

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-12/0208  
of 5 December 2017

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

termoz SV II ecotwist

Product family  
to which the construction product belongs

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

Manufacturer

fischerwerke GmbH & Co. KG  
Klaus-Fischer-Straße 1  
72178 Waldachtal  
DEUTSCHLAND

Manufacturing plant

fischerwerke

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

This version replaces

ETA-12/0208 issued on 26 May 2017

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English translation prepared by DIBt

**Specific Part**

**1 Technical description of the product**

The Fischer termoz SV II ecotwist screwed-in anchor consists of an anchor sleeve and a screw plate in different colours, both made of polyamide (virgin material) and an accompanying specific screw of galvanised steel.

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 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 Mechanical resistance and stability (BWR 1)**

| Essential characteristic          | Performance  |
|-----------------------------------|--------------|
| Characteristic tension resistance | See Annex C1 |
| Edge distances and spacing        | See Annex B2 |
| Displacements                     | See Annex C2 |

**3.2 Energy economy and heat retention (BWR 6)**

| Essential characteristic    | Performance  |
|-----------------------------|--------------|
| Point thermal transmittance | See Annex C2 |

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

In accordance with EAD No. 330335-00-0604, 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 in the applicable European Assessment Document**

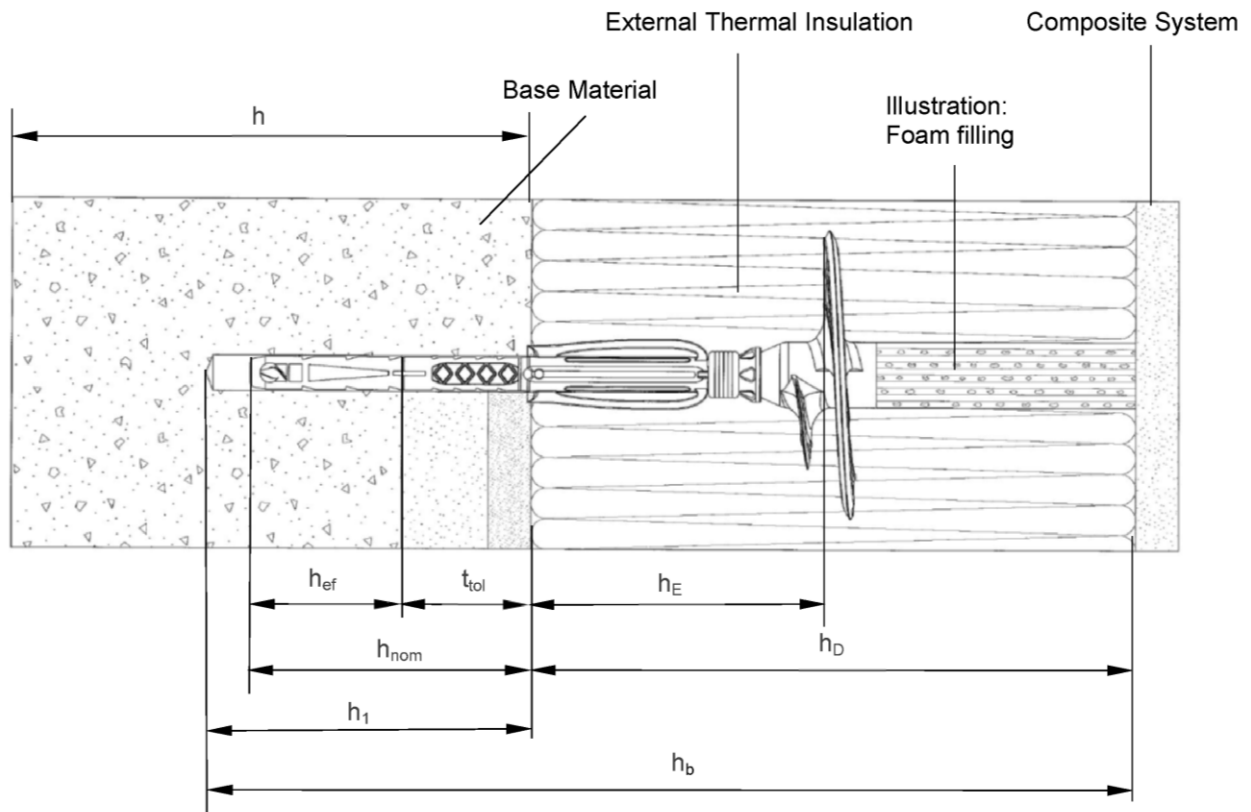
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 5 December 2017 by Deutschen Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow  
Head of Department

