ZAVOD ZA GRADBENIŠTVO SLOVENIJE
SLOVENIAN NATIONAL BUILDING AND CIVIL ENGINEERING INSTITUTE

Designated according to Article 29 of Regulation (EU) No 305/2011

Member of www.eota.eu

Dimičeva 12,
1000 Ljubljana, Slovenija
Tel.: +386 (0)1 280 44 72, +386 (0)1-280 45 37
Fax: +386 (0)1 280 44 84
e-mail: info.ta@zag.si
http://www.zag.si

European Technical Assessment

ETA-16/0116
of 11. 3. 2025

English version prepared by ZAG

General Part

Technical Assessment Body issuing the European Technical Assessment	**ZAG**
Trade name of the construction product	**HTR-P and HTR-M**
Product family to which the construction product belongs	**33: Screwed-in plastic anchor for fixing of ETICS with rendering in walls made of concrete and masonry and for fixing of ETICS with renderings or insulation produts on bottom side of ceilings made of cracked and non-cracked concrete**
Manufacturer	**HILTI Aktiengesellschaft** **Feldkircherstrasse 100** **9494 SCHAAN** **Liechtenstein** www.hilti.com
Manufacturing plant(s)	**HILTI plants**
This Evaluation Report contains	22 pages including 3 annexes, which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis	EAD 330196-01-0604-v01, edition May 2018
This European Technical Assessment replaces	ETA-16/0116 issued on 28.3.2018

Specific Parts

1 Technical description of the product

HTR-P and HTR-M is screwed-in anchor which consist of an anchor sleeve made of virgin polyethylene, a plate made of virgin polypropylene and a screw made of polyamide (HTR-P) or a composite screw made of steel and polyamide (HTR-M). Different slip-on plates are provided and can be used if necessary.

The anchor is installed in drilled hole by screwing in the expansion screw. The expansion of the anchor applies the anchorage.

The installed anchor is shown in Annex A (1/6) and A (2/6).

2 Specification of the intended use in accordance with applicable European Assessment Document (hereinafter EAD)

The anchor is intended for fixings of ETICS with renderings on walls and for fixings of ETICS with renderings and insulation products on bottom side of ceilings with or without supplementary adhesive holding an European Technical Assessment (hereinafter ETA) according to EAD-04083-00-0404 or National Approval of the related Member State.

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

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, 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 this assessment

3.1 Hygiene, health and environment (BWR 3)

Regarding dangerous substances contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transported European legislation and national laws, regulations and administrative provisions). In order to meet provisions of the regulation (EU) No 305/2011, these requirements need also to be complied with, when they apply.

3.2 Safety in use (BWR 4)

Essential characteristic		Performance
Characteristic load bearing capacity for wall applications		
Characteristic resistance under tension load	N_{Rk} [kN]	See Table C1, Annex C (1/5)
Minimum edge distance	c_{min} [mm]	See Table B3, Annex B (3/7)
Minimum spacing	s_{min} [mm]	
Characteristic load bearing capacity of anchors for bottom side of ceilings applicaions		
Characteristic resistance under short-term tension load	$N_{Rk,panel,sh}$ [kN/m^2]	See Table C2, Annex C (2/5)
Characteristic resistance under long-term tension load	$N_{Rk,panel,lg}$ [kN/m^2]	See Table C2, Annex C (2/5)
Minimum edge distance	c_{min} [mm]	See Table B3, Annex B (3/7) (
Displacements for wall applications		
Tension load with partial factor γ_M, γ_F	N [kN]	See Table C6, Annex C (4/5)
Displacement	$\Delta\delta_N$ (N) [mm]	
Displacements for bottom side of ceiling applications		
Tension load	N [kN]	See Table C7, Annex C (5/5)
Short-term displacement	δ_{sh} (N) [mm]	
Long-term displacement	δ_{lg} (N) [mm]	
Plate stiffness		
Diameter of the anchor plate	[mm]	See Table C5, Annex C (3/5)
Load resistance of the anchor plate	[kN]	
Plate stiffness	[kN/mm]	
Characteristic pull-through capacity for a panel for bottom side of ceiling application		
Minimum thickness of insulation	[mm]	See Table C3, Annex C (2/5)
Short-term characteristic pull-through resistance	$R_{panel,sh}$ [kN/m^2]	
Long-term characteristic pull-through resistance	$R_{panel,lg}$ [kN/m^2]	

3.3 Energy economy and heat retention (BWR 6)

Essential characteristic		Performance
Thermal transmittance		
Point thermal transmittance of an anchor	χ [W/K]	See Table C4, Annex C (3/5)
Insulation layer thickness of the ETICS	h_D [mm]	

3.4 General aspects relating to fitness for use

Durability and serviceability are only ensured if specifications of intended use according to Annex B are kept.

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

According to the Decision 97/463/EC of the European Commission[1] system of assessment and verification of constancy of performance (see Annex V to regulation (EU) No 305/2011) 2+ apply.

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

Technical details necessary for the implementation of the AVCP system are laid down in Chapter 3 of EAD 330196-01-0604.

