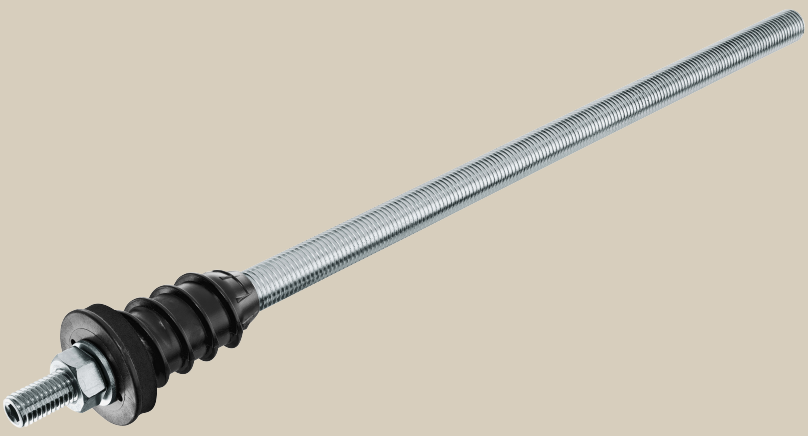
HIK-T
Distance mounting system

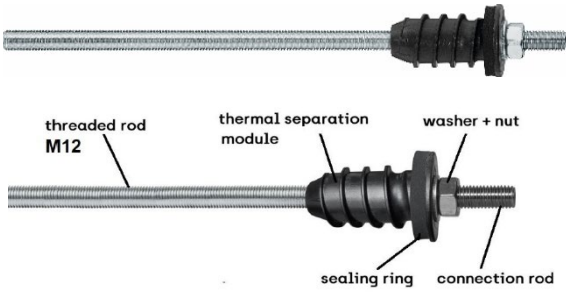
Technical Datasheet
Update: Mar-24



HIK-T Distance mounting system

Post-installed thermal insulation anchor system to be used in concrete and masonry.

Anchor version

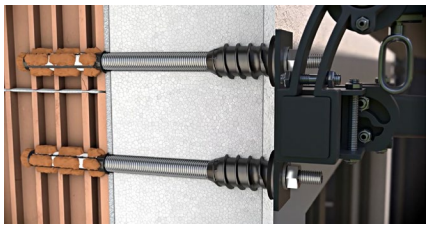


HIK-T 8.8 12 (M12 rod 8.8, carbon steel)
HIK-T A4 12 (M12 rod A4-70)
HIK-T 8.8 16 (M16 rod 8.8, carbon steel)
HIK-T A4 16 (M16 rod A4-70)

Benefits

- Up to 40% faster installation per fixing point compared to conventional spacer mounting systems
- Integrated sealing ring reliably keeps water away from installation (in accordance with EN 1027)

Application



The HIK-T Thermal anchors are used to attach heavy duty fixtures such as awnings, French balconies, canopies, satellite dishes, etc. to the load bearing wall through an External Thermal Insulation Composite System (ETICS).

The HIK-T Thermal anchor is characterized by the presence of a thermal separation module to reduce the thermal bridge due to the fastening through the insulation layer and sealing ring to ensure water tightness.

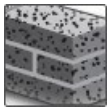
The HIK-T Thermal anchors can be used in:

- Masonry:
  with Hilti injection mortars HIT-HY 270, HIT-HY 170, HIT-MM Plus.
- Cracked and uncracked concrete:
  with Hilti injection mortars HIT-HY 200-A/R, HIT-HY 200-A/R V3, HIT-HY 170, HIT-CT 1.
- Uncracked concrete:
  with Hilti injection mortars HIT-MM Plus.

Base material


Concrete (uncracked)


Concrete (cracked)

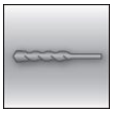

Solid brick


Hollow brick

Load conditions


Static/quasi-static

Drilling, cleaning, setting


Hammer drilled holes with and without hammering mode

Other information

Approvals / certificates

Description	Authority / Laboratory	No./ date of issue
European Technical Assessment	ETA-Danmark A/S	ETA-22/0275 / 2023-07-24
Driving rain resistance according to EN 1027	PfB Rosenheim	Nr. 2021-01-0414-K5

Recommended loading data based on ETA-22/0275
Design according to EN 1992-4 / EOTA TR 054 and EOTA TR 077

All data in this section applies to:

- Short-term loads (e.g., wind load).
- Maximum recommended loads of one, not free rotatable, HIK-T (i.e., baseplate that does not rotate under shear loading).
- For the verification at the ultimate limit state the partial safety factors of γ_M according to the ETA-22/0275 are considered. The increasing factor γ_F = 1,4 is considered for the calculation of the recommended loads.
- For the verification at the serviceability limit state the displacements of 3 mm in shear and 1 mm in tension are considered. These limits ensure driving rain resistance, where the anchor penetrates the plaster system of the ETICS in accordance with the provision of PfB-report Driving rain resistance according to EN1027.
- Loads account for the displacements in the base material according to EN 1992-4 and EOTA TR 054 for concrete and masonry, respectively, as well as the displacements in the insulation according to EOTA TR 077.
- Stiff base plate with thickness t_{fix} = 6mm.
- No consideration of the interaction between the loads N_{rec} and V_{rec}.
- The recommended loads provided are valid for anchorages in dry base substrates (use category d/d), for average temperatures up to 24°C (maximum temperature up to 40°C) in the base material, and for average temperature up to 50°C (maximum temperature up to 80°C) within the rendering and insulation (ETICS).
- For compression loads see the ETA-22/0275 and EOTA TR 077.
- The recommended shear load for intermediate values of lever arm e can be interpolated.