*beglaubigt:*  
Aksünger

**Installed anchor : termoz SV II ecotwist**



**Legend**

- $h_{nom}$  = Overall plastic anchor embedment depth in the base material with non-load bearing coating ( $t_{tol}$ )
- $h_1$  = Depth of drilled hole to deepest point in the base material
- $h$  = Thickness of base material (wall)
- $h_D$  = Thickness of insulation material
- $t_{tol}$  = Thickness of equalizing layer and / or non-load bearing coating
- $h_E$  = Embedment depth
- $h_b$  = Total bore hole depth
- $h_{ef}$  = Effective anchor embedment depth in the base material

Figures not to scale.

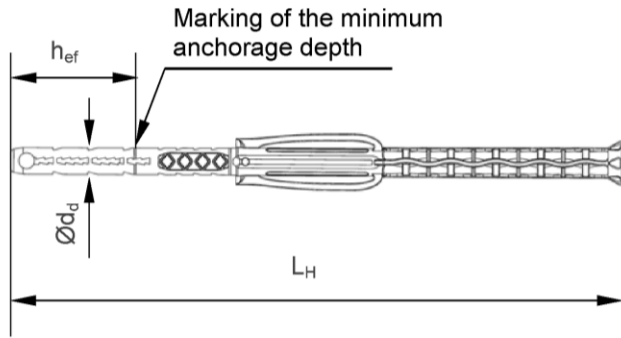
**fischer termoz SV II ecotwist**

**Product description**  
Installed anchor

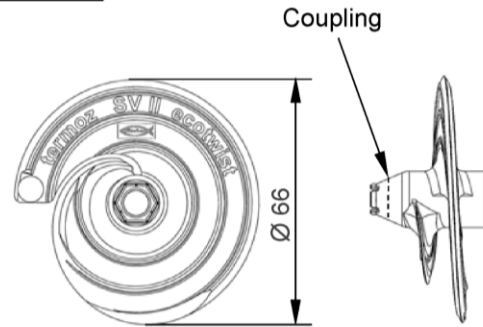
**Annex A1**

**Parts: termoz SV II ecotwist**

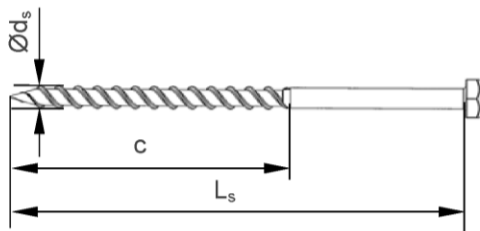
**Anchor sleeve**



**Screw plate**

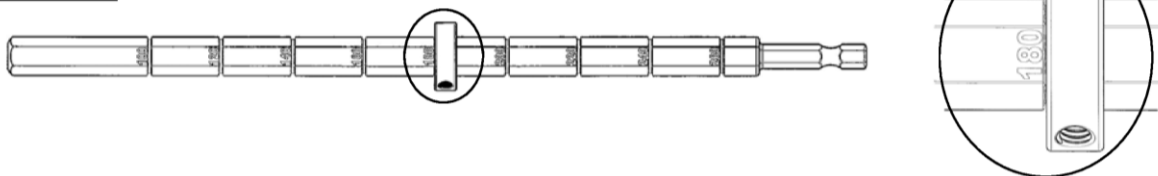


**Special screw**

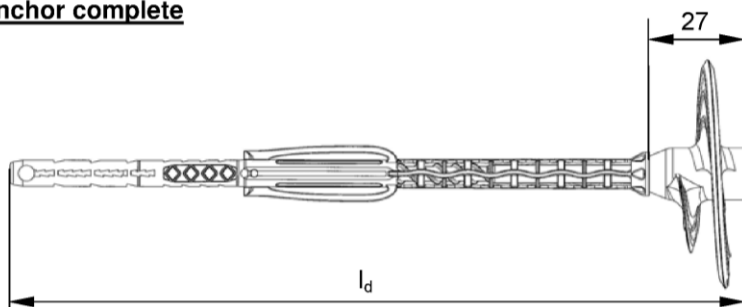


Adjustment of the ring depends of the insulation material thickness, e.g.  $h_D = 180$  mm  
→adjust value 180 at the setting tool

