



## DECLARATION OF PERFORMANCE



**DoP: 0136**

for termoz SV II ecotwist (Plastic anchors for use in concrete and masonry) – EN

1. Unique identification code of the product-type: **DoP: 0136**
2. Intended use/es: **For use in external thermal insulation composite systems (ETICS) with rendering for the transmission of wind suction loads, see appendix, especially Annexes B 1 to B 3**
3. Manufacturer: **fischerwerke GmbH & Co. KG, Klaus-Fischer-Straße 1, 72178 Waldachtal, Germany**
4. Authorised representative: --
5. System/s of AVCP: **2+**
6. European Assessment Document: **EAD 330196-01-0604**

European Technical Assessment: **ETA-12/0208; 2017-12-05**

Technical Assessment Body: **DIBt**

Notified body/ies: **1343 – MPA Darmstadt**

7. Declared performance/s:

### **Mechanical resistance and stability (BWR 1), Safety and accessibility (BWR 4)**

- **Characteristic resistance: See appendix, especially Annex C 1**
- **Edge distances and spacing: See appendix, especially Annex B 2**
- **Displacements: See appendix, especially Annex C 2**

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

- **Point thermal transmittance: See appendix, especially Annex C 2**

8. Appropriate Technical Documentation and/or Specific Technical Documentation: ---

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Andreas Bucher, Dipl.-Ing.

Wolfgang Hengesbach, Dipl.-Ing., Dipl.-Wirtsch.-Ing.

Tumlingen, 2017-12-12

- This DoP has been prepared in different languages. In case there is a dispute on the interpretation the english version shall always prevail.
- The Appendix includes voluntary and complementary information in English language exceeding the (language-neutrally specified) legal requirements.

**Specific Part****1 Technical description of the product**

The fischer termoz SV II ecotwist screwed-in anchor consist 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)**

<b>Essential characteristic</b>	<b>Performance</b>
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)**

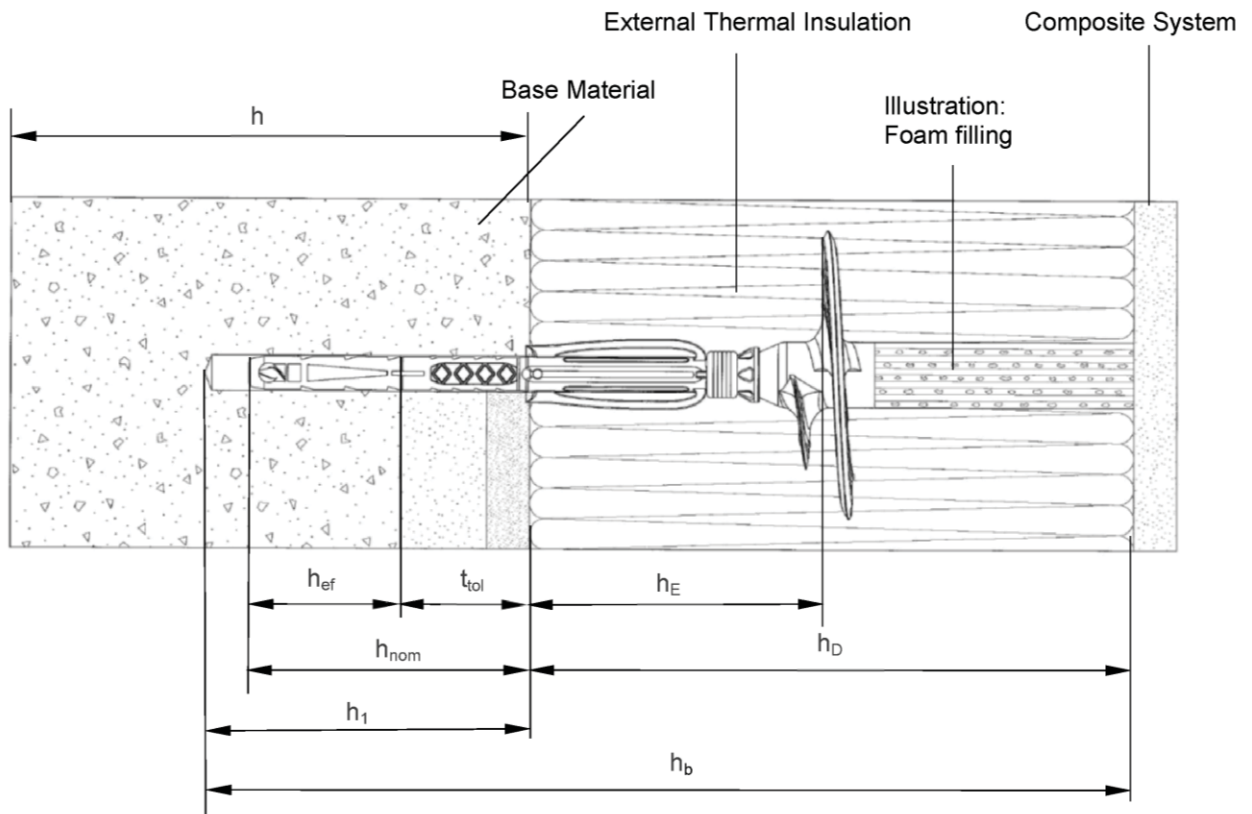
<b>Essential characteristic</b>	<b>Performance</b>
Point thermal transmittance	See Annex C2

