

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-02/0019
of 9 October 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

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Product family
to which the construction product belongs

Screwed-in 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

16 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

**European Technical Assessment
ETA-02/0019**

Page 2 of 16 | 9 October 2017

English translation prepared by DIBt

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific Part

1 Technical description of the product

The fischer screwed-in anchor TERMOZ 8 U with a plate consists of a plastic part made of polyamide (virgin material) and an accompanying specific screw of galvanised steel with an additional Duplex-coating or an accompanying specific screw of stainless steel.

The fischer screwed-in anchor TERMOZ 8 UZ with a plate consists of a plastic part made of polypropylene (virgin material) and an accompanying specific screw of polyamide.

The fischer screwed-in anchor WS 8 L with a collar consists of a plastic part made of polyamide (virgin material) and an accompanying specific screw of galvanised steel or of galvanised steel with an additional Duplex-coating or of stainless steel.

The anchor types TERMOZ 8 U and TERMOZ 8 UZ may in addition be combined with the anchor plates DT 90, DT 110 and DT 140.

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 Annexes C 1 and C 2
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+

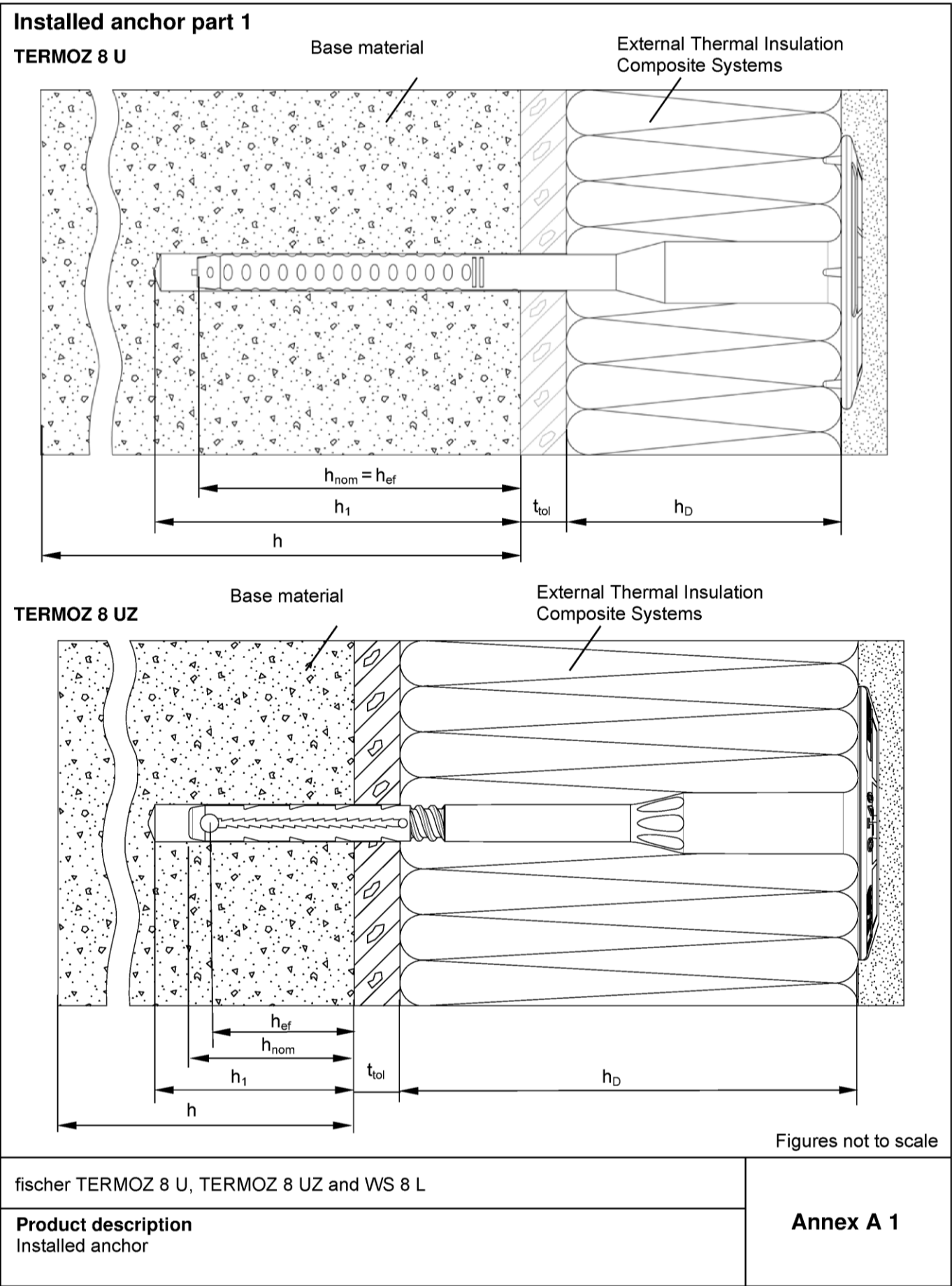
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