**Setting tool**



**Anchor complete**








Figures not to scale.

fischer termoz SV II ecotwist

**Product description**  
Anchor type and parts

**Annex A2**

| Table A3.1: Dimensions  |  |               |            |       |       |                   |                 |     |
|---|--|---------------|------------|-------|-------|-------------------|-----------------|-----|
| Anchor type   | Anchor sleeve  |               |            |       |       | Special screw     |                 |     |
| termoz SV II ecotwist   | $\varnothing d_d$  | $h_{ef}^{1)}$ | $h_E^{1)}$ | $l_d$ | $L_H$ | $\varnothing d_s$ | $L_s$           | $c$ |
|   | [mm]   |               |            |       |       |                   |                 |     |
| $t_{tol}$ 0-10 mm   | 8  | 35            | 70         | 162   | 135   | 6                 | 100             | 74  |
| $t_{tol}$ 0-30 mm   |  |               |            | 202   | 175   |                   | 120             |     |
| $t_{tol}$ 30-60 mm  |  |               |            | 232   | 205   |                   | 150             |     |
| 1) see Annex A1   |  |               |            |       |       |                   |                 |     |
| Table A3.2: Marking on the plate  |  |               |            |       |       |                   |                 |     |
|   | Marking  |               |            |       |       |                   |                 |     |
| Anchor type   | termoz SV II ecotwist  |               |            |       |       |                   |                 |     |
| Works symbol  |  or   |               |            |       |       |                   |                 |     |
| Example   | fischer (optional)<br>termoz SV II ecotwist<br> or <br>CE (optional);  $\varnothing 8$ (optional); ABCDE (optional)<br>XXXXX= various additional markings allowed |               |            |       |       |                   |                 |     |
| Table A3.3: Marking on the anchor sleeve  |  |               |            |       |       |                   |                 |     |
|   | Marking  |               |            |       |       |                   |                 |     |
| termoz SV II ecotwist $t_{tol}$ 0-10 mm   | $t_{tol}$ 0-10   |               |            |       |       |                   |                 |     |
| termoz SV II ecotwist $t_{tol}$ 0-30 mm   | $t_{tol}$ 0-30   |               |            |       |       |                   |                 |     |
| termoz SV II ecotwist $t_{tol}$ 30-60 mm  | $t_{tol}$ 30-60  |               |            |       |       |                   |                 |     |
| Table A3.4: Material  |  |               |            |       |       |                   |                 |     |
| Designation   | Material   |               |            |       |       |                   |                 |     |
| Anchor sleeve   | PA6 (virgin material), colour: grey  |               |            |       |       |                   |                 |     |
| Screw plate   | PA6 (virgin material) GF, colour: grey, yellow, red, orange, green, blue   |               |            |       |       |                   |                 |     |
| Special screw   | Steel; gal Zn A2G or A2F according to EN ISO 4042:1999   |               |            |       |       |                   |                 |     |
| <b>fischer termoz SV II ecotwist</b>  |  |               |            |       |       |                   | <b>Annex A3</b> |     |
| <b>Product description</b><br>Anchor types, marking on the anchor plate/sleeve, dimensions and material |  |               |            |       |       |                   |                 |     |

## 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 external thermal insulation composite system (ETICS).

### Base materials:

- Normal weight concrete (use category A), according to Annex C1
- Solid masonry (use category B), according to Annex C1
- Hollow or perforated masonry (use category C), according to Annex C1
- Lightweight aggregate concrete (use category D), according to Annex C1
- Autoclaved aerated concrete (use category E), according to Annex C1
- For other base materials of the use categories A, B, C, D and E the characteristic resistance of the anchor may be determined by job site tests acc. 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  $\gamma_F = 1,5$  in absence of other national regulations.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchors is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings of ETICS.