**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+

**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.

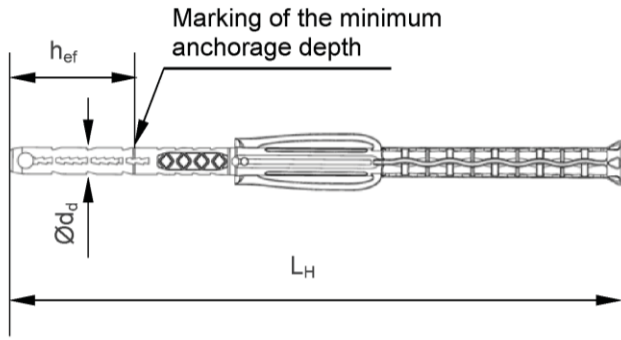
**fischer termoz SV II ecotwist**

**Product description**  
Installed anchor

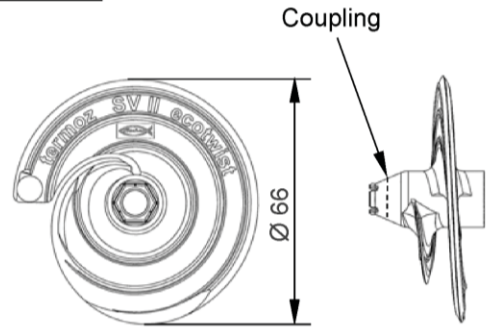
**Annex A1**

**Parts: termoz SV II ecotwist**

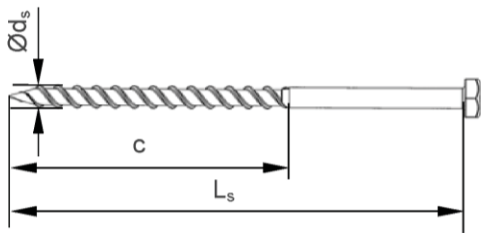
**Anchor sleeve**



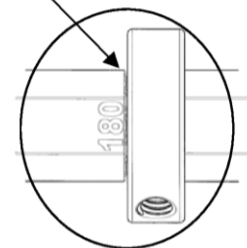
**Screw plate**



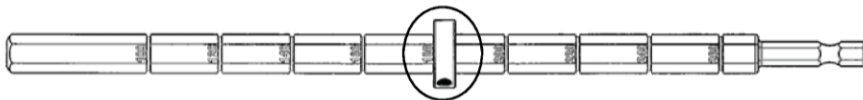
**Special screw**



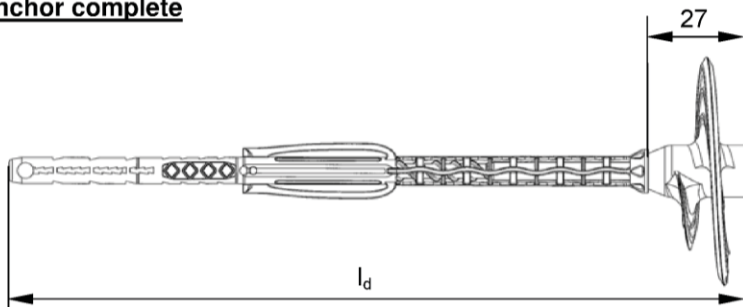
Adjustment of the ring depends of the insulation material thickness, e.g.  $h_D = 180$  mm  
 →adjust value 180 at the setting tool



