



T-Save HTS-P / HTS-M Insulation fastener

Anchor version



T-Save HTS-P
T-Save HTS-M

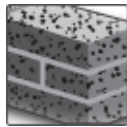
Benefits

- Fastening in all base materials of category A, B, C, D and E
- Easy and fast to install
- Best insulation surface finish
- Heat transmission class 0,000 W/K

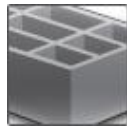
Base material



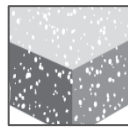
Concrete
(non-cracked)



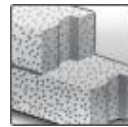
Solid brick



Hollow brick

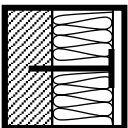


Lightweight
Aggregate
concrete



Autoclaved
aerated
concrete

Other information



Fastening of
insulation



European
Technical
Assessment



CE
conformity

Approvals/Certificates

Description	Authority / Laboratory	No. / date of issue
European technical assessment ^{a)}	ZAG, Ljubljana	ETA-14/0400 / 2017-06-23

Basic loading data for short term acting loads e.g. wind (for a single anchor)

All data in this section applies to:

- Correct setting (see setting instruction)
- No edge distance and spacing influence
- Redundant fastenings in the base materials as specified in the tables
- Minimum base material thickness or greater
- Transmission of wind suction loads only
- Anchor and its plate is not exposed to UV-radiation for more than 6 weeks

Characteristic resistance (short term acting load)

Base material		T-Save HTS-P / T-Save HTS-M
Concrete \geq C12/15	N_{Rk} [kN]	0,9
Solid clay brick Mz 12/2,0	N_{Rk} [kN]	0,9
Solid sand-lime brick KS 12/1,8	N_{Rk} [kN]	0,9
Vertically perforated clay brick Hz 20/1,6	N_{Rk} [kN]	0,75 ^{a)}
Vertically perforated sand-lime brick KSL 12/1,4	N_{Rk} [kN]	0,75 ^{a)}
Lightweight Aggregate Concrete \geq LAC4 (raw density \geq 1,4 kg/dm ³)	N_{Rk} [kN]	0,60
Autoclaved aerated concrete \geq PP4 (raw density \geq 0,5 kg/dm ³)	N_{Rk} [kN]	0,40

a) The value applies only for outer web thickness \geq 20 mm, rotary drilling only

Design resistance (short term acting load)

Base material		T-Save HTS-P / T-Save HTS-M
Concrete \geq C12/15	N_{Rd} [kN]	0,45
Solid clay brick Mz 12/2,0	N_{Rd} [kN]	0,45
Solid sand-lime brick KS 12/1,8	N_{Rd} [kN]	0,45
Vertically perforated clay brick Hz 20/1,6	N_{Rd} [kN]	0,375 ^{a)}
Vertically perforated sand-lime brick KSL 12/1,4	N_{Rd} [kN]	0,375 ^{a)}
Lightweight Aggregate Concrete \geq LAC4 (raw density \geq 1,4 kg/dm ³)	N_{Rd} [kN]	0,30
Autoclaved aerated concrete \geq PP4 (raw density \geq 0,5 kg/dm ³)	N_{Rd} [kN]	0,20

a) The value applies only for outer web thickness \geq 20 mm, rotary drilling only

Recommended loads (short term acting load)

Base material		T-Save HTS-P / T-Save HTS-M
Concrete \geq C12/15	N_{Rec} [kN]	0,3
Solid clay brick Mz 12/2,0	N_{Rec} [kN]	0,3
Solid sand-lime brick KS 12/1,8	N_{Rec} [kN]	0,3
Vertically perforated clay brick Hz 20/1,6	N_{Rec} [kN]	0,25 ^{a)}
Vertically perforated sand-lime brick KSL 12/1,4	N_{Rec} [kN]	0,25 ^{a)}
Lightweight Aggregate Concrete \geq LAC4 (raw density \geq 1,4 kg/dm ³)	N_{Rec} [kN]	0,20
Autoclaved aerated concrete \geq PP4 (raw density \geq 0,5 kg/dm ³)	N_{Rec} [kN]	0,13

a) The value applies only for outer web thickness \geq 20 mm, rotary drilling only