### Installation:

- Drill method according to Annex C1
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on 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

fischer termoz SV II ecotwist

Intended use  
Specifications

Annex B1



**Table B2.1: Installation parameters**

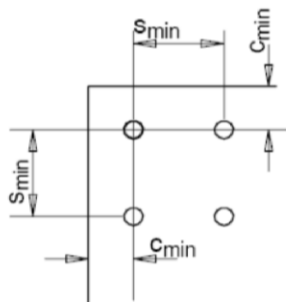
|   |           |   | termoz SV II ecotwist |
|---|-----------|---|-----------------------|
| Drill hole diameter   | $d_0$     | = | 8                     |
| Cutting diameter of drill bit   | $d_{cut}$ | ≤ | 8,45                  |
| Depth of drill hole to deepest point  | $h_1$     | ≥ | 55/75/105             |
| Total bore hole depth at SV II ecotwist $t_{tol}$ 0-10 mm   |           |   | $h_D + 55$            |
| Total bore hole depth at SV II ecotwist $t_{tol}$ 0-30 mm   | $h_b$     | ≥ | $h_D + 75$            |
| Total bore hole depth at SV II ecotwist $t_{tol}$ 30-60 mm  |           |   | $h_D + 105$           |
|   |           |   | [mm]                  |
| Overall plastic anchor embedment depth in the base material (see Annex A1) at SV II ecotwist $t_{tol}$ 0-10 mm  |           |   | 45                    |
| Overall plastic anchor embedment depth in the base material (see Annex A1) at SV II ecotwist $t_{tol}$ 0-30 mm  | $h_{nom}$ | = | 65                    |
| Overall plastic anchor embedment depth in the base material (see Annex A1) at SV II ecotwist $t_{tol}$ 30-60 mm |           |   | 95                    |

**Table B2.2: Minimum distances and dimensions**

|                                 |           |   | termoz SV II ecotwist |
|---------------------------------|-----------|---|-----------------------|
| Minimum thickness of member     | $h_{min}$ | = | 100 <sup>1)</sup>     |
| Minimum allowable spacing       | $s_{min}$ | = | 100                   |
| Minimum allowable edge distance | $c_{min}$ | = | 100                   |

<sup>1)</sup> For weather resistant external wall panels:  $h_{min}=40$  mm

**Scheme of distances and spacing**

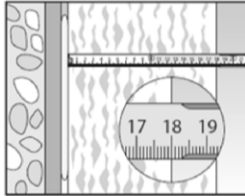


**fischer termoz SV II ecotwist**

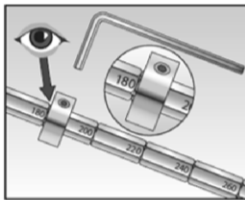
**Intended use**  
Installation parameters  
Minimum thickness of member, distances and spacing

**Annex B2**

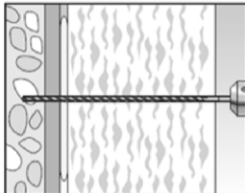
### Installation instructions



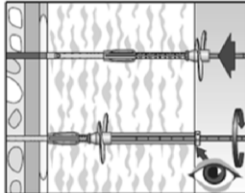
1. Measure insulation thickness  $h_D$   
(example: 18 cm = 180 mm).



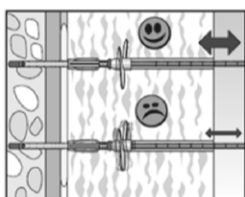
2. Adjust the setting tool ring corresponding to the insulation material thickness  $h_D$  in mm.  
Number is legible.  
Additionally to the setting tool ring a thin plastic plate (maximum 1 mm thickness) can be used as a stop unit for easier mounting.



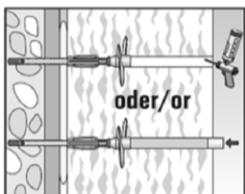
3. Drill bore hole.  
Total drill hole depth must be at  
 $t_{\text{tot}}$  0-10 mm  $\rightarrow h_D + 55$  mm  
 $t_{\text{tot}}$  0-30 mm  $\rightarrow h_D + 75$  mm  
 $t_{\text{tot}}$  30-60 mm  $\rightarrow h_D + 105$  mm.  
Note: Hlz, AAC only with rotary drilling



4. Press the anchor with the screw plate tight against the surface of the insulation material, then start screwing-in the anchor.  
Setting is finished when the surface of the ring is flush with the surface of the insulation material.



5. When step 4 is completed, press the adjustment tool tight against the installed anchor.  
If there is no axial movement of the anchor, remove the setting tool.  
In case of axial movement, a new anchor has to be set in a new drill hole.