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 9 October 2017 by Deutsches Institut für Bautechnik

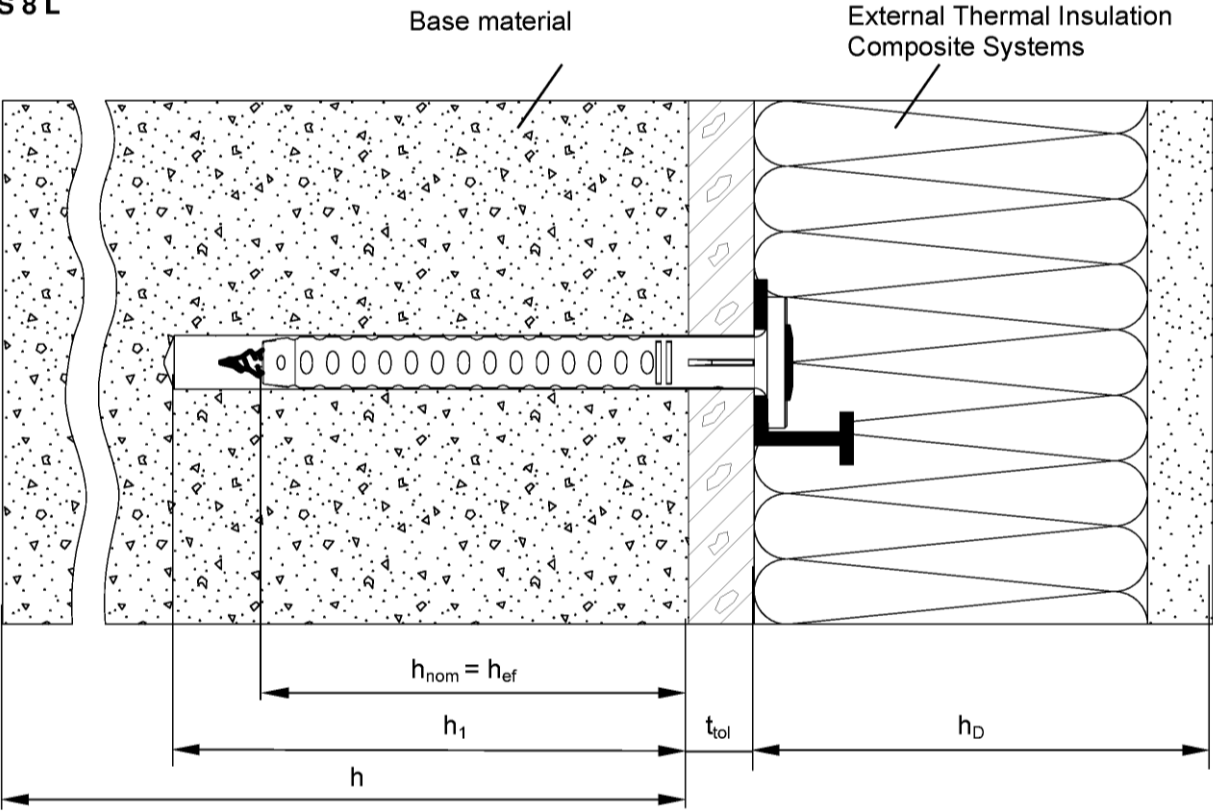
BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Aksünger



