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European Technical Assessment

ETA-16/0116
of 30.08.2016

I GENERAL PART

Technical Assessment Body issuing the ETA
Organ za tehnično ocenjevanje, ki je izdal ETA

ZAG Ljubljana

Trade name of the construction product
Komercialno ime gradbenega proizvoda

HTR-P

Product family to which the construction product belongs

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

Družina proizvoda, ki ji gradbeni proizvod pripada

33: Privijačeno plastično sidro za pritrjevanje toplotno izolacijskih sistemov z ometi na podlagi iz betona in zidakov

Manufacturer
Proizvajalec

HILTI Aktiengesellschaft
Feldkircherstrasse 100
9494 SCHAAN
Liechtenstein
www.hilti.com

Manufacturing plant
Proizvodni obrat

HILTI plants

This European Technical Assessment contains

Ta Evropska tehnična ocena vsebuje

12 pages including 9 annexes, which form an integral part of the document

12 strani vključno s 9 prilogami, ki so sestavni del te ocene

This European Technical Assessment is issued in according to Regulation (EU) No 305/2011, on the basis of

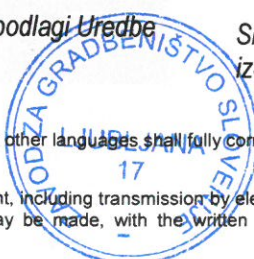
Ta Evropska tehnična ocena je izdana na podlagi Uredbe (EU) št. 305/2011 na osnovi

Guideline for European Technical Approval ETAG 014, edition 2011, used as EAD

Smernica za evropska tehnična soglasja ETAG 014, izdaja 2011, ki se uporablja kot EAD

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product

The HTR-P is a screwed-in anchor which consists of an anchor sleeve made of polyethylene, a plate made of polypropylene and a screw made of polyamide. Different slip-on plates are provided and can be used if necessary.

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

The installed anchor is shown in Annex A1.

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

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 Mechanical resistance and stability (BWR 1)

Requirements with respect to the mechanical resistance and stability of non-load bearing parts of the works are not included in this basic work requirement but are under BWR 4.

3.2 Safety in case of fire (BWR 2)

Not relevant.

3.3 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.

3.4 Safety in use (BWR 4)

The basic work requirements for safety in use are listed in Annexes C1 and C2.

3.5 Protection against noise (BWR 5)

Not relevant.

3.6 Energy economy and heat retention (BWR 6)

Not relevant.

3.7 Sustainable use of natural resources (BWR 7)

For sustainable use of natural resources no performance was assessed for this product.

3.8 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 Commission¹ 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 the Control plan deposited at the Slovenian National Building and Civil Engineering Institute (ZAG Ljubljana).

