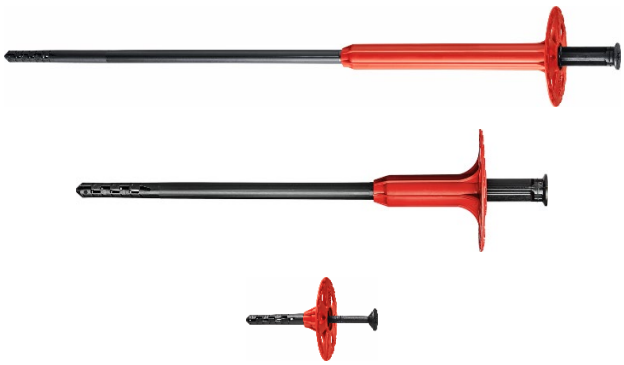
HTR-P / HTR-M
Insulation fastener

Product Technical Datasheet
Update: Mar 25

HTR-P / HTR-M Insulation fastener

Insulation fastener for ETICS

Anchor version



HTR-P
HTR-M

Benefits

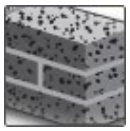
- Best in class setting comfort and surface finish
- Faster installation with the SW-HTR setting tool
- Easier to install correctly – the setting tool needs no adjustment, making consistent, flush setting simpler
- Heat transmission class 0 W/K due to screw made of high-performance plastic for all HTR-P items and HTR-M above 8x60[1)]
- Fastening in all base materials of category A, B, C, D and E
- Insulation panel thickness (h_D) from 20 to 360 mm [2)]
- Fastening of two layers of insulation possible, enabling renovation

[1)] HTR-M 8x60 heat transmission 0.002W/K

[2)] Thickness of the insulation panel defined as h_D for single panel insulation. For renovation, please refer to IFU

Base material

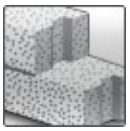
Concrete



Solid brick

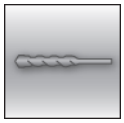
Hollow brick

Lightweight Aggregate concrete

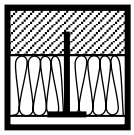


Autoclaved Aerated concrete

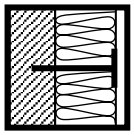
Drilling, cleaning, setting



Hammer /Rotary drilled holes



Fastening of insulation on the ceiling



Fastening of insulation at the wall

Other information

Hilti Technical Data

Linked Approvals/Certificates and Instructions for use

Approvals/certificates

Approval no	Application / loading condition	Authority / Laboratory	Date of issue
ETA-16/0116	Static and quasi-static	ZAG, Ljubljana	11-03-2025

The instructions for use can be viewed using the link in the instructions for use table or the QR code/link in the Hilti webpage table.

Instructions for use (IFU)

Anchor Type	IFU
HTR	IFU HTR-60-300
	IFU HTR-320-400

Link to Hilti Webpage

HTR-P	HTR-M	Setting tool SW-HTR	

Material and dimensions

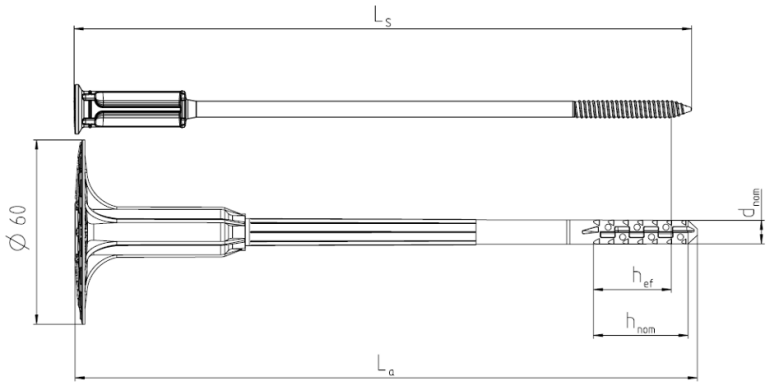
Material and dimensions of the anchor type / items can be taken from the ETA listed in the table Approvals / Certificates.