Installed anchor part 2

WS 8 L



Legend

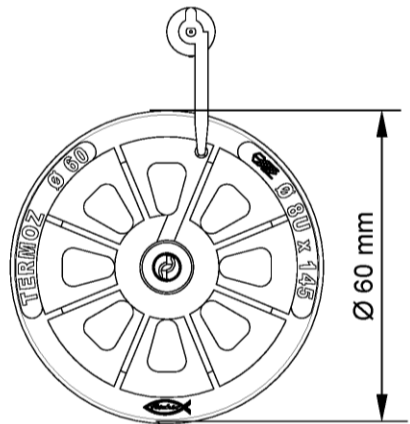
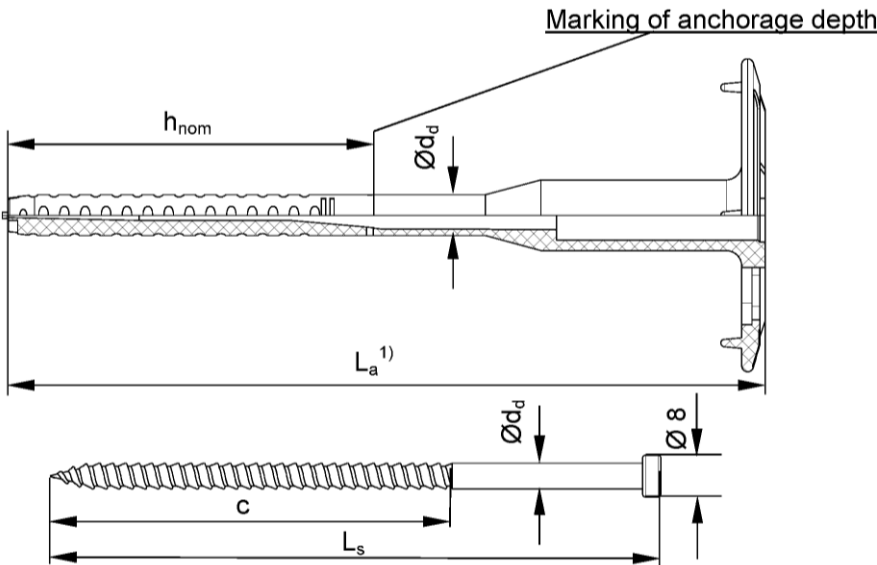
- h_{ef} = Effective anchorage depth
- h_{nom} = Overall embedment depth
- h_1 = Depth of drill hole in base material
- h = Thickness of base material
- h_D = Thickness of insulation material
- t_{tol} = Thickness of equalizing layer or non-load bearing coating

Figures not to scale

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L	Annex A 2
Product description Installed anchor	

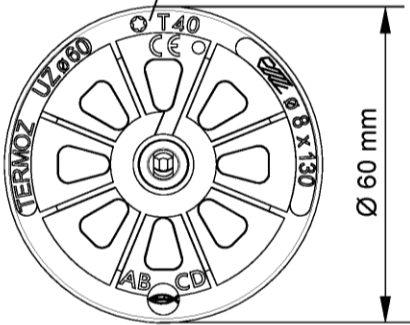
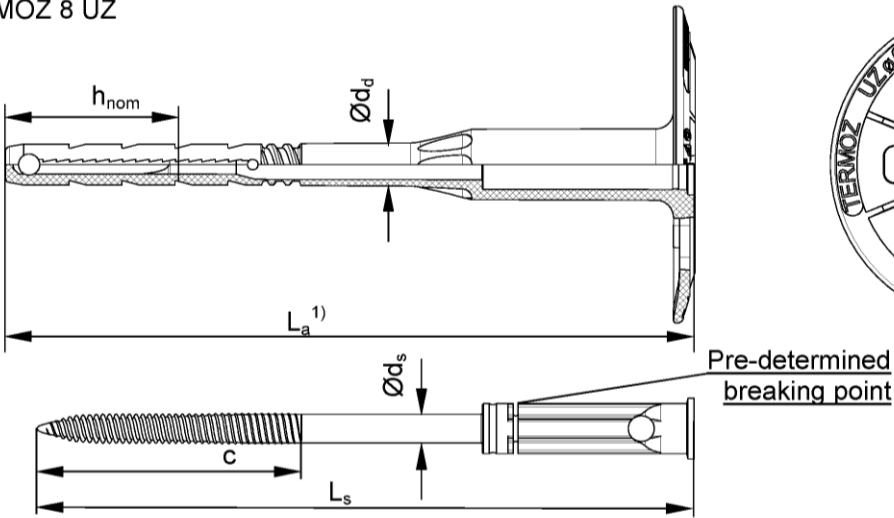
Product description