Recommended (short term) pull-through loads in different insulation materials ^{a)}

Base material	Thickness [mm]	Plate-Ø [mm]	Pull-through load [kN]
Expanded polystyrene EPS	60-100	≥ 60	0,15
Expanded polystyrene EPS	120-260	≥ 60	0,20
Mineral wool, type HD	60-260	≥ 60	0,15
Mineral wool, type WV	60-260	≥ 90	0,15 ^{b)}
Mineral wool, type lamella	60-260	≥ 140	0,167 ^{c)}

a) Recommended values in case that the insulation material to be fixed is not covered by a European Technical Assessment (ETA) or any national approval document. If the ETICS to be fixed 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 to EAD330196-01-0604 and ETAG 004 or applicable national regulation under the responsibility of an engineer experienced in anchorages.

b) HILTI slip-on plate HDT 90 must be used

c) HILTI slip-on plate HDT 140 must be used

Basic provisions for fixing insulation on the bottom side of ceilings

All data in this section applies to

- Correct setting (see setting instruction)
- No edge distance and spacing influence
- Redundant fastening in non-cracked concrete
- Minimum base material thickness or greater
- Transmission of quasi-static permanent loads only
- Anchor and its plate is not exposed to UV-radiation for more than 6 weeks

Note: Each panel shall be supported by 4 anchors at least e.g. by T-joint fixing.

Recommended number of anchors for fixing panels to ceilings w/o consideration of wind load^{a)}:

Specific panels weight	Number of anchors per m ²
EPS (≤30 kg/m ³ , TR≥100 kPa, 60mm≤thickness≤260)	4
Mineral wool (≤120 kg/m ³ , TR≥3.5 kPa, 60mm≤thickness≤120mm)	
Mineral wool (≤150 kg/m ³ , TR≥3.5 kPa, 60mm≤thickness≤100mm)	
Mineral wool (≤200 kg/m ³ , TR≥3.5 kPa, 60mm≤thickness≤70mm)	5

a) These technical data are not covered by ETA-14/0400. They are based on a HILTI-internal assessment. A safety factor for dead load $\gamma_F=1,35$, a safety factor $\gamma_{M, EPS}=1,50$, a safety factor $\gamma_{M, Mineralwool}=2,00$ for material is considered.

Point thermal transmittance

Base material	Thickness [mm]	Point thermal transmittance χ [W/K]
Insulation	60-260	0,000

Plate Stiffness and plate capacity

Base material	Thickness [mm]	Capacity of plate [kN]	Plate stiffness [kN/mm]
Insulation	60-260	1,4	0,6

Service temperature range

	Base material temperature	Maximum long term base material temperature	Maximum short term base material temperature
Temperature range	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

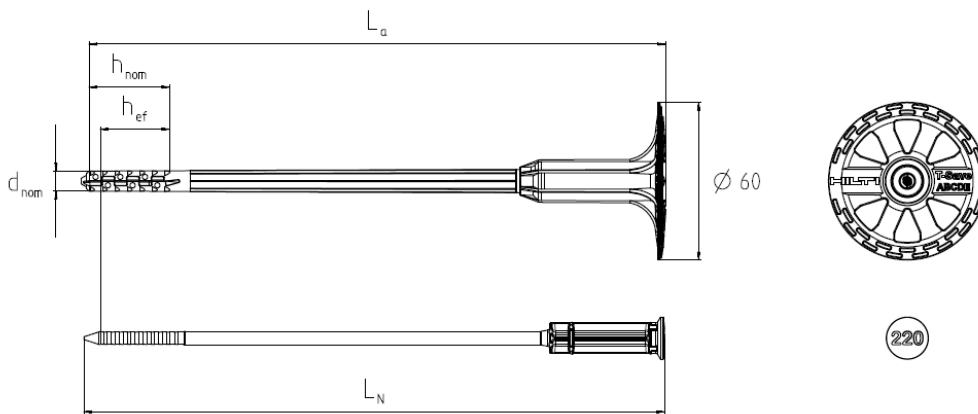
Long-term elevated base material temperatures are roughly constant over significant periods of time.