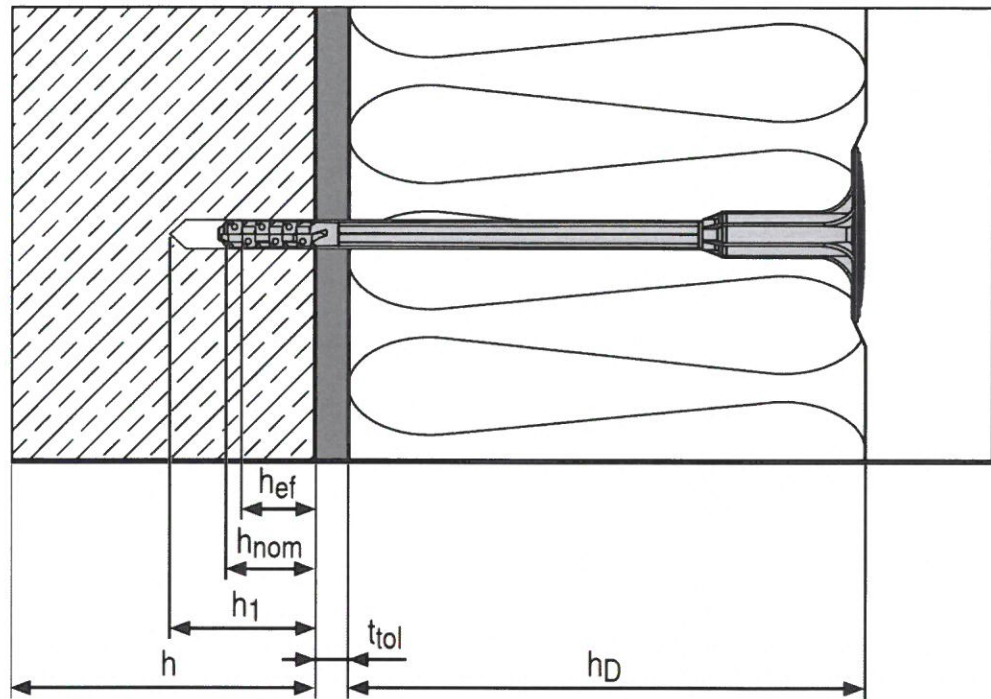
Issued in Ljubljana on 30.08.2016

Signed by:

Franc Capuder, M.Sc., Research Engineer

Head of Service of TAB





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

Product description

Installed condition

Annex A1



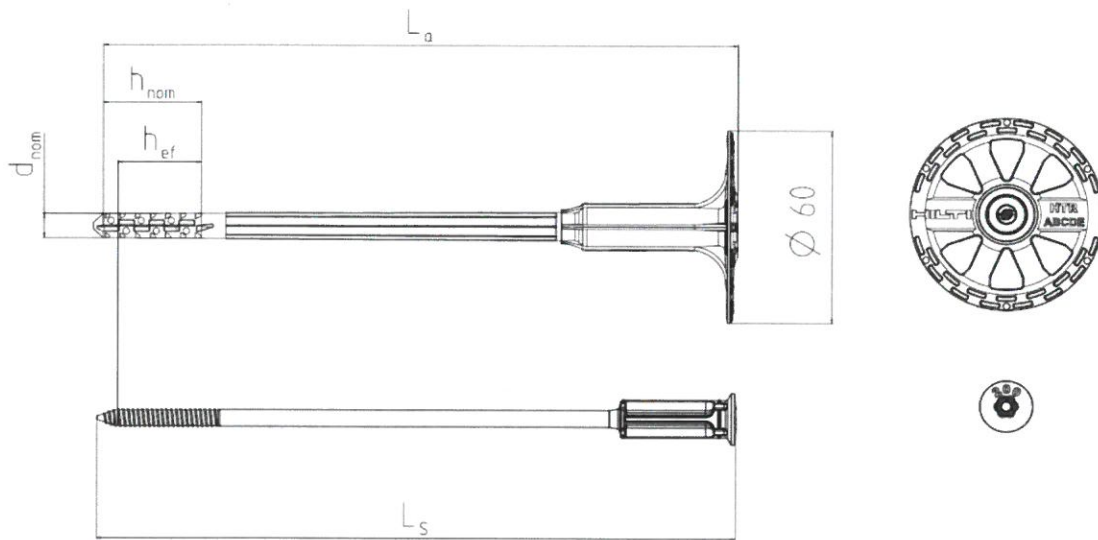


Figure A1: Assembled sleeve, plate and plastic screw

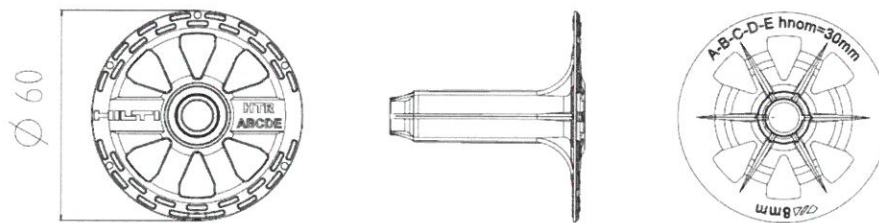


Figure A2: Plate

Table A1: Marking

Item	Location	Designation
Screw	Top of screw's head	Anchor length in mm (e.g. 300 in Figure A1)
		Producer: HILTI
Plate	Top of the plate	Anchor type: HTR
		Base material categories: A, B, C, D, E
	Bottom side	Nominal embedment depth: $h_{nom}=30$ mm for base material categories A, B, C, D, E
		Nominal drill bit diameter: 8 mm