TERMOZ 8 U



Marking ²⁾

TERMOZ 8 UZ



Figures not to scale

- 1) Various length of the anchors are permissible:
- TERMOZ 8 U $L_{a \min} = 100 \text{ mm}$; $L_{a \max} = 605 \text{ mm}$
 L_a = length of accompanying specific screw $L_s + 28 \text{ mm}$
- TERMOZ 8 UZ $L_{a \min} = 110 \text{ mm}$; $L_{a \max} = 230 \text{ mm}$
 L_a = length of accompanying specific screw $L_s + 5 \text{ mm}$

Determination of maximum thickness of insulation:

$h_D = L_a - h_{nom} - t_{tol}$

e.g. for TERMOZ 8 U: $L_a = 605 \text{ mm}$, $h_{nom} = 70 \text{ mm}$, $t_{tol} = 0 \Rightarrow h_D = 605 - 70 - 0 = 535 \text{ mm}$

e.g. for TERMOZ 8 UZ: $L_a = 230 \text{ mm}$, $h_{nom} = 35 \text{ mm}$, $t_{tol} = 0 \Rightarrow h_D = 230 - 35 - 0 = 195 \text{ mm}$

- 2) Different markings see Table A4.1

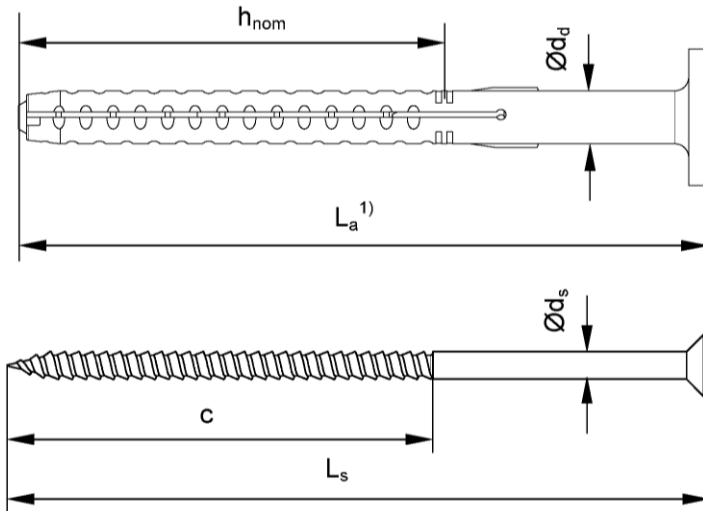
fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Product description
Anchor types

Annex A 3

Product description

WS 8 L



¹⁾ Various length of the anchors are permissible:

WS 8 L

$L_{a \min} = 80 \text{ mm}$; $L_{a \max} = 160 \text{ mm}$

$L_a = \text{length of accompanying specific screw } L_s - 7 \text{ mm}$

Table A4.1: Marking

Anchor Type	TERMOZ 8 U	TERMOZ 8 UZ	WS 8 L
Plate diameter	Ø 60	Ø 60	-
Works symbol			
Size of anchor	Ø 8 U	Ø 8 UZ	-
Length of anchor	L_a	L_a	L_a
Example	termoz Ø60Ø8U x 150	termoz Ø60Ø8UZx150	WS 8 L x 100

Table A4.2: Dimensions

Anchor Type	Anchor Sleeve		Accompanying specific screw	
	Ø d _d	h _{nom}	Ø d _s	c
	[mm]			
TERMOZ 8 U	Ø 8	70	5,0	70
TERMOZ 8 UZ		35	5,4	50
WS 8 L		70	5,0	77

Figures not to scale

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Product description
Anchor types, Markings and Dimensions