Materials

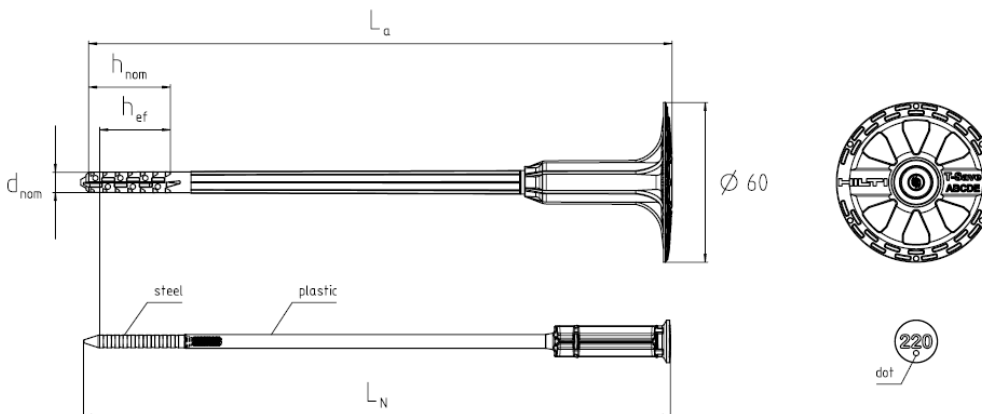
Material quality

Part		Material
Anchor sleeve	HTS-P and HTS-M	Polyethylene, black
Anchor plate	HTS-P und HTS-M	Polypropylene, white
Expansion pin	HTS-P	Polyamide, fiber reinforced 50%, black
Expansion pin	HTS-M	Expansion element: steel Shaft: polyamide, fiber reinforced 50%, black
Slip-on plate	HDT 90	Polypropylene, fiber reinforced, white
Slip-on plate	HDT 140	Polyamide, fiber reinforced, white

T-Save HTS-P



T-Save HTS-M



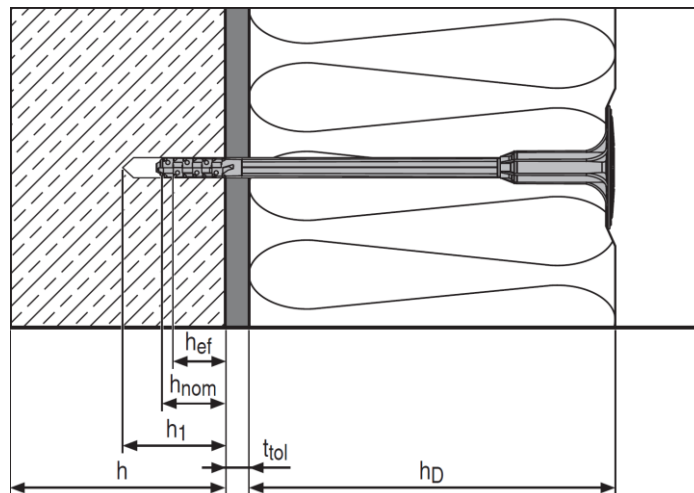
Anchor dimensions

		T-Save HTS-P / T-Save HTS-M
Diameter of sleeve	d_{nom} [mm]	8
Minimum length of anchor body	$L_{a,min}$ [mm]	100
Maximum length of anchor body	$L_{a,max}$ [mm]	300
Minimum length of pin	$L_{N,min}$ [mm]	101
Maximum length of pin	$L_{N,max}$ [mm]	301