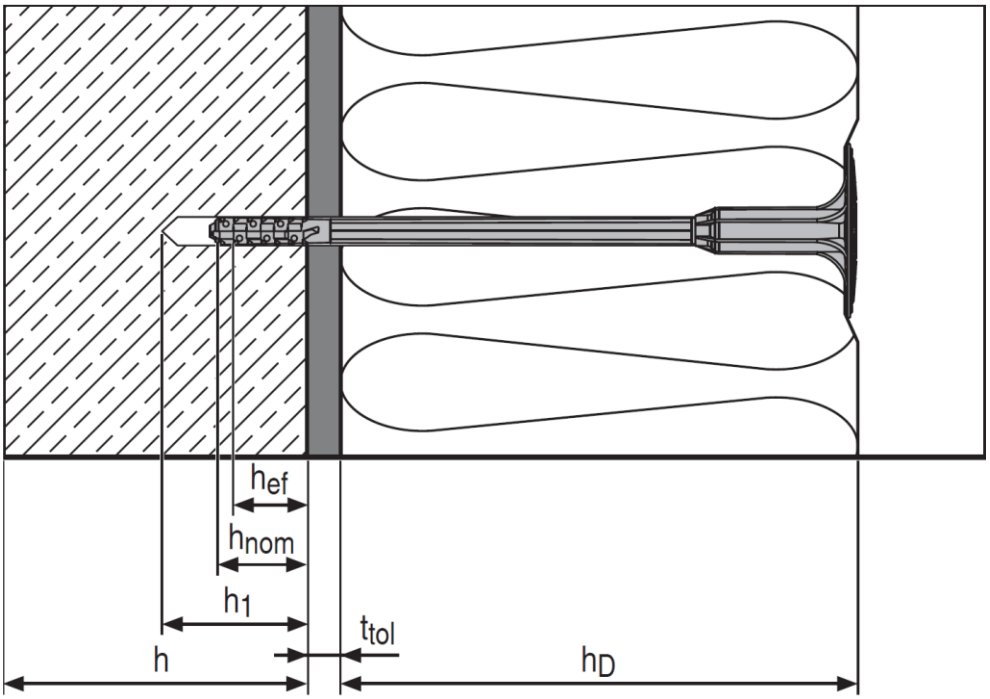
Issued in Ljubljana on 11. 3. 2025

Signed by:

Franc Capuder, M.Sc., Research Engineer

Head of Service of TAB

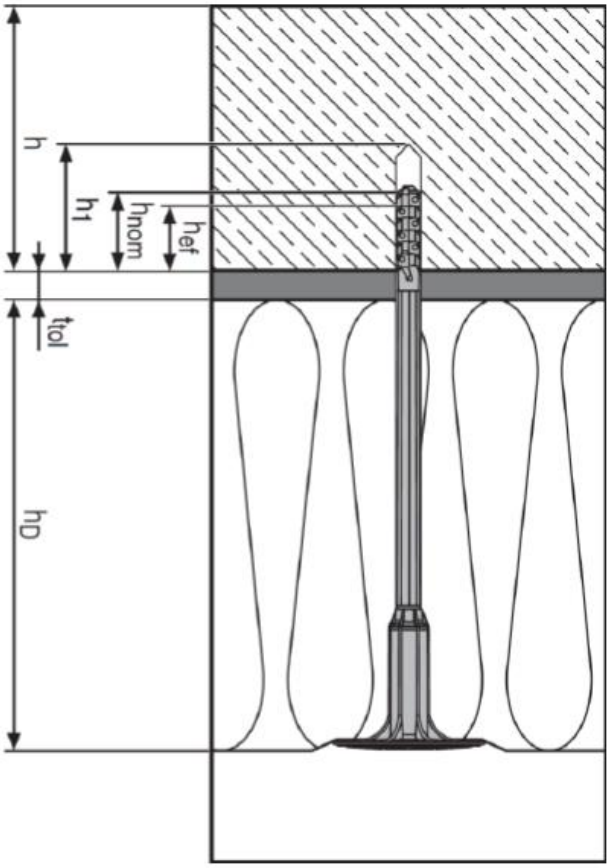
[1] Official Journal of the European Communities L 198 of 25.07.1997



Legend:

h_{ef}	=	effective anchorage depth
h_{nom}	=	overall plastic anchor embedment depth in the base material
h_1	=	depth of drilled hole to deepest point
h	=	thickness of base material
h_D	=	thickness of insulation material
t_{tol}	=	thickness of equalizing layer or non-load bearing layer

HTR-P and HTR-M	**Annex A (1/6)**
Product description Installed condition for wall applications	



Legend:

h_{ef}	=	effective anchorage depth
h_{nom}	=	overall anchor embedment depth in the base material
h_1	=	depth of drilled hole to deepest point
h	=	thickness of base material
h_D	=	thickness of insulation material
t_{tol}	=	thickness of equalizing layer or non-load bearing layer

HTR-P and HTR-M	
Product description Installed condition for bottom side of ceiling applications	**Annex A (2/6)**