Annex A 4

Table A5.1: Material

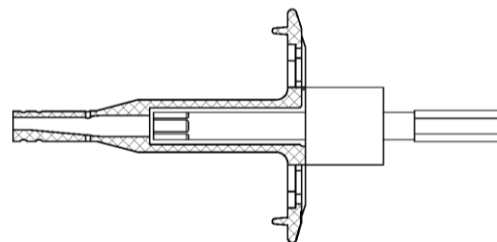
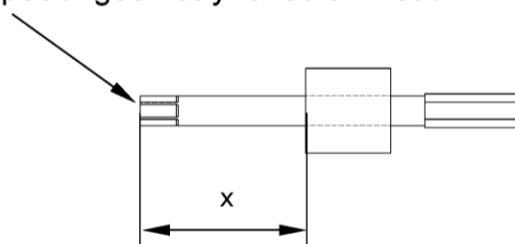
Designation		Material
Anchor sleeve	TERMOZ 8 U	Polyamide 6 (virgin material), colour: nature, blue, red or grey
	WS 8 L	Polyamide 6 (virgin material), colour: nature, blue, red, grey or green
	TERMOZ 8 UZ	Polypropylen (virgin material), colour: grey
Special screw	TERMOZ 8 U	Steel ($f_{uk} \geq 420 \text{ N/mm}^2$; $f_{yk} \geq 520 \text{ N/mm}^2$) gvz A2F acc. to EN ISO 4042:1999 or Steel gvz A2F acc. to EN ISO 4042:1999 + Duplex-coating type Delta-Seal in three layers (overall thickness $\geq 6\mu\text{m}$) or Stainless steel material No. 1.4401 or 1.4571 ($f_{uk} \geq 700 \text{ N/mm}^2$; $f_{yk} \geq 450 \text{ N/mm}^2$)
	WS 8 L	Steel ($f_{uk} \geq 420 \text{ N/mm}^2$; $f_{yk} \geq 520 \text{ N/mm}^2$) gvz A2F acc. to EN ISO 4042:1999 or Steel gvz A2F acc. to EN ISO 4042:1999 + Duplex-coating type Delta-Seal in three layers (overall thickness $\geq 6\mu\text{m}$) or Stainless steel material No. 1.4401 or 1.4571 ($f_{uk} \geq 700 \text{ N/mm}^2$; $f_{yk} \geq 450 \text{ N/mm}^2$)
	TERMOZ 8 UZ	Polyamide (virgin material) with glass fibre, colour: nature

Table A5.2: Control of the length of thread engagement

Anchor type	Type of drive	Length "x" [mm]
TERMOZ 8 U	Screw head drive T30	39

Setting tool TERMOZ 8 U

Special geometry for screw head



Figures not to scale

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Product description

Material, control of thread engagement length and setting tool

Annex A 5

Slip-on plates DT 90, DT 110 and DT 140

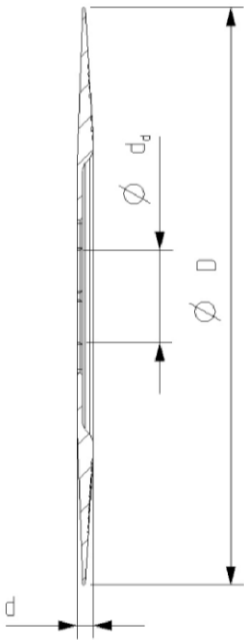
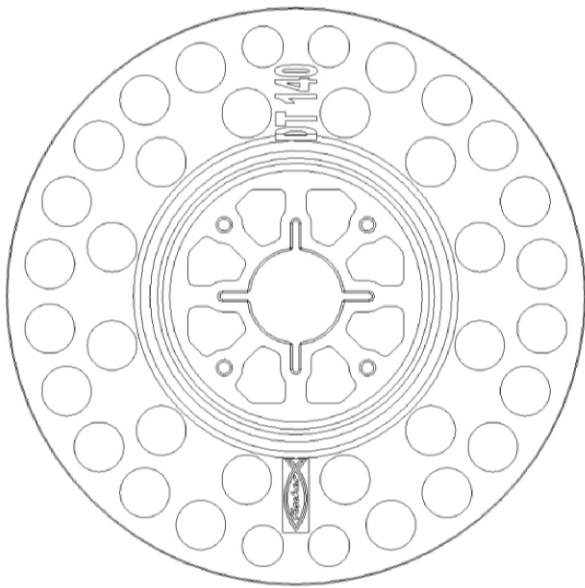


Table A 6.1: Slip-on plate, diameters and material

Slip-on plate	Ø D	Ø d _d	d	Material
		[mm]		
DT 90 / 110 / 140	90 / 110 / 140	22,5	3,9	PA6 GF

Figures not to scale.