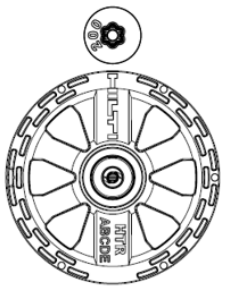
Fastener special dimensions

Anchor dimensions

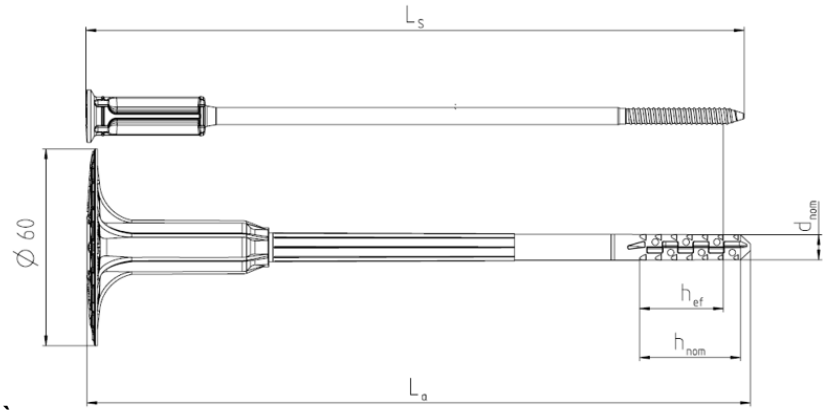
			HTR-P / HTR-M
Diameter of sleeve	d_{nom}	[mm]	8
Plate diameter	d	[mm]	60
Minimum length of anchor body	$L_{a,min}$	[mm]	60
Maximum length of anchor body	$L_{a,max}$	[mm]	400
Minimum length of screw	$L_{S,min}$	[mm]	61
Maximum length of screw	$L_{S,max}$	[mm]	401

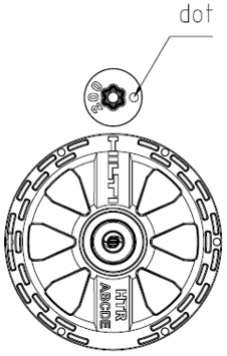
HTR-P





HTR-M

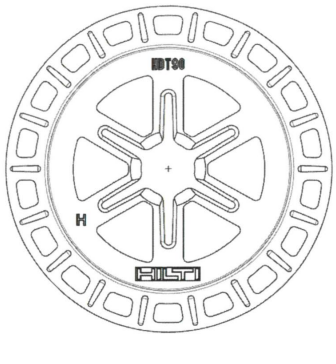


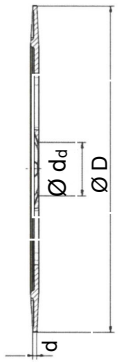


Slip-on plate dimensions

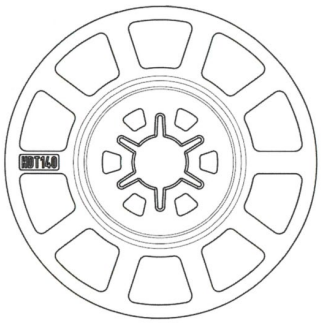
			HDT 90	HDT 140
External diameter	D	[mm]	90	140
Internal diameter	d_d	[mm]	23	
Thickness	d	[mm]	1,5	

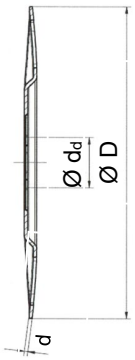
HDT 90





HDT 140





Anchor designations

		HTR-P / HTR-M
Expansion screw	Top of head	HTR-P: Anchor length L_a (e.g. "300") HTR-M: Anchor length L_a (e.g. "300" and a dot •)
Plate	Top of plate	Producer: HILTI
		Anchor type: HTR
		Base material categories: A, B, C, D, E
	Bottom side of plate	Nominal embedment depth: h_{nom}=30 mm for base material categories A, B, C, D, E
		Nominal drill bit diameter: 8 mm

Static loading based on ETA-16/0116 and Hilti technical data. Design according to TR064

All data in this section applies to:
- Correct setting (see setting instruction)
- For a single anchor
- No edge distance and spacing influence
- Minimum base material thickness (see setting detail table)
- Transmission of wind suction loads only
- Redundant fastening in non-cracked concrete
- Anchor and its plate is not exposed to UV-radiation for more than 6 weeks
- Recommended loads: With overall partial safety factor for action γ = 1,4

Anchorage depth

Anchor			HTR-P / HTR-M
Nominal embedment depth	h_{nom}	[mm]	30

Design resistance to tension for wall application

Base material			HTR-P / HTR-M
Concrete C12/15	N_{Rd}	[kN]	0,50
Concrete C16/20 – C50/60	N_{Rd}	[kN]	0,75
Thin concrete members (e.g. weather resistant skins of external wall panels) C16/20 – C50/60	N_{Rd}	[kN]	0,60

Recommended loads to tension for wall application

Base material			HTR-P / HTR-M
Concrete C12/15	N_{rec}	[kN]	0,33
Concrete C16/20 – C50/60	N_{rec}	[kN]	0,50
Thin concrete members (e.g. weather resistant skins of external wall panels) C16/20 – C50/60	N_{rec}	[kN]	0,40