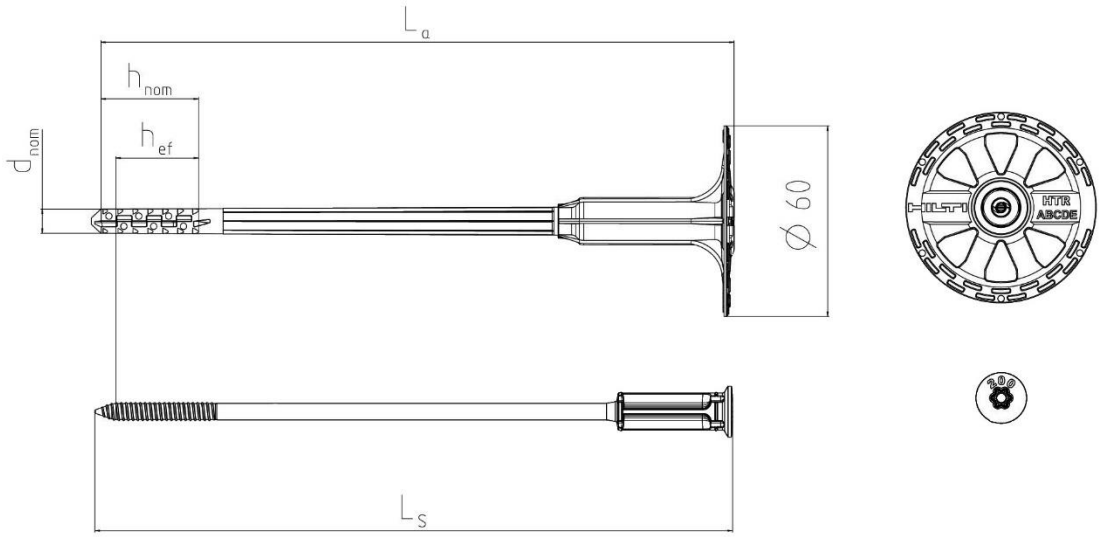


Figure A1: HTR-P - assembled sleeve, plate and plastic screw

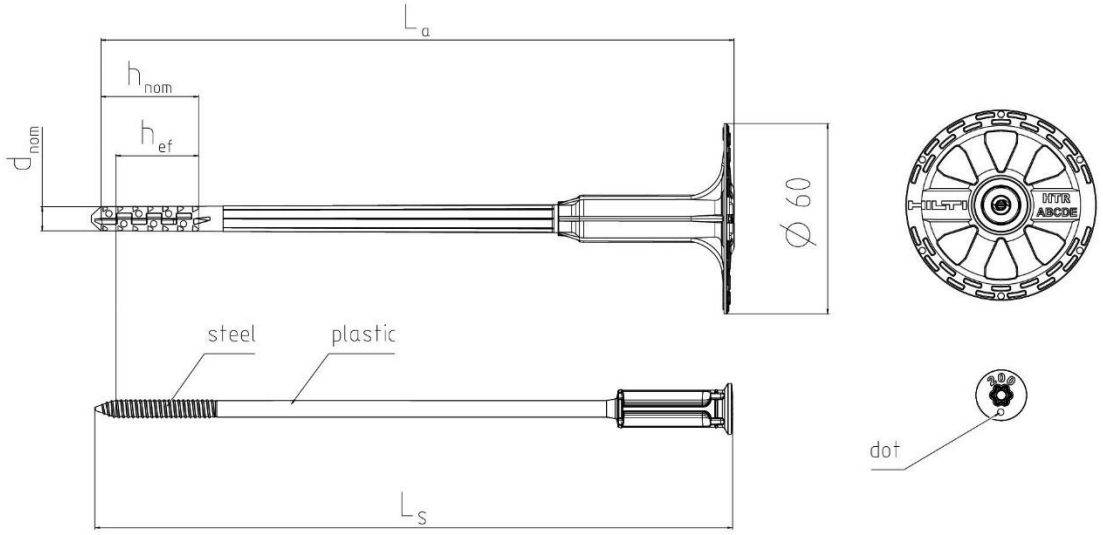


Figure A2: HTR-M - assembled sleeve, plate and composite screw

HTR-P and HTR-M	
Product description Dimensions	**Annex A (3/6)**

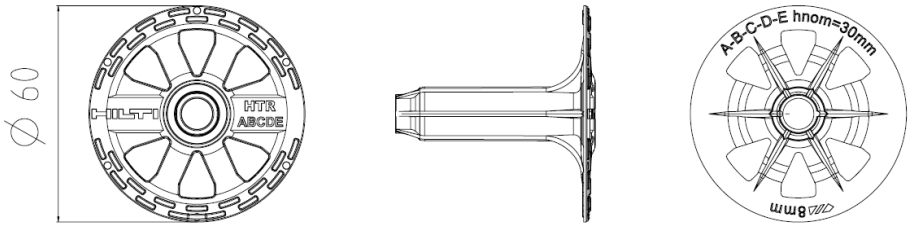


Figure A3: Plate

Table A1: Marking

Item	Location	Designation
Screw	Top of screw's head	HTR-P: Anchor length in mm (e.g. 200 in Figure A1) HTR-M: Anchor length in mm (e.g. 200 in Figure A2) and a dot •
Plate	Top of the plate	Producer: HILTI
		Anchor type: HTR
		Base material categories: A, B, C, D, E (according to EAD 330196-01-0604) For ceiling application: cracked and non-cracked concrete concrete only (according to EAD 330196-01-0604-v01)
	Bottom side	Nominal embedment depth: h_{nom}=30 mm
		Nominal drill bit diameter: 8 mm

HTR-P and HTR-M	**Annex A (4/6)**
Product description Markings	

Table A2: Dimensions

Anchor type	d_{nom} [mm]	h_{ef} [mm]	h_{nom1} [mm]	L_a [mm]	L_S [mm]	Screw
HTR-P 8x60	8	25 / 45 (only base material category E)	30 / 50 (only base material category E)	60	61	Plastic
HTR-P 8×80				80	81	
HTR-P 8x100				100	101	
HTR-P 8x120				120	121	
HTR-P 8x140				140	141	
HTR-P 8x160				160	161	
HTR-P 8x180				180	181	
HTR-P 8x200				200	201	
HTR-P 8x220				220	221	
HTR-P 8x240				240	241	
HTR-P 8x260				260	261	
HTR-P 8x280				280	281	
HTR-P 8x300				300	301	
HTR-P 8x320				320	321	
HTR-P 8x340				340	341	
HTR-P 8x360				360	361	
HTR-P 8x380				380	381	
HTR-P 8x400				400	401	
HTR-M 8x60				60	61	
HTR-M 8×80				80	81	
HTR-M 8x100				100	101	Composite
HTR-M 8x120				120	121	
HTR-M 8x140				140	141	
HTR-M 8x160				160	161	
HTR-M 8x180				180	181	
HTR-M 8x200				200	201	
HTR-M 8x220				220	221	
HTR-M 8x240				240	241	
HTR-M 8x260				260	261	
HTR-M 8x280				280	281	
HTR-M 8x300				300	301	
HTR-M 8x320				320	321	
HTR-M 8x340				340	341	
HTR-M 8x360				360	361	
HTR-M 8x380				380	381	
HTR-M 8x400				400	401	