HTR-P

Product description
Dimensions

Annex A2



Table A2: Dimensions

Anchor type	d_{nom} [mm]	h_{ef} [mm]	h_{nom1} [mm]	L_a [mm]	L_s [mm]
HTR-P 8x100	8	25*	30*	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

*Alternative embedment depth available for base material category E: $h_{nom2}=50$ mm and $h_{ef2}=45$ mm

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

$$h_D \leq 220 \text{ mm} - 10 \text{ mm} - 30 \text{ mm}$$

$$h_D \leq 180 \text{ mm}$$

Table A3: Materials

Item	Material
Sleeve	Polyethylene, black
Plate	Polypropylene, white, red or yellow
Screw	Glass fiber reinforced polyamide, black

HTR-P

Product description
Dimensions and Materials

Annex A3

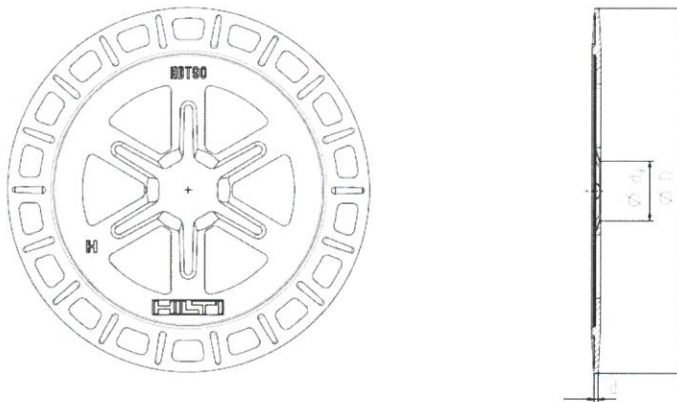


Figure A5: Slip-on plate HDT 90

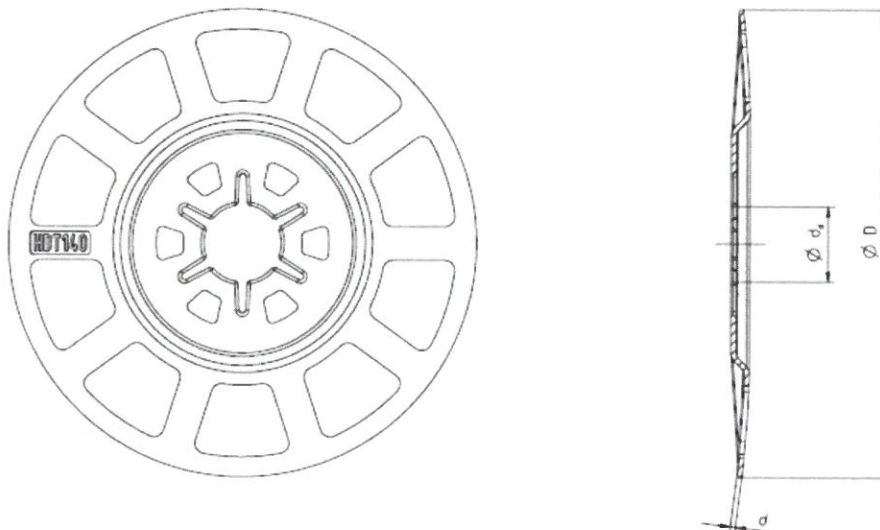


Figure A6: Slip-on plate HDT 140

Table A4: Slip-on plate – dimensions and materials

Item	Ø D [mm]	Ø d _a [mm]	d [mm]	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

Product description
Dimensions and Materials

Annex A4



Specifications of intended use

Anchorage subject to:

- 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.