Anchor designations

		T-Save HTS-P / T-Save HTS-M
Expansion screw	Top of head	T-Save HTS-P: Anchor length L_a (e.g. "220") T-Save HTS-M: Anchor length L_a (e.g. "220" and a dot •)
Plate	Top of plate	Producer: HILTI
		Anchor type: T-Save
	Bottom side of plate	Base material categories: A, B, C, D, E Nominal embedment depth: $h_{nom}=30$ mm for base material categories A, B, C, D, E Nominal drill bit diameter: 8 mm

Setting information



Setting details:

		T-Save HTS-P / T-Save HTS-M
Nominal diameter of drill bit	d_o [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8,45
Depth of drill hole	$h_1 \geq$ [mm]	40
Effective anchorage depth	h_{ef} [mm]	25
Overall embedment depth	h_{nom} [mm]	30
Thickness of insulation	h_D [mm]	60 to 260
Maximum thickness of tolerance layer	$t_{tol,max}$ [mm]	$L_a - h_{nom} - h_D^{a)}$
Installation temperature	[°C]	0 to +40
UV exposure		≤ 6 weeks

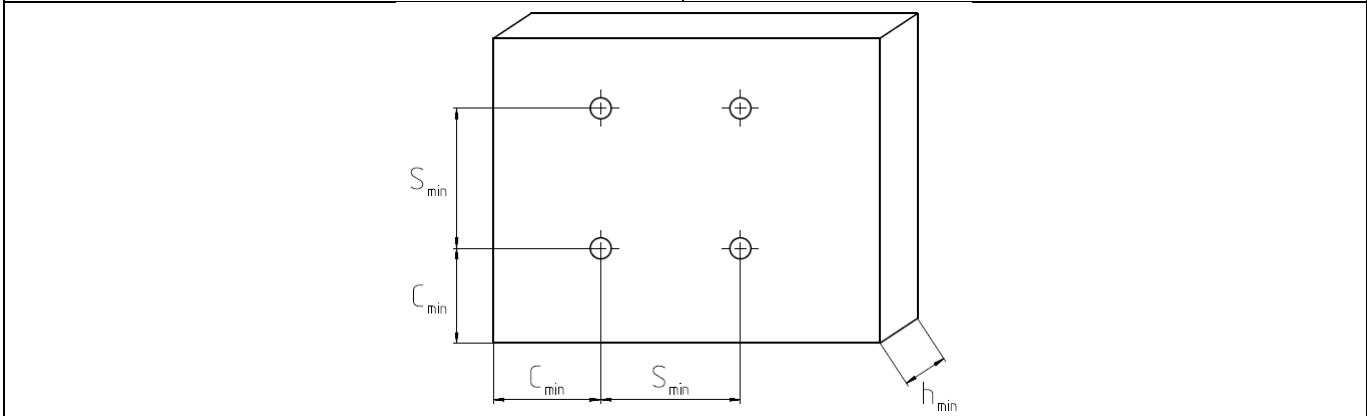
- a) L_a ... Anchor length, h_{nom} ... Overall embedment depth, h_D ... Thickness of insulation
 Example:
 T-Save HTS 8x220-P: $L_a = 220$ mm; $h_{nom} = 30$ mm; $h_D = 180$ mm
 $t_{tol,max} = 220 - 30 - 180 = 10$ mm

Installation equipment

Anchor size	T-Save HTS-P / T-Save HTS-M
Rotary hammer	Corded: HILTI TE 2 – TE 7 Battery: HILTI TE2-A22, TE4-A22, TE6-A36
Installation	Hammer 500g to 1500g

Minimum edge distance, minimum spacing and minimum base material thickness

		T-Save HTS-P / T-Save HTS-M
Minimum base material thickness	h_{min} [mm]	100
Minimum spacing	S_{min} [mm]	100
Minimum edge distance	C_{min} [mm]	100



Setting instruction*

*For detailed information on installation see instruction for use given with the package of the product.

Setting instructions	
<p>1. Drill hole with drill bit</p>	<p>2. Insert the fastener by hand</p>
<p>3. Tap fastener with a hammer</p>	<p>4. Check correct setting</p>