $\gamma_F = 1,5$ , if there are no other national 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 C1.
- 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  $\leq 6$  weeks

Fassa Combi Fix plus

Intended use  
Specifications

Annex B 1

**Table B1: Installation parameters**

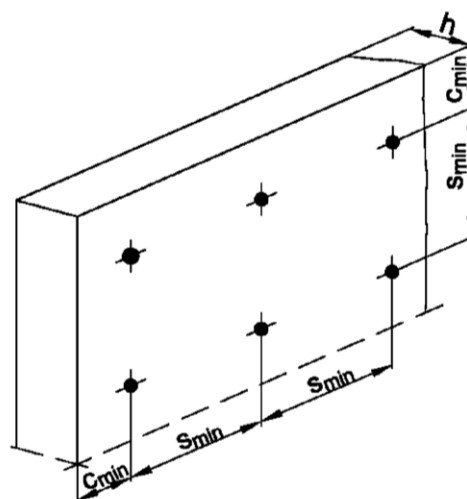
Anchor type		Fassa Combi Fix plus	
		use category	
		A, B, C	D and E
Drill hole diameter	$d_0$ [mm] =	8	8
Cutting diameter of drill bit	$d_{cut}$ [mm] ≤	8,45	8,45
Depth of drill hole to deepest point	$h_1$ [mm] ≥	35	55
Effective anchorage depth <sup>1)</sup>	$h_{ef}$ [mm] ≥	25	45

<sup>1)</sup> Larger anchoring depths are fundamentally possible.

**Table B2: Anchor distances and dimensions of members**

Anchor type		Fassa Combi Fix plus	
Minimum spacing	$s_{min} \geq$ [mm]	100	
Minimum edge distance	$c_{min} \geq$ [mm]	100	
Minimum thickness of member	$h \geq$ [mm]	100	
Minimum thickness of thin concrete members	$h \geq$ [mm]	40	

Scheme of distance and spacing



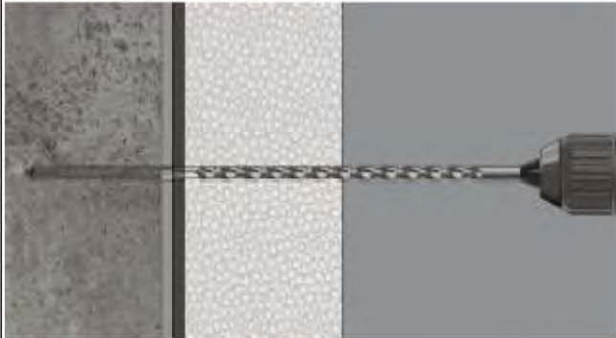
**Fassa Combi Fix plus**

**Intended use**

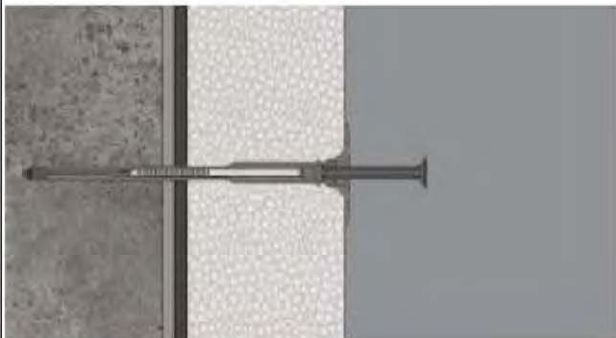
Installations parameters,  
Minimum thickness of member, edge distances and spacing

**Annex B 2**

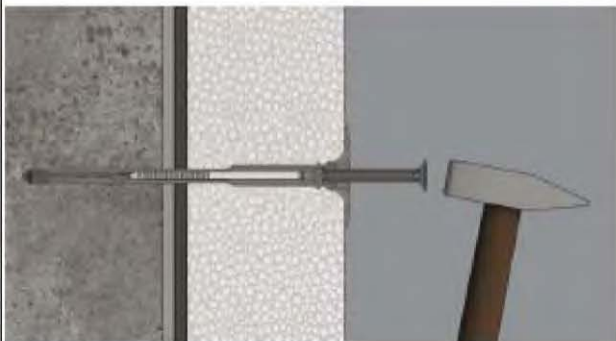
## Installation instructions



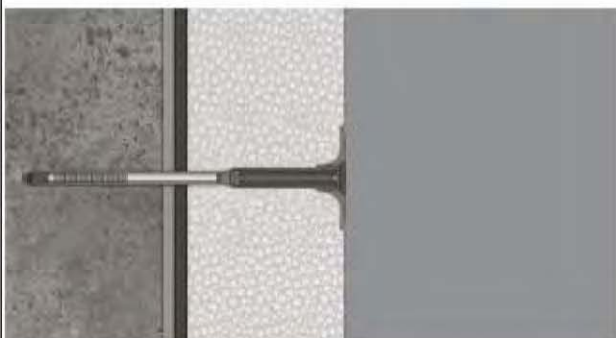
Drill the hole perpendicular to the substrate surface.  
Clean the drill hole 3x.