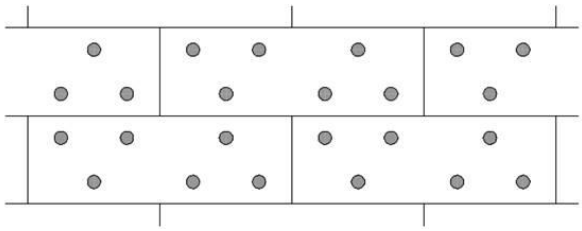
Design resistance to tension for bottom side of Ceiling application

Base material	Number of anchors per m²	HTR-P / HTR-M	
		Short-term load $N_{Rd,pane,st}$	Long-term load $N_{Rd,pane,lt}$
		[kN/m²]	
Concrete C16/20 – C50/60 acc. EN 206	12,5	4,514	2,08

Recommended loads to tension for bottom side of Ceiling application

Base material	Number of anchors per m²	HTR-P / HTR-M	
		Short-term load $N_{rec,pane,st}$	Long-term load $N_{rec,pane,lt}$
		[kN/m²]	
Concrete C16/20 – C50/60 acc.EN 206	12,5	3,224	1,49

Anchor's Patern for Ceiling application



Brick types and properties - Wall application

Brick name	Image	Compressive strength f_b [N/mm²]	Minimum density ρ [kg/dm³]	Drilling method/Remarks
Solid clay brick EN 771-1		12	2,0	Hammer drilling mode
Solid calcium silicate brick EN 771-2		12	1,8	Hammer drilling mode
Vertically perforated clay brick, EN 771-1		20	1,6	Rotary drilling only Below N_{rk} applies only for outer web thickness ≥ 20 mm
Vertically perforated clay brick Net density ≥1,500 kg/m³ EN 771-1		12	0,8	Rotary drilling mode Below N_{rk} value applies only for outer web thickness ≥ 9 mm
Perforated calcium silicate brick, EN 771-2		12	1,4	Rotary drilling only Below N_{rk} value applies only for outer web thickness ≥ 20 mm
Lightweight Aggregate Concrete LWC EN 771-3		4	1,4	Hammer drilling mode
Autoclaved aerated concrete EN 772-4		4	0,5	Rotary drilling mode

Design resistance to tension for wall application

Base material			HTR-P / HTR-M
Solid clay brick, Mz 12/2,0	N_{Rd}	[kN]	0,60
Solid calcium silicate brick, KS 12/1,8	N_{Rd}	[kN]	0,75
Vertically perforated clay brick, HLz 20/1,6	N_{Rd}	[kN]	0,60
Vertically perforated clay brick, HLz 12/0,8	N_{Rd}	[kN]	0,35
Vertically perforated calcium silicate brick, KSL 12/1,4	N_{Rd}	[kN]	0,60
Lightweight Aggregate Concrete ≥ LWC4	N_{Rd}	[kN]	0,45
Autoclaved aerated concrete ≥ PP4	N_{Rd}	[kN]	0,25
Autoclaved aerated concrete ≥ PP4 (embedment depth h_{nom}=50mm)	N_{Rd}	[kN]	0,375

Recommended loads to tension for wall application

Base material			HTR-P / HTR-M
Solid clay brick, Mz 12/2,0	N_{rec}	[kN]	0,40
Solid sand-lime brick, KS 12/1,8	N_{rec}	[kN]	0,50
Vertically perforated clay brick, HLz 20/1,6	N_{rec}	[kN]	0,40
Vertically perforated clay brick, HLz 12/0,8	N_{rec}	[kN]	0,23
Vertically perforated sand-lime brick, KSL 12/1,4	N_{rec}	[kN]	0,40
Lightweight Aggregate Concrete ≥ LWC4	N_{rec}	[kN]	0,30
Autoclaved aerated concrete ≥ PP4	N_{rec}	[kN]	0,167
Autoclaved aerated concrete ≥ PP4 (embedment depth h_{nom}=50mm)	N_{rec}	[kN]	0,25

Note: The below technical data is not covered by ETA-16/0116. It is based on a HILTI-internal assessment of test data. Recommended values can be used in case that the insulation material to be fastened is not covered by a European Technical Assessment (ETA) or any national approval document. If the ETICS to be fastened is covered by an ETA or any national approval document, the given pull-through resistance in the ETA or national approval document is applicable. The design of anchorages must be carried out in accordance with EOTA TR 064 or applicable national regulation under the responsibility of an engineer experienced in anchorages.
Mineral wool, type WV HILTI slip-on plate HDT 90 and for Mineral wool, type lamella HILTI slip-on plate HDT 140 must be used.