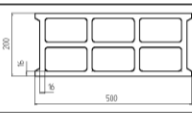


5. The hole in the insulation material must be filled with a suitable foam (illustrated in Annex A1) or must be closed with an appropriate insulation cylinder.

fischer termoz SV II ecotwist

Intended use  
Installation instructions

Annex B3

| Table C1.1: Characteristic resistance $N_{Rk}$  |                |   |   |   |                    |   |
|---|----------------|---|---|---|--------------------|---|
| Base material   | Use cat.<br>1) | Bulk density<br>$\rho$<br>[kg/dm <sup>3</sup> ] | Minimum compressive strength<br>$f_b$<br>[N/mm <sup>2</sup> ] | Remarks   | Drill method<br>2) | Characteristic resistance<br>$N_{Rk}$<br>[kN] |
| Weather resistant skin of external wall panels, concrete C20/25 – C50/60  | -              | -   | -   | Thickness of concrete panels<br>40 mm ≤ h < 100 mm  | H                  | 0,9   |
| Weather resistant skin of external wall panels, concrete C20/25 – C50/60  | -              | -   | -   | Thickness of concrete panels<br>40 mm ≤ h < 100 mm  | R                  | 1,5   |
| Concrete C12/15- C 50/60 acc. to EN 206-1:2000  | A              | -   | -   | -   | H                  | 1,5   |
| Sand-lime solid bricks, <b>KS</b> acc. to EN 771-2:2011   | B              | ≥ 2,0   | 20  | Cross section reduced up to 15% by perforation vertically to the resting area   | H                  | 1,5   |
|   |                |   | 12  |   |                    | 1,2   |
| Clay bricks, <b>Mz</b> acc. to EN 771-1:2011  | B              | ≥ 1,8   | 12  | Cross section reduced up to 15% by perforation vertically to the resting area   | H                  | 1,2   |
| Solid concrete block, <b>Vbn</b> acc. to EN 771-3:2011  | B              | ≥ 2,0   | 20  | Cross section reduced up to 10% by perforation vertically to the resting area   | H                  | 1,5   |
|   |                |   | 12  |   |                    | 1,2   |
| Lightweight concrete solid blocks, <b>Vbl</b> acc. to EN 771-3:2011   | B              | ≥ 1,4   | 8   | Cross section reduced up to 15% by perforation vertically to the resting area, exterior web thickness ≥ 35 mm                       | H                  | 0,6   |
| Vertically perforated sand-lime bricks, <b>KSL</b> acc. to EN 771-2:2011  | C              | ≥ 1,4   | 20  | Cross section reduced more than 15% by perforation vertically to the resting area, Exterior web thickness ≥ 23 mm                   | H                  | 1,2   |
|   |                |   | 12  |   |                    | 0,75  |
| Vertically perforated clay bricks, <b>Hlz</b> acc. to EN 771-1:2011   | C              | ≥ 1,0   | 12  | Cross section reduced more than 15% and less than 50% by perforation vertically to the resting area, Exterior web thickness ≥ 12 mm | R                  | 0,75  |
| Lightweight concrete hollow blocks, <b>Hbl</b> acc. to EN 771-3:2011  | C              | ≥ 1,2   | 10  | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 38 mm             | H                  | 1,2   |
|   |                |   | 8   |   |                    | 0,9   |
|   |                |   | 6   |   |                    | 0,75  |
|   |                |   | 4   |   |                    | 0,6   |
| Lightweight concrete hollow blocks, <b>Hbl4</b> acc. to EN 771-3:2011   | C              | ≥ 0,9   | 4   |   | H                  | 0,5   |
| Lightweight aggregate concrete, <b>LAC</b> acc. to EN 1520:2011 / EN 771-3:2011   | D              | ≥ 0,9   | 6   | -   | H                  | 0,75  |
| Autoclaved aerated concrete blocks <b>AAC</b> acc. to EN 771-4:2011   | E              | ≥ 0,5   | 4   | -   | R                  | 0,4   |
| <p>1) See Annex B1<br/>2) R = Rotary drilling   H = Hammer drilling</p> <p style="text-align: right;">Figures not to scale.</p> |                |   |   |   |                    |   |
| <b>fischer termoz SV II ecotwist</b>  |                |   |   |   | <b>Annex C1</b>    |   |
| <b>Performance</b><br>Characteristic resistance   |                |   |   |   |                    |   |