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L	Annex A 6
Product description Slip-on plates combined with TERMOZ 8 U and TERMOZ 8 UZ	

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 C2.
- Autoclaved aerated concrete (use category E), according to Annex C2.
- 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 $\gamma_F = 1,5$, 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 anchors is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings of ETICS.

Installation:

- Drillmethod 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 ≤ 6 weeks.

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Intended use
Specification

Annex B 1

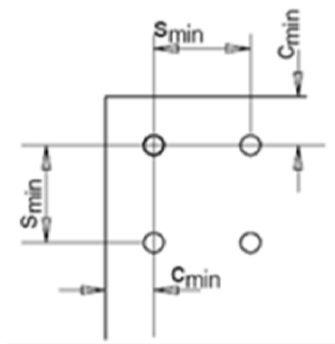
Table B2.1: Installation parameters

Anchor type	TERMOZ 8 U	TERMOZ 8 UZ	WS 8 L
Drill hole diameter d_0	8		
Cutting diameter of drill bit $d_{cut} \leq$	8,45		
Depth of drill hole to deepest point $h_1 \geq$	80	45	80
Nominal anchorage depth $h_{ef} \geq$	70	30	70

Table B2.2: Minimum thickness, distance and spacing

Anchor type	TERMOZ 8 U	TERMOZ 8 UZ	WS 8 L
Minimum thickness of member h	100	100	100
Minimum spacing s_{min}	100	100	100
Minimum edge distance c_{min}	100	100	100

Scheme of distance and spacing



fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Intended use

Installation parameters, minimum thickness, distances and spacings

Annex B 2

Table B3.1: Geometry of Vbl acc. to DIN V 18152-100, EN 771-3:2005-10

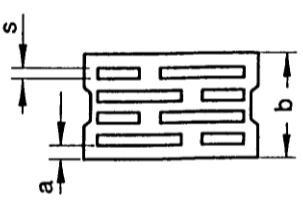
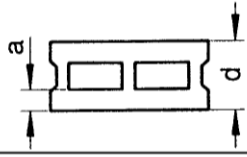
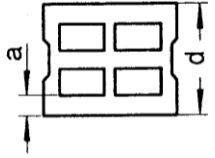
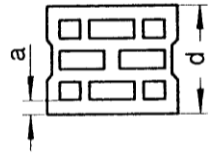
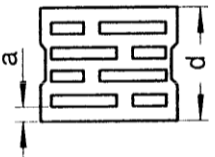
Form	Thickness of brick b [mm]	Number of slot rows	Web a [mm]	Width of slot s [mm]
	175	2	≥ 35	≥ 11
	240	3 or 4		
	300	4 or 5		
	365	5 or 6		
	490	6 or 7		

Table B3.2: Geometry of Hbl acc. to DIN V 18151-100:2005-10, EN 771-3:2005-05

Form	Thickness of brick d [mm]	Outer web in longitudinal direction a [mm]
	175	50
	240 300	50
	240 300 365	35
	240 300 365	30

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

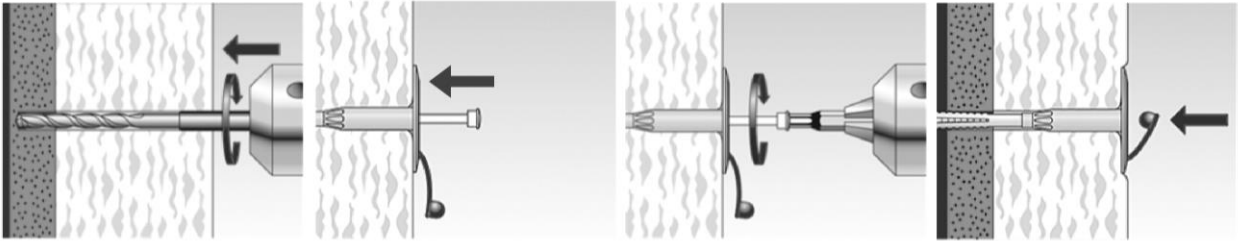
Intended use

Description and measurements of various kind of masonry, e.g. Vbl and Hbl

Annex B 3

Installation instructions:

TERMOZ 8 U

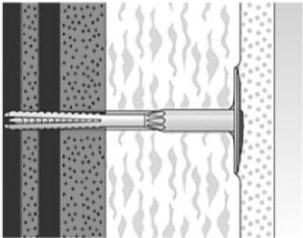


Drill the bore hole
acc. to table C 1.1/2.1

Insert anchor manually

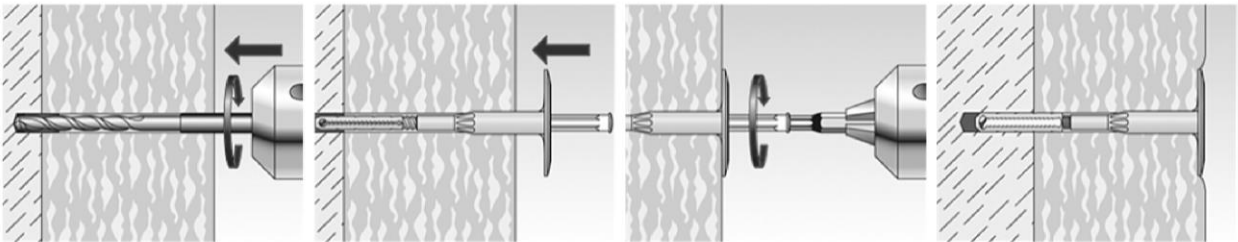
Screw-in the screw

Press the cap on the plate



Correctly installed anchor

TERMOZ 8 UZ



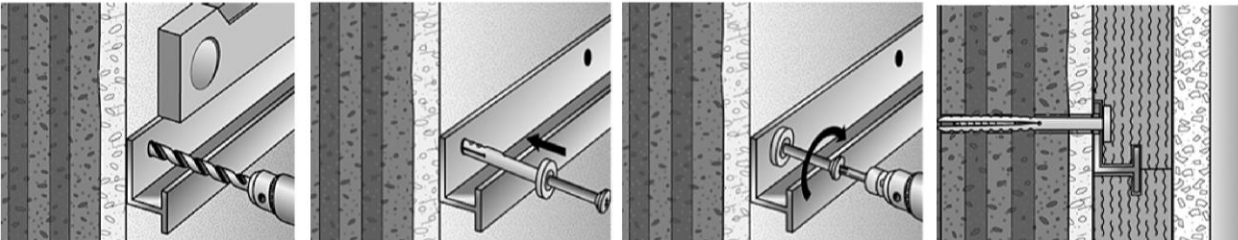
Drill the bore hole
acc. to table C 1.1/2.1

Insert anchor manually

Screw-in the screw

Correctly installed anchor

WS 8 L



Drill the bore hole
acc. to table C 1.1/2.1

Insert anchor manually

Screw-in the screw

Correctly installed anchor

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Intended use
Installation instructions

Annex B 4

Table C1.1: Characteristic resistance N_{Rk} in [kN] to tension load for a single anchor

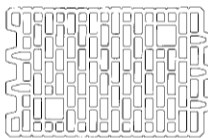
Base material	Use cat.	Bulk density class ρ [kg/dm ³]		Min. comp-ressive strength f_b [N/mm ²]	Remarks	Drill ⁴⁾ me- thod	Characteristic resistance N_{Rk} [kN]	
		TERMOZ 8 U 8 UZ WS 8L					TERMOZ 8 U 8 UZ WS 8L	
Normal weight concrete C12/15 - C50/60 acc. to EN 206:2013	A					H	1,5	1,2
Clay bricks, acc. to EN 771-1:2011, Mz	B	≥ 1,6	≥ 2,0	12	Cross section reduced up to 15% by perforation vertically to the resting area	H	1,5	1,5
Calcium silicate solid bricks, acc. to EN 771-2:2011, KS	B	≥ 1,6	≥ 1,8	12		H	1,5	1,2
Lightweight solid brick, acc. to EN 771-3:2011, Vbl	B	≥ 0,5	≥ 0,7	4	See Table B3.1	R	0,6	0,4
Perforated clay brick acc. to EN 771-1:2011, HLz	C	≥ 1,2	≥ 1,0	12	Cross section reduced more than 15% and less than 50% by perforation vertically to the resting area	R	0,75	0,6 ²⁾
Perforated clay bricks acc.to ÖNORM B 6400 – EN 771-1, HLz	C	-	≥ 1,0	12		R	-	0,5 ³⁾
Hollow calcium silicate brick, acc. to EN 771-2:2011, KSL	C	≥ 1,4	≥ 1,4	12	Cross section reduced more than 15% and less than 50% by perforation vertically to the resting area	H	0,75	0,6 ¹⁾
Hollow brick light-weight concrete acc. to EN 771-3, Hbl	C	≥ 0,5	≥ 0,9	2	See Table B3.2	R	0,4	0,4
<div><div><div>1) The value applies only for outer web thickness ≥ 24 mm</div><div>2) The value applies only for outer web thickness ≥ 14 mm</div><div>3) The value applies only for outer web thickness ≥ 10,3 mm</div><div>4) H = Hammer drilling; R = Rotary drilling</div></div><div>}</div><div>Otherwise the characteristic resistance shall be determined by job-site pull-out tests.</div></div>								
fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L							Annex C 1	
Performance Characteristic resistance								