Determination of maximum thickness of insulation material h_D:

$h_D \leq L_a - t_{tol} - h_{nom}$ e.g. HTR-P 8 x 220: L_a = 220 mm; t_{tol} = 10 mm; h_{nom}=30 mm

$h_D \leq$ 220 mm – 10 mm – 30 mm

$h_D \leq$ 180 mm

Table A3: Materials

Item	Material
Sleeve	Virgin polyethylene, black
Plate	Virgin polypropylene, white, red or yellow
Plastic screw	Glass fiber reinforced polyamide, black
Composite screw	Expansion element: steel, galvanized Shank: glass fiber reinforced polyamide, black

HTR-P and HTR-M

Product description

Dimensions and materials

Annex A (5/6)

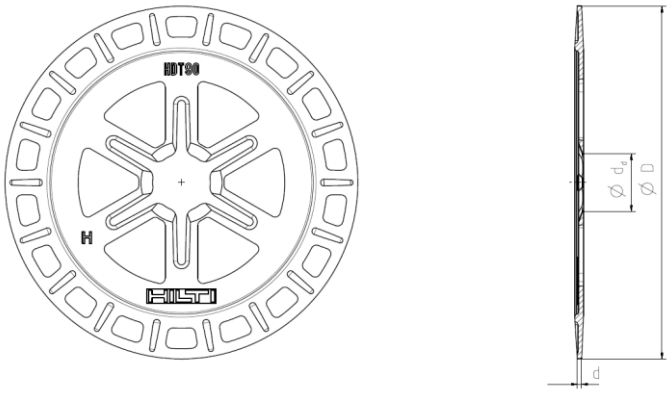


Figure A4: Slip-on plate HDT 90

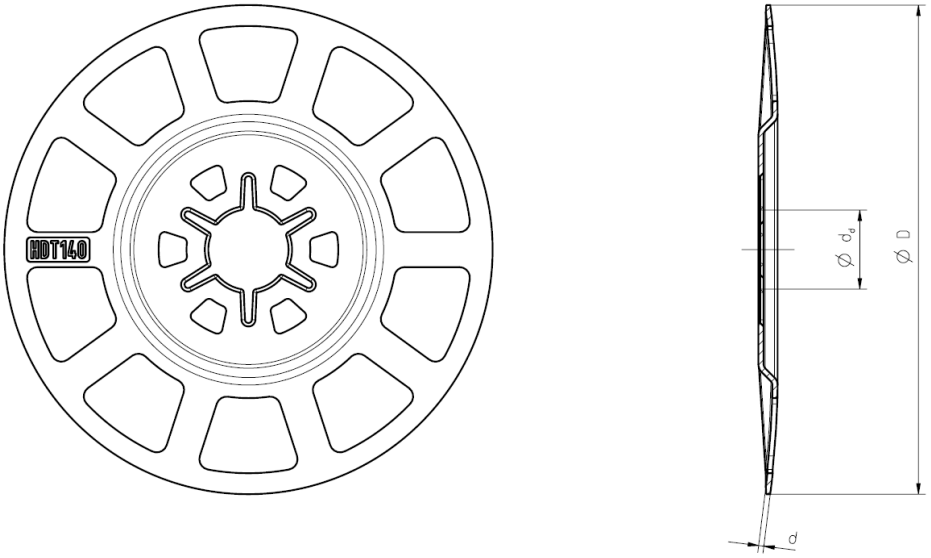


Figure A5: Slip-on plate HDT 140

Table A4: Slip-on plate – dimensions and materials

Item	Ø D [mm]	Ø d_d [mm]	d	Material
HDT 90	90	23	1.5	Glass fiber reinforced polypropylene - white
HDT 140	140	23	1.5	Glass fiber reinforced polyamide - white

HTR-P and HTR-M	**Annex A (6/6)**
Product description Dimensions and material of slip-on plates	

Specifications of intended use

Anchorages subject to:

- For wall applications the anchor shall only be used for the transmission of wind suction loads and shall not be used for the transmission of dead loads of thermal insulation composite system. The dead loads have to be transmitted by the bonding of the thermal insulation composite system;
- For installation on bottom side of ceilings the anchor shall be used for the transmission of wind suction loads and dead loads of ETICS.

Base materials:

- For wall applications:
  - Normal weight concrete C12/15 to C50/60 and weather resistant skin (use category A) according to EN 206:2013+A1:2016 according to Annex C (1/5);
  - Solid masonry (use category B) according to Annex C (1/5);
  - Hollow or perforated masonry (use category C) according to Annex C (1/5);
  - Lightweight aggregate concrete (use category D) according to Annex C (1/5);
  - Autoclaved aerated concrete (use category E) according to Annex C (1/5);
  - For other base materials of the use categories A, B, C, D and E with lower strength, lower density or lower web thickness than given in table C1, the characteristic resistance of the anchor may be determined by job site tests according to EOTA TR 051, edition December 2016.
- For installation on bottom side of ceilings:
  - Cracked and non-cracked concrete;
  - Reinforced and unreinforced normal weight concrete of strength class C20/25 at minimum and C50/60 at maximum according to EN 206:2013+A1:2016.

Application temperature range:

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

Design:

- In absence of national regulations next partial safety factors shall be considered.
  - For wall applications:
    - γ_M = 2,0…… partial safety factor for all types of base materials;
    - γ_F = 1,5 ……. partial safety factor for actions.
  - For bottom side of ceilings:
    - γ_M = 1,8……. partial material safety factor concrete;
    - γ_{EPS} = 1,5….. partial material safety factor for EPS insulation panels;
    - γ_{MW} = 2,0…… partial material safety factor for MiWo insulation panels;
    - γ_F = 1,4……. partial safety factor for actions.
- The anchors are designed under responsibility of an engineer experienced in anchorages in concrete and masonry.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored. The position of the anchor shall be indicated on the design drawings.
- Fasteners are only to be used for multiple non-structural application according to EAD 330196-01-0604, edition July 2017 and EAD 330196-01-0604-v01, edition May 2018.