Place the anchor into the drill hole.  
The bottom side of the plate must be flush with the ETICS.



Drive in the specific nail with the hammer.



Installed conditions Fassa Combi  
Fix plus

**Fassa Combi Fix plus**

**Intended use**  
Installation instructions

**Annex B 3**

<b>Table C1: Characteristic resistance to tension loads <math>N_{Rk}</math> in concrete and masonry for a single anchor in kN</b>					
Anchor type					Fassa Combi Fix Plus
Base materials	Bulk density class $\rho$ [kg/dm <sup>3</sup> ]	minimum compressive strength $f_b$ [N/mm <sup>2</sup> ]	General remarks	Drill method	$N_{Rk}$ [kN]
Concrete C12/15 – C50/60 EN 206-1:2000				hammer	0,9
Thin concrete members (e.g. weather resistant skin) Concrete C16/20 – C50/60 EN 206-1:2000			Thickness of the thin skin: 100 mm > h ≥ 40 mm	hammer	0,9
Clay bricks, Mz DIN 105-100:2012-01 / EN 771-1:2011	≥ 1,8	12	Vertically perforation up to 15 %.	hammer	0,9
Sand-lime solid bricks, KS DIN V 106:2005-10 / EN 771-2:2011	≥ 1,8	12	Vertically perforation up to 15 %.	hammer	0,9
Vertically perforated clay bricks, HLz DIN 105-100:2012-01 / EN 771-1:2011	≥ 0,8	12	Vertically perforation > 15 % and ≤ 50 % Outer web thickness ≥ 11 mm	rotary	0,6 <sup>1)</sup>
Sand-lime perforated bricks, KSL DIN V 106:2005-10 / EN 771-2:2011	≥ 1,6	12	Vertically perforation > 15 % and ≤ 50 % Outer web thickness ≥ 20 mm	rotary	0,9 <sup>1)</sup>
Lightweight concrete solid blocks, V DIN V 18152-100:2005-10 / EN 771-3:2011	≥ 0,7	4		hammer	0,75
Lightweight concrete hollow blocks, Hbl DIN V 18151-100:2005-10 / EN 771-3:2011	≥ 1,2	6	Vertically perforation > 15 % and ≤ 50 % Outer web thickness ≥ 30 mm	rotary	0,6 <sup>1)</sup>
lightweight aggregate concrete LAC 4 – LAC 25 EN 1520:2011-06 / EN 771-3:2011	≥ 0,7	4		rotary	0,9
Autoclaved aerated concrete AAC 4 – AAC 7 EN 771-4:2011	≥ 0,55	4		rotary	0,5
<sup>1)</sup> The value applies only for the given outer web thickness ≥ 11 mm; otherwise the characteristic resistance shall be determined by job site pull-out tests.					
<b>Fassa Combi Fix plus</b>					<b>Annex C 1</b>
<b>Performances</b> Characteristic resistance					

English translation prepared by DIBt

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

anchor type	insulation thickness $h_D$ [mm]	point thermal transmittance $\chi$ [W/K]
Fassa Combi Fix plus	60 – 260	0,001

**Table C3: Plate stiffness according EOTA Technical Report TR 025:2016-05**

anchor type	diameter of the anchor plate [mm]	load resistance of the anchor plate [mm]	plate stiffness [kN/mm]
Fassa Combi Fix plus	60	1,5	0,7

**Table C4: Displacements**

Base materials	Bulk density class $\rho$ [kg/dm <sup>3</sup> ]	minimum compressive strength $f_b$ [N/mm <sup>2</sup> ]	Tension load N [kN]	Displacements $\delta_{(N)}$ [mm]
Concrete C12/15 – C50/60 EN 206-1:2000			0,3	0,4
Thin concrete members (e.g. weather resistant skin) Concrete C16/20 – C50/60 EN 206-1:2000			0,3	0,5
Clay bricks, Mz DIN 105-100:2012-01 / EN 771-1:2011	≥ 1,8	12	0,3	0,5
Sand-lime solid bricks , KS DIN V 106:2005-10 / EN 771-2:2011	≥ 1,8	12	0,3	0,3
Vertically perforated clay bricks, HLz DIN 105-100:2012-01 / EN 771-1:2011	≥ 0,8	12	0,2	0,5
Sand-lime perforated bricks, KSL DIN V 106:2005-10 / EN 771-2:2011	≥ 1,6	12	0,3	0,4
Lightweight concrete solid blocks, V DIN V 18152-100:2005-10 / EN 771-3:2011	≥ 0,7	4	0,25	0,4
Lightweight concrete hollow blocks, Hbl DIN V 18151-100:2005-10 / EN 771-3:2011	≥ 1,2	6	0,2	0,4
lightweight aggregate concrete LAC 4 – LAC 25 EN 1520:2011-06 / EN 771-3:2011	≥ 0,7	4	0,3	0,5
Autoclaved aerated concrete AAC 4 – AAC 7 EN 771-4:2011	≥ 0,55	4	0,15	0,4

**Fassa Combi Fix plus**

**Performances**

Point thermal transmittance, plate stiffness, displacements

**Annex C 2**