**Table C2.1: Point thermal transmittance acc. to EOTA Technical TR 025 : 2016 – 05**

| Anchor type   | Thickness of insulation material $h_D$ [mm] | Point thermal transmittance $\chi$ [W/K] |
|---|---|--|
| fischer termoz SV II ecotwist<br>EPS-plug and air void $t_{tol} = 0 - 10$ mm  | 100 - 240                                   | 0,001                                    |
|   | > 240                                       | 0  |
| fischer termoz SV II ecotwist<br>PU-foam filled hole $t_{tol} = 0 - 10$ mm    | 100 - 150                                   | 0,001                                    |
|   | > 150                                       | 0  |
| fischer termoz SV II ecotwist<br>EPS-plug and air void $t_{tol} = 0 - 30$ mm  | 100 - 240                                   | 0,001                                    |
|   | > 240                                       | 0  |
| fischer termoz SV II ecotwist<br>PU-foam filled hole $t_{tol} = 0 - 30$ mm    | 100 - 150                                   | 0,001                                    |
|   | > 150                                       | 0  |
| fischer termoz SV II ecotwist<br>EPS-plug and air void $t_{tol} = 30 - 60$ mm | 100   | 0,002                                    |
|   | 120 - 240                                   | 0,001                                    |
|   | > 240                                       | 0  |
| fischer termoz SV II ecotwist<br>PU-foam filled hole $t_{tol} = 30 - 60$ mm   | 100   | 0,002                                    |
|   | 120 - 150                                   | 0,001                                    |
|   | > 150                                       | 0  |

**Table C2.2: Displacements**

| Base material  | Minimum compressive strength $f_b$ [N/mm <sup>2</sup> ] | Tension load <b>N</b> [kN] | Displacements $\delta m(N)$ [mm] |
|--|---|----------------------------|----------------------------------|
| Concrete thin members 100 mm > h $\geq$ 40 mm $\geq$ C20/25 acc. to EN 206-1 (hammer drilling) | -   | 0,3                        | < 0,3                            |
| Concrete thin members 100 mm > h $\geq$ 40 mm $\geq$ C20/25 acc. to EN 206-1 (rotary drilling) | -   | 0,5                        | < 0,3                            |
| Concrete C16/20 - C50/60 acc. to EN 206-1 : 2000   | -   | 0,5                        | < 0,3                            |
| Sand-lime solid bricks, <b>KS</b> acc. to EN 771-2 : 2011                                      | 20  | 0,5                        | < 0,3                            |
|  | 12  | 0,4                        |                                  |
| Clay bricks, <b>Mz</b> acc. to EN 771-1:2011   | 12  | 0,4                        | < 0,3                            |
| Solid concrete block, <b>Vbn</b> acc. to EN 771-3:2011   | 20  | 0,5                        | < 0,3                            |
|  | 12  | 0,4                        |                                  |
| Lightweight concrete solid blocks, <b>Vbl</b> acc. to EN 771-3:2011                            | 8   | 0,2                        | < 0,2                            |
| Vertically perforated sand-lime bricks, <b>KSL</b> acc. to EN 771-2:2011                       | 20  | 0,4                        | < 0,2                            |
|  | 12  | 0,25                       |                                  |
| Vertically perforated clay bricks, <b>Hlz</b> acc. to EN 771-1:2011                            | 12  | 0,25                       | < 0,3                            |
| Lightweight concrete hollow blocks, <b>Hbl</b> acc. to EN 771-3:2011                           | 10  | 0,4                        | < 0,3                            |
|  | 8   | 0,3                        |                                  |
|  | 6   | 0,25                       |                                  |
|  | 4   | 0,2                        |                                  |
| Lightweight concrete hollow blocks, <b>Hbl4</b> acc. to EN 771-3:2011                          | 4   | 0,15                       | < 0,4                            |
| Lightweight aggregate concrete, <b>LAC</b> acc. to EN 1520 :2011 / EN 771-3:2011               | 6   | 0,25                       | < 0,2                            |
| Autoclaved aerated concrete blocks, <b>AAC</b> acc. to EN 771-4:2011                           | 4   | 0,15                       | < 0,1                            |

**fischer termoz SV II ecotwist**

**Performance**

Point thermal transmittance, displacements

**Annex C2**