HTR-P and HTR-M	**Annex B (1/7)**
Intended use Specification	

Specifications of intended use - continued

Installation:

- The anchor shall be set flush to insulation panel's surface before reinforcement mesh and rendering are applied.
- Drilling method shall comply to Annex C1. If other drilling method (e.g. hammer drilling instead of rotary drilling) is used, the characteristic resistance of the anchor may be determined by job site tests according to EOTA TR 051, edition December 2016;
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on the site.
- Ambient temperature during the installation of the anchor 0ºC to 40°C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering ≤ 6 weeks.
- Special additional specifications for installation on bottom side of ceilings:
  - The anchor shall be set according to to the pattern given in Annex B3 and B4.
  - In case that anchors are used for fixing insulation without rendering, anchor's plates must be protected against UV radiation at last 6 weeks after installation. This can be done applying a belonging cover provided by the anchor supplier. Covers shall be checked yearly at least and replaced when damaged or be made of metal with appropriate lifetime. This could be stainless steel or carbon steel with coating which is resistant in corrosion conditions class C3 according to EN ISO 9223:2012 and EN ISO 12944-2:1998. Other material are suitable only if evidence of non-UV transmittion is laid out.
  - In case anchors are used for fixing of ETICS with rendering, which is applied no earlier than 6 weeks after installation, adhesion of the ETICS' rendering to the insulation panel shall be at least 80 kPa or for insulation panels with lower tensile resistance it shall be at least as high as the nominal tensile resistance of the panel.

HTR-P and HTR-M	**Annex B (2/7)**
Intended use Specification - continuing	

Table B1: Installation parameters for base material categories A, B, C and D

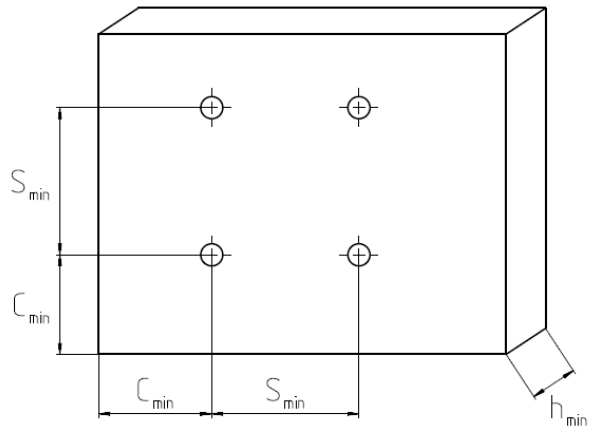
				HTR-P and HTR-M
Nominal drill bit diameter	d_0	=	[mm]	8
Drill bit cutting diameter	d_{cut}	≤	[mm]	8,45
Depth of drilled hole to deepest point	h_1	≥	[mm]	40
Overall embedment depth	h_{nom}	≥	[mm]	30

Table B2: Installation parameters for base material category E

				HTR-P and HTR-M
Nominal drill bit diameter	d_0	=	[mm]	8
Drill bit cutting diameter	d_{cut}	≤	[mm]	8,45
a) Standard embedment depth:				
Depth of drilled hole to deepest point	h_1	≥	[mm]	40
Overall embedment depth	h_{nom1}	≥	[mm]	30
b) Alternative embedment depth:				
Depth of drilled hole to deepest point	h_1	≥	[mm]	60
Overall embedment depth	h_{nom2}	≥	[mm]	50

Table B3: Minimum thickness of base material, edge distance and anchor spacing

			HTR-P and HTR-M
Minimum thickness of the base material	Concrete, solid and perforated clay brick, solid and perforated limestone brick, lightweight aggregate concrete autoclaved aerated concrete	h_{min} [mm]	100
	Thin concrete members (e.g weather resistance skin of external wall panels)	h_{min} [mm]	40
Minimum spacing		s_{min} [mm]	100
Minimum edge distance		c_{min} [mm]	100