Table C 2.1: Characteristic resistance N_{Rk} in [kN] to tension load for a single anchor

Base material	Use cat.	Bulk density class ρ [kg/dm ³]	Min. comp- ressive strength f_b [N/mm ²]	Remarks	Drill ¹⁾ me- thod	Characteristic resistance N_{Rk} to tension loads [kN]
		TERMOZ 8 U 8 UZ WS 8L				TERMOZ 8 U 8 UZ WS 8L
Lightweight aggregate concrete, acc. to EN 1520, LAC	D	-	$\geq 1,0$	4 6	H	0,25 0,4
Autoclaved aerated concrete blocks, acc. to EN 771-4:2011, AAC	E	$\geq 0,35$ $\geq 0,5$	-	2 4	R	0,5 1,2

¹⁾ H = Hammer drilling; R = Rotary drilling

Table C2.2: Point thermal transmittance acc. to EOTA Technical Report TR 025 : 2016-05

Anchor type	Thickness of insulation material h_D [mm]	Point thermal transmittance χ [W/K]
TERMOZ 8 U	$50 \leq h_D \leq 80$ $80 \leq h_D \leq 520$	0,001 0,002
TERMOZ 8 UZ	> 50	0,000

Table C2.3: Plate stiffness acc. to 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]
TERMOZ 8 U	60	2,45	0,5
TERMOZ 8 UZ	60	1,43	0,5

Table C2.4: Displacements

Base material	Tension load F [kN]		Displacements δ [mm]	
TERMOZ	8 U WS 8L	UZ	8 U WS 8L	UZ
Concrete C12/15 – C50/60, e.g. acc. to EN 206:2013	0,50	0,40	0,2	0,5
Clay bricks, e.g. acc. to EN 771-1:2011, Mz	0,50	0,50	0,2	1,0
Calcium silicate solid bricks, e.g. acc. to EN 771-2:2011, KS	0,50	0,40	0,2	0,5
Lightweight concrete solid blocks, e.g. acc. to EN 771-3:2011, Vbl	0,20	0,15	0,3	0,3
Perforated clay bricks, e.g. acc. to EN 771-1:2011, HLz	0,25	0,20	0,3	0,3
Perforated clay bricks e.g. acc. to ÖNORM B 6400 - EN 771-1, HLz	-	0,15	-	0,3
Hollow calcium silicate brick, e.g. acc. to EN 771-2:2011, KSL	0,25	0,20	0,2	0,4
Lightweight concrete hollow blocks, e.g. acc. to EN 771-3:2011, Hbl	0,15	0,15	0,4	0,3
Lightweight aggregate concrete, e.g. acc. to EN 1520:2011, LAC 4	-	0,10	-	0,3
Lightweight aggregate concrete, e.g. acc. to EN 1520:2011, LAC 6		0,15		
Autoclaved aerated concrete blocks, e.g. acc. to EN 771-4:2011, AAC 2	0,15	-	0,2	-
Autoclaved aerated concrete blocks, e.g. acc. to EN 771-4:2011, AAC 4	0,40		0,4	

fischer TERMOZ 8 U, TERMOZ 8 UZ and WS 8 L

Performance

Characteristic resistance, point thermal transmittance, plate stiffness, displacements

Annex C 2