Recommended pull-through (short-term acting) loads in different insulation materials

Insulation	Thickness[1)] [mm]	Plate-∅ [mm]	Pull-through load [kN]
Expanded polystyrene EPS	30 - 119	≥ 60	0,15
Expanded polystyrene EPS	120 - 370	≥ 60	0,20
Mineral wool, type HD	30 - 370	≥ 60	0,15
Mineral wool, type WV	30 - 370	≥ 90	0,15
Mineral wool, type lamella	30 - 370	≥ 140	0,167

[1)]Thickness of the insulation system defined as $h_D + t_{tol}$ for single panel insulation. For renovation, please refer to IFU

Basic provisions for dead loads on the bottom side of ceilings

All data in this section applies to
- Correct setting (see setting instruction)
- For a single anchor
- No edge distance and spacing influence
- Base material as specified in the table of this section
- Minimum base material thickness (see setting detail table)
- Quasi-static permanent loads only
- Redundant fastening in non-cracked and cracked concrete
- Anchor and its plate are not exposed to UV-radiation for more than 6 weeks

Note: Pull-through resistance of panel and its bending resistance shall be proven by panel manufacturer or any other person experienced in the design of such panels. Drawings of fixing positions shall be provided to the operator. Each panel shall be fixed with 4 anchors at least.
The below technical data is not covered by ETA-16/0116. They are based on a HILTI-internal assessment of test data. A safety factor for dead load γ_F=1,35 and a safety factor γ_M=1,80 for material is considered.

Recommended number of anchors for fixing panels to ceilings w/o consideration of wind loads:

Specific panels weight	Number of anchors per m²
≤ 29 kg/m²	4
≤ 43 kg/m²	6
≤ 57 kg/m²	8
≤ 71 kg/m²	10

Additional technical parameters

Point thermal transmittance

Anchor				HTR-P / HTR-M
Point thermal transmittance	For insulation panel thickness [1] 20-360 mm	χ	[W/K]	0,000
Point thermal transmittance	For HTR-M 8x60	χ	[W/K]	0,002

[1] Thickness of the insulation panel defined as h_D. For renovation, please refer to IFU

Plate stiffness and plate capacity

Anchor		HTR-P / HTR-M
Capacity of plate	[kN]	1,4
Plate stiffness	[kN/mm]	0,6

Setting information

Installation temperature range:
0°C to +40°C

Service temperature range
Hilti HTR-P, HTR-M insulation fastener may be applied in the temperature ranges given below.

Service temperature range

Temperature range	Base material temperature	Maximum long-term base material temperature	Maximum short-term base material temperature
Temperature range I	0 °C to +40 °C	+24 °C	+40 °C

Maximum short-term base material temperature
Short-term elevated base material temperatures are those that occur over brief intervals, e.g. because of diurnal cycling.

Maximum long-term base material temperature
Long-term elevated base material temperatures are roughly constant over significant periods of time.

The anchor shall not be exposed to UV-radiation for more than 6 weeks

The anchor shall not be exposed to water and shall be stored in dry conditions

Setting details

			HTR-P / HTR-M
			Base material category [a]
Nominal diameter of drill bit	d_o	[mm]	8
Depth of drill hole	$h_1 \geq$	[mm]	40
Effective anchorage depth	$h_{ef} \geq$	[mm]	25
Nominal embedment depth	h_{nom}	[mm]	30
Thickness of insulation panel	h_D	[mm]	20 to 360 [b]
Maximum thickness of tolerance layer	$t_{tol,max}$	[mm]	$L_a - h_{nom} - h_D$ [c]
Minimum base material thickness	h_{min}	[mm]	100 [d]
Minimum spacing	s_{min}	[mm]	100
Minimum edge distance	c_{min}	[mm]	100

a) Autoclaved aerated concrete PP4 an alternative embedment depth h_{nom} = 50 mm with greater resistance is available with corresponding drill hole depth $h_1 \geq 60$ mm

b) For single layer panel insulation. For renovation, please refer to IFU.

c) L_a … Anchor length, h_{nom} … Overall embedment depth, h_D … Thickness of insulation
Example:
HTR-P 8x300 or HTR-M 8x300: L_a = 300mm; h_{nom} = 30mm; h_D = 260 mm
$t_{tol,max}$ = 300 mm – 30 mm – 260 mm = 10 mm

d) Except for thin concrete members (e.g. weather resistant skins of external walls) with h_{min}=40 mm. The belonging characteristic resistance must be considered.