**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		
	$\varnothing d_d$	$h_{ef}^{1)}$	$h_E^{1)}$	$l_d$	$L_H$	$\varnothing d_s$	$L_s$	c
termoz SV II ecotwist	[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	

<sup>1)</sup> see Annex A1

**Table A3.2: Marking on the plate**

	Marking
Anchor type	termoz SV II ecotwist
Works symbol	 or 
Example	fischer (optional) termoz SV II ecotwist  or  CE (optional);  $\varnothing$ 8 (optional); ABCDE (optional) 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

fischer termoz SV II ecotwist

**Product description**

Anchor types, marking on the anchor plate/sleeve, dimensions and material

**Annex A3**

**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

<p><b>fischer termoz SV II ecotwist</b></p>	<p><b>Annex B1</b></p>
<p><b>Intended use</b> Specifications</p>	

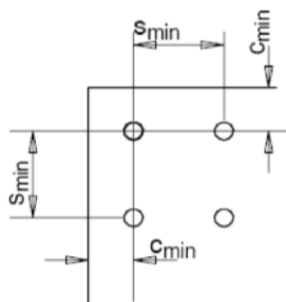
Table B2.1: Installation parameters			termoz SV II ecotwist
Drill hole diameter	$d_0$	=	8
Cutting diameter of drill bit	$d_{cut}$	$\leq$	8,45
Depth of drill hole to deepest point	$h_1$	$\geq$	55/75/105
Total bore hole depth at SV II ecotwist $t_{tol}$ 0-10 mm			$h_D + 55$
Total bore hole depth at SV II ecotwist $t_{tol}$ 0-30 mm	$h_b$	$\geq$	$h_D + 75$
Total bore hole depth at SV II ecotwist $t_{tol}$ 30-60 mm		[mm]	$h_D + 105$
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	$s_{min}$	= [mm]	100
Minimum allowable edge distance	$c_{min}$		100

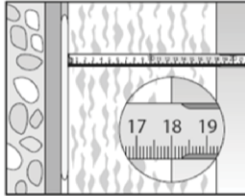
<sup>1)</sup> For weather resistant external wall panels:  $h_{min}=40$  mm

**Scheme of distances and spacing**

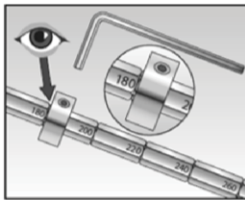


<b>fischer termoz SV II ecotwist</b>	<b>Annex B2</b>
<b>Intended use</b> Installation parameters Minimum thickness of member, distances and spacing	

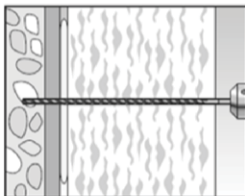
**Installation instructions**



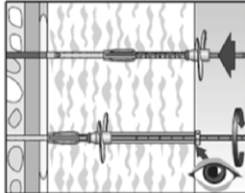
1. Measure insulation thickness  $h_D$   
(example: 18 cm = 180 mm).



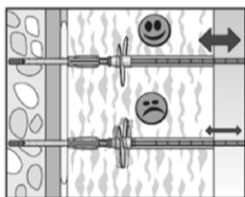
2. Adjust the setting tool ring corresponding to the insulation material thickness  $h_D$  in mm.  
Number is legible.  
Additionally to the setting tool ring a thin plastic plate (maximum 1 mm thickness) can be used as a stop unit for easier mounting.