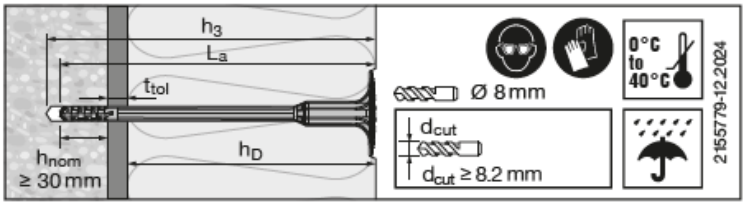


HTR-P and HTR-M

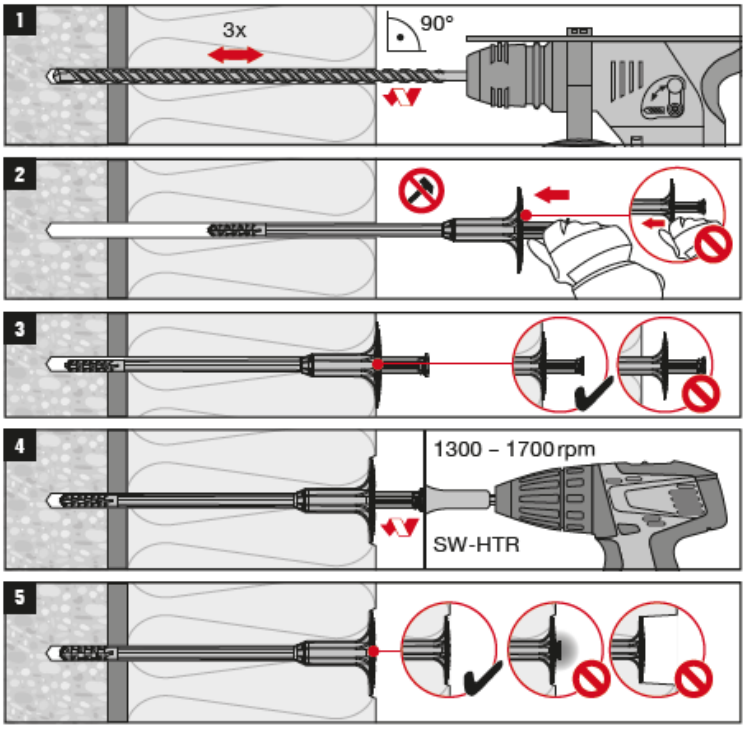
Intended use

Installation parameters
Minimum thickness, edge distance and spacing

Annex B (3/7)



La	[mm] max. $h_D + t_{tol}$	$h_3 \geq L_a + 10$	A, B, D	C, E
8 x 60	30	70	✔	✔
8 x 80	50	90		
8 x 100	70	110		
8 x 120	90	130		
8 x 140	110	150		
8 x 160	130	170		
8 x 180	150	190		
8 x 200	170	210		
8 x 220	190	230		
8 x 240	210	250		
8 x 260	230	270		
8 x 280	250	290		
8 x 300	270	310		

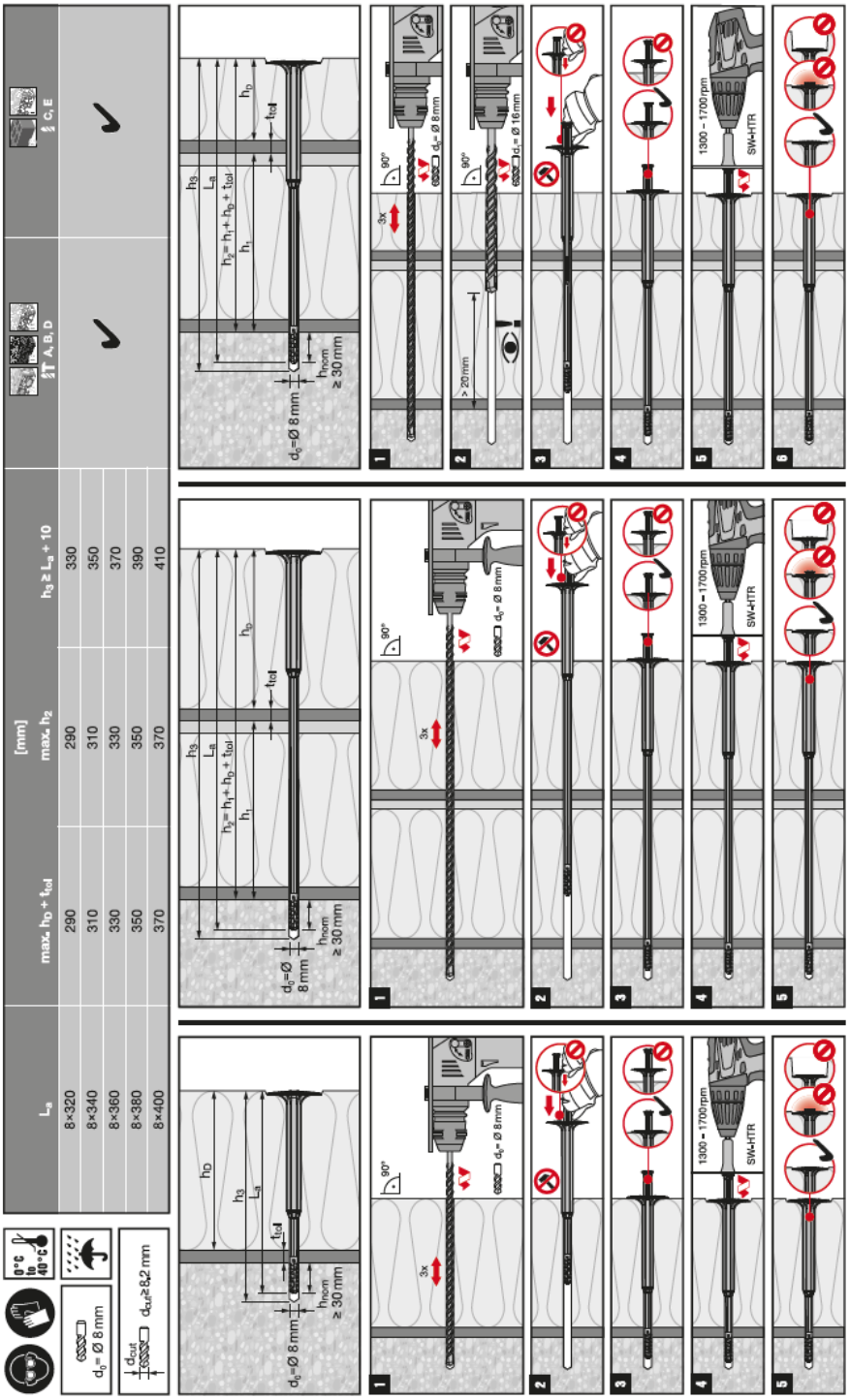


HTR-P and HTR-M

Intended use

Installation instructions for wall applications

Annex B (4/7)