Base materials:

- Normal weight concrete C12/15 to C50/60 and weather resistant skin (use category A) according Annex C1
- Solid masonry (use category B) 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 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 ETAG 014 Edition February 2011, Annex D.

Application temperature range:

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

Design:

- The anchors are designed in accordance with ETAG 014, Edition February 2011 under the responsibility of an engineer experienced in anchorages and masonry work.
- 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.

Installation:

- 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 ETAG 014 Edition February 2011, Annex D.
- 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 0°C to 40°C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering ≤ 6 weeks.

HTR-P

Intended use
Specification

Annex B1



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

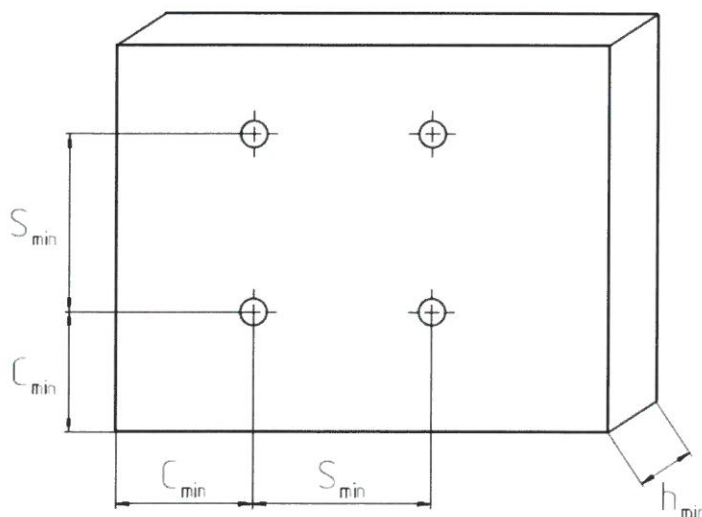
		HTR-P
Nominal drill bit diameter	$d_0 =$ [mm]	8
Drill bit cutting diameter	$d_{cut} \leq$ [mm]	8,45
Depth of drilled hole to deepest point	$h_1 \geq$ [mm]	40
Overall embedment depth	$h_{nom1} \geq$ [mm]	30

Table B2: Installation parameters for base material category E

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

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

		HTR-P
Minimum thickness of base material	$h_{min} =$ [mm]	100
Minimum spacing	$s_{min} =$ [mm]	100
Minimum edge distance	$c_{min} =$ [mm]	100

**HTR-P****Intended use**

Installation parameters
Minimum thickness, edge distance and spacing

Annex B2

[mm]		
L_g	max. $h_D + h_{gl}$	$h_g \geq L_g + 10$
8x100	70	110
8x120	90	130
8x140	110	150
8x160	130	170
8x180	150	190
8x200	170	210
8x220	190	230
8x240	210	250
8x260	230	270
8x280	250	290
8x300	270	310

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HTR-P

Intended use
Installation instructions

Annex B3



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

Base material	Bulk density class [kg/dm ³]	Minimum compressive strength [N/mm ²]	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 \geq 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	cross section vertically to resting area reduced by perforation up to 15%	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⁾	/
Perforated sand-lime brick KSL 12/1,4 acc. DIN V 106 / EN 771-2	1,4	12	cross section vertically to resting area reduced by perforation more than 15% and less than 50%	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 web thickness \geq 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

HTR-P**Performance**

Characteristic resistance

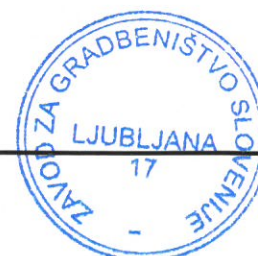
Annex C1

Table C2: Point thermal transmittance

Anchor type	Insulation thickness h_D [mm]	Point thermal transmittance [W/K]
HTR-P	60 - 260	0

Table C3: Plate stiffness acc. EOTA Technical Report TR 026

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

Table C4: Displacements

Base material	Bulk density class [kg/dm ³]	Minimum compressive strength [N/mm ²]	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	/
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**Performance**

Point thermal transmittance, plate stiffness and displacements

Annex C2