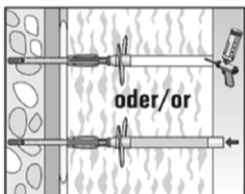
3. Drill bore hole.  
Total drill hole depth must be at  
 $t_{\text{tot}}$  0-10 mm  $\rightarrow h_D + 55$  mm  
 $t_{\text{tot}}$  0-30 mm  $\rightarrow h_D + 75$  mm  
 $t_{\text{tot}}$  30-60 mm  $\rightarrow h_D + 105$  mm.  
Note: Hlz, AAC only with rotary drilling



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.



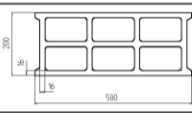
5. The hole in the insulation material must be filled with a suitable foam (illustrated in Annex A1) or must be closed with an appropriate insulation cylinder.

fischer termoz SV II ecotwist

Intended use  
Installation instructions

**Annex B3**



<b>Table C1.1: Characteristic resistance <math>N_{Rk}</math></b>						
Base material	Use cat. 1)	Bulk density $\rho$ [kg/dm <sup>3</sup> ]	Minimum compressive strength $f_b$ [N/mm <sup>2</sup> ]	Remarks	Drill method 2)	Characteristic resistance $N_{Rk}$ [kN]
Weather resistant skin of external wall panels, concrete C20/25 – C50/60	-	-	-	Thickness of concrete panels 40 mm ≤ h < 100 mm	H	<b>0,9</b>
Weather resistant skin of external wall panels, concrete C20/25 –C50/60	-	-	-	Thickness of concrete panels 40 mm ≤ h < 100 mm	R	<b>1,5</b>
Concrete C12/15- C 50/60 acc. to EN 206-1:2000	A	-	-	-	H	<b>1,5</b>
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	<b>1,5</b>
			12			<b>1,2</b>
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	<b>1,2</b>
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	<b>1,5</b>
			12			<b>1,2</b>
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	<b>0,6</b>
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	<b>1,2</b>
			12			<b>0,75</b>
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	<b>0,75</b>
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	<b>1,2</b>
			8			<b>0,9</b>
			6			<b>0,75</b>
			4			<b>0,6</b>
Lightweight concrete hollow blocks, <b>Hbl4</b> acc. to EN 771-3:2011	C	≥ 0,9	4		H	<b>0,5</b>
Lightweight aggregate concrete, <b>LAC</b> acc. to EN 1520:2011 / EN 771-3:2011	D	≥ 0,9	6	-	H	<b>0,75</b>
Autoclaved aerated concrete blocks <b>AAC</b> acc. to EN 771-4:2011	E	≥ 0,5	4	-	R	<b>0,4</b>
1) See Annex B1 2) R = Rotary drilling   H = Hammer drilling						
Figures not to scale.						
<b>fischer termoz SV II ecotwist</b>					<b>Annex C1</b>	
<b>Performance</b> Characteristic resistance						

<b>Table C2.1: Point thermal transmittance acc. to EOTA Technical TR 025 : 2016 – 05</b>		
Anchor type	Thickness of insulation material $h_D$ [mm]	Point thermal transmittance $\chi$ [W/K]
fischer termoz SV II ecotwist EPS-plug and air void $t_{tol} = 0 - 10$ mm	100 - 240	0,001
	> 240	0
fischer termoz SV II ecotwist PU-foam filled hole $t_{tol} = 0 - 10$ mm	100 - 150	0,001
	> 150	0
fischer termoz SV II ecotwist EPS-plug and air void $t_{tol} = 0 - 30$ mm	100 - 240	0,001
	> 240	0
fischer termoz SV II ecotwist PU-foam filled hole $t_{tol} = 0 - 30$ mm	100 - 150	0,001
	> 150	0
fischer termoz SV II ecotwist EPS-plug and air void $t_{tol} = 30 - 60$ mm	100	0,002
	120 - 240	0,001
	> 240	0
fischer termoz SV II ecotwist PU-foam filled hole $t_{tol} = 30 - 60$ mm	100	0,002
	120 - 150	0,001
	> 150	0

<b>Table C2.2: Displacements</b>			
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

<b>fischer termoz SV II ecotwist</b>	<b>Annex C2</b>
<b>Performance</b> Point thermal transmittance, displacements	