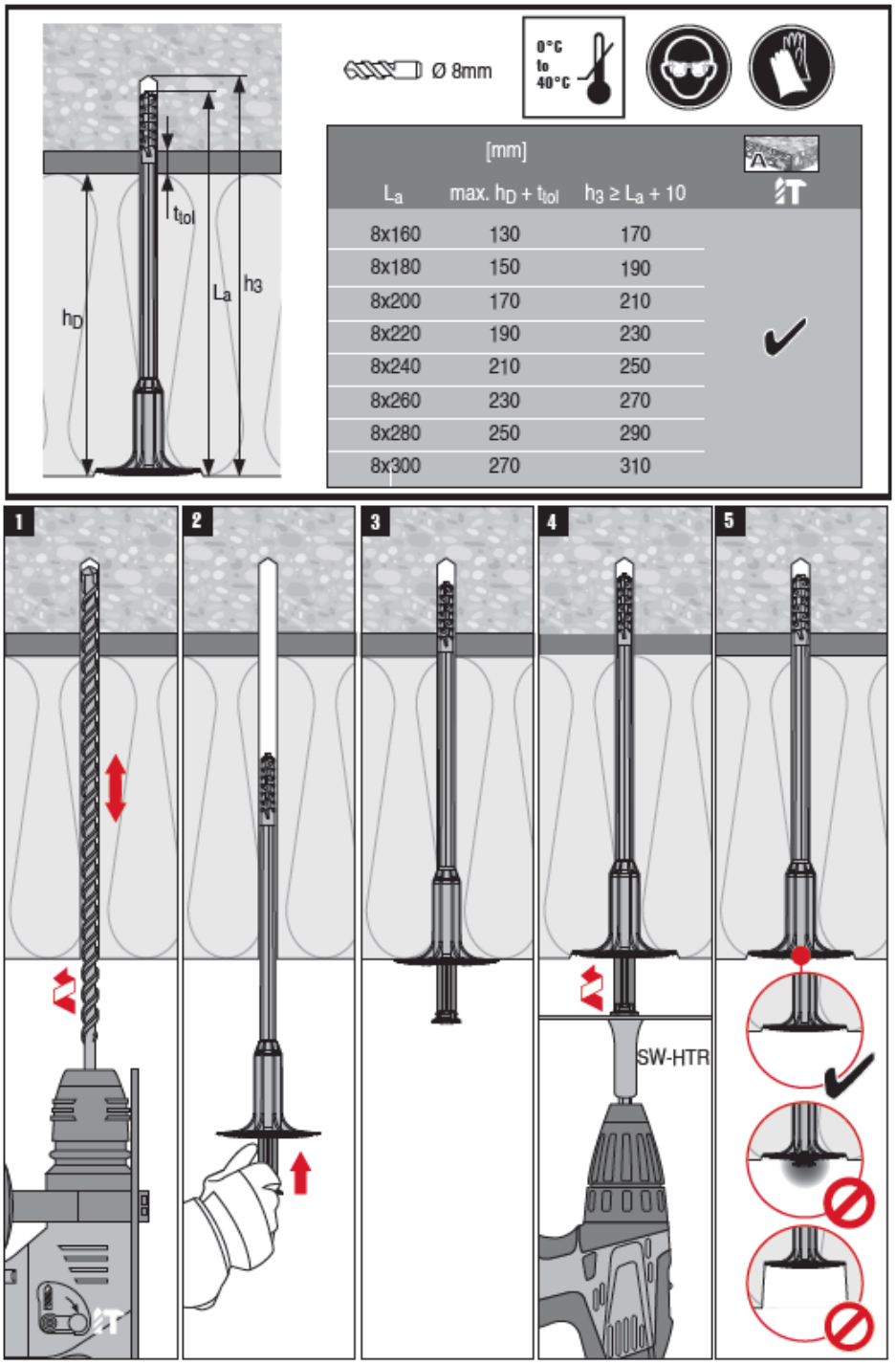


HTR-P and HTR-M

Intended use

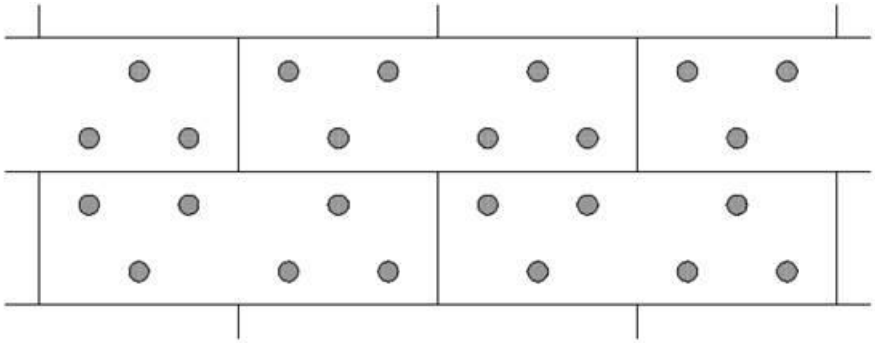
Installation instructions for wall applications

Annex B (5/7)



HTR-P and HTR-M	
Intended use Installation instructions for bottom side of ceilings applications	**Annex B (6/7)**

Figure B1: Anchor's patern for ceiling applications



HTR-P and HTR-M	
Intended use Anchor's pattern for bottom side of ceiling applications	**Annex B (7/7)**

Table C1: Characteristic resistance to tension loads N_{Rk} for wall applications

Base material	Bulk density class [kg/dm³]	Minimum compressive strength [N/mm²]	Remarks	Drilling method	N_{Rk} [kN]	
					h_{nom1}	h_{nom2}
Concrete **C12/15** acc. EN 206				hammer	**1,0**	/
Concrete **C16/20 – C50/60** acc. EN 206				hammer	**1,5**	/
Thin concrete members (e.g. weather resistant skins of external wall panels) **C16/20 – C50/60** acc. EN 206			Thickness ≥ 40 mm	hammer	**1,2**	/
Solid clay brick **Mz 12/2,0** acc. DIN 105-100 / EN 771-1	2,0	12	cross section vertically to resting area reduced by perforation up to 15%	hammer	**1,2**	/
Solid limestone brick **KS 12/1,8** acc. DIN V 106 / EN 771-2	1,8	12		hammer	**1,5**	/
Vertically perforated clay brick **HLZ 20/1,6** acc. DIN 105-100 / EN 771-1	1,6	20	cross section vertically to resting area reduced by perforation more than 15% and less than 50%	rotating[2)]	**1,2**[1)]	/
Vertically perforated clay brick **HLZ 12/0,8** net density ≥1'500 kg/m³, outer web thickness 9 mm to 11mm acc. DIN 105-100 / EN 771-1	0,8	12		rotating[2)]	**0,7**[3)]	/
Perforated sand-lime brick **KSL 12/1,4** acc. DIN V 106 / EN 771-2	1,4	12		rotating[2)]	**1,2**[1)]	/
Lightweight aggregate concrete **LAC** acc. DIN EN 1520 / EN 771-3	1,4	4		hammer	**0,90**	/
Autoclaved aerated concrete **PP4** acc. EN 772-4	0,5	4		rotating	**0,50**	**0,75**

[1)] the value is applicable for outer web thickness ≥ 20 mm, else job site tests are necessary

[2)] if other drilling method (e.g. hammer drilling instead of rotary drilling) is used, job site tests are necessary

[3)] the value is applicable for outer web thickness ≥ 9 mm, else job site tests are necessary

HTR-P and HTR-M	
Performance Characteristic resistances for wall applications	**Annex C (1/5)**

Table C2: Characteristic resistance to tension loads for bottom side of ceiling applications load under short-term ($N_{Rk,panel,sh}$) and long term ($N_{Rkpanel,,lg}$) for number of anchors pre m^2 on the basis of anchors sheeme

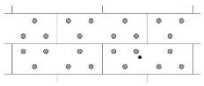
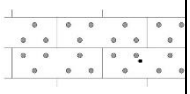
Base material and drilling methode	Number of anchor per m^2	Anchor scheme	Characteristic resistance of anchors under short-term tension load $N_{Rk,panel,sh}$ [kN/m^2]	Characteristic resistance of anchors under long-term tension load $N_{Rk,panel,lg}$ [kN/m^2]
Concrete **C16/20 – C50/60** acc. EN 206 Drilling of borehole: hammer action	12.5		8,125	3,75

Table C3: Short and long-term characteristic pull-through resistance of HTR-P and HTR-M in panels of thickness ≥ 120 mm

Type of insulation	Nominal characteristic tensile strength T_R [kPa]	Number of anchor per m^2	Anchor scheme	Characteristic short term pull-through resistance $R_{panel,sh}$ [kN/m^2]	Characteristic long term pull-through resistance $R_{panel,lg}$ [kN/m^2]
Mineral wool Knauf FKD-MAX	7,5	12.5		6,84	2,00
Lamelle FKL C2	80				

HTR-P and HTR-M	
Performance Characteristic resistances for bottom side of ceilings applications	**Annex C (2/5)**

Table C4: Point thermal transmittance

Anchor type	Insulation thickness h_D [mm]	Point thermal transmittance [W/K]
HTR-P	20 - 360	0
HTR-M	30 - 360	0
HTR-M (only HTR-M 8×60)	20	0,002

Table C5: Plate stiffness acc. EOTA Technical Report TR 026

Anchor type	Plate dimension	Load resistance of plate [kN]	Plate stiffness [kN/mm]
HTR-P and HTR-M	Ø 60 mm	1,4	0,6

HTR-P and HTR-M	**Annex C (3/5)**
Performance Point thermal transmittance and plate stiffness	

Table C6: Displacements for wall applications

Base material	Bulk density class [kg/dm³]	Minimum compressive strength [N/mm²]	Tension load N [kN]		Displacement δ_m (N) [mm]	
			h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}
Concrete **C12/15** (acc. EN 206)			0,33	/	0,1	/
Concrete **C16/20 – C50/60** (acc. EN 206)			0,50	/	0,2	/
Thin concrete members (e.g. weather resistant skins of external wall panels) **C16/20 – C50/60** acc. EN 206			0,40	/	0,4	/
Solid clay brick **Mz 12/2,0** (acc. DIN 105-100 / EN 771-1)	2,0	12	0,40	/	0,2	
Solid limestone brick **KS 12/1,8** (acc. DIN V 106 / EN 771-2)	1,8	12	0,50	/	0,1	/
Vertically perforated clay brick **HLZ 20/1,6** (acc. DIN 105-100 / EN 771-1)	1,6	20	0,40	/	0,3	/
Vertically perforated clay brick **HLZ 12/0,8** net density ≥1'500 kg/m³, outer web thickness 9mm to 11mm acc. DIN 105-100 / EN 771-1	0,8	12	0,23	/	0,1	/
Perforated sand-lime brick **KSL 12/1,4** (acc. DIN DIN V 106 / EN 771-2)	1,4	12	0,40	/	0,4	/
Lightweight aggregate concrete **LAC** (acc. DIN EN 1520 / EN 771/3)	1,4	4	0,30	/	0,3	/
Autoclaved aerated concrete **PP4** (acc. EN 771-4)	0,5	4	0,17	0,25	0,4	0,3

HTR-P and HTR-M	
Performance Displacements for wall applications	**Annex C (4/5)**

Table C7: Displacement for bottom side of ceiling applications

Base material		Tension load N [kN/m²]	Displacement [mm]
C16/20 – C50/60 (acc. EN 206)	Short term δ_{sh}	3,2	0,069
	Long term δ_{lg}	1,5	1,027

HTR-P and HTR-M	
Performance Displacements for bottom side of ceiling applications	**Annex C (5/5)**