Note: The following table does not represent a full design case. A complete design e.g., under consideration of combined acting tension and shear loads, compression loads, bending moment introduction into the base material, filled or not filled masonry joints as well as edge and space distances, shall be done in accordance with EN1992-4, EOTA-TR054, EOTA TR077, ETA-22/0275 for HIK-T and the related ETAs for the relevant base material.

Contact the Hilti back-office engineering team to perform your detailed design for this application considering specific loading configurations and including additional base materials.

Solid base materials

Base material and mortar system	HIK-T	h_{ef} [1] [mm]	Tension load N_{rec} [kN]	Shear load V_{rec} [kN] e = distance between surface of base material to the plaster surface [mm]									
				e 60	e 100	e 120	e 140	e 160	e 180	e 200	e 220	e 250	e 300
Cracked concrete C20/25 Hilti HIT-HY 200 A/R (V3) 	HIK-T 12 8.8 steel	70	5,14	1,42	1,06	0,90	0,78	0,68	0,53	0,37	0,22	-	-
	HIK-T 12 A4-70	70	5,14	1,15	0,74	0,63	0,55	0,48	0,43	0,37	0,22	-	-
	HIK-T 16 8.8 steel	80	4,57	2,14	2,14	1,79	1,46	1,12	0,79	0,70	0,60	0,46	0,21
	HIK-T 16 A4-70	80	4,57	2,14	1,85	1,58	1,37	1,12	0,79	0,70	0,60	0,46	0,21
Solid clay brick Mz-20–NF; 20 N/mm² Hilti HIT-HY 270 	HIK-T 12 8.8 steel	100	1,71	1,42	1,06	0,90	0,77	0,63	0,50	0,36	0,21	-	-
	HIK-T 12 A4-70	100	1,71	1,15	0,74	0,63	0,55	0,48	0,43	0,36	0,21	-	-
	HIK-T 16 8.8 steel	100	1,71	2,14	2,00	1,52	1,28	1,01	0,73	0,65	0,56	0,44	0,21
	HIK-T 16 A4-70	100	1,71	2,14	1,85	1,52	1,28	1,01	0,73	0,65	0,56	0,44	0,21
Solid calcium silicate brick KS-20-8DF; 20 N/mm² Hilti HIT-HY 270 	HIK-T 12 8.8 steel	80	3,42	1,42	1,06	0,80	0,70	0,59	0,47	0,34	0,21	-	-
	HIK-T 12 A4-70	80	3,42	1,15	0,74	0,63	0,55	0,48	0,43	0,34	0,21	-	-
	HIK-T 16 8.8 steel	80	3,42	2,14	1,58	1,27	1,09	0,89	0,66	0,60	0,52	0,41	0,20
	HIK-T 16 A4-70	80	3,42	2,14	1,58	1,27	1,09	0,89	0,66	0,60	0,52	0,41	0,20

[1] The values of h_{ef} are used for the calculation of N_{rec} only. For the calculation of V_{rec} smaller values of h_{ef} may be required for large values of e considering maximum length of HIK-T M12 = 302 mm and M16 = 392 mm.

Hollow bricks

Base material and mortar system	HIK-T	h_{ef} [1] [mm]	Tension load N_{rec} [kN]	Shear load V_{rec} [kN] e = distance between surface of base material to the plaster surface [mm]									
				e 60	e 100	e 120	e 140	e 160	e 180	e 200	e 220	e 250	e 300
Hollow clay brick HLz-20-1,4; 20 N/mm² Hilti HIT-HY 270 HIT-SC 18x50+18x85 	HIK-T 12 8.8 steel	130	2,28	1,42	1,06	0,85	0,73	0,61	0,49	0,35	0,21	-	-
	HIK-T 12 A4-70	130	2,28	1,15	0,74	0,63	0,55	0,48	0,43	0,35	0,21	-	-
	HIK-T 16 8.8 steel	130	2,28	2,14	1,78	1,40	1,18	0,95	0,69	0,63	0,54	0,42	0,21
	HIK-T 16 A4-70	130	2,28	2,14	1,78	1,40	1,18	0,95	0,69	0,63	0,54	0,42	0,21
Hollow calcium silicate brick KSL-12-1,4; 12 N/mm², Hilti HIT-HY 270 HIT-SC 18x50+18x85 	HIK-T 12 8.8 steel	130	1,42	1,42	1,06	0,88	0,75	0,62	0,49	0,36	0,21	-	-
	HIK-T 12 A4-70	130	1,42	1,15	0,74	0,63	0,55	0,48	0,43	0,36	0,21	-	-
	HIK-T 16 8.8 steel	130	1,42	2,14	1,91	1,47	1,24	0,98	0,71	0,64	0,56	0,43	0,21
	HIK-T 16 A4-70	130	1,42	2,14	1,85	1,47	1,24	0,98	0,71	0,64	0,56	0,43	0,21
Hollow lightweight concrete brick Hbl-2-0,7; 2 N/mm² Hilti HIT-HY 270 HIT-SC 18x85+18x85 	HIK-T 12 8.8 steel	160	1,28	1,42	1,06	0,89	0,76	0,63	0,50	0,36	0,21	-	-
	HIK-T 12 A4-70	160	1,28	1,15	0,74	0,63	0,55	0,48	0,43	0,36	0,21	-	-
	HIK-T 16 8.8 steel	160	1,28	2,14	1,94	1,49	1,25	0,99	0,72	0,64	0,56	0,43	0,21
	HIK-T 16 A4-70	160	1,28	2,14	1,85	1,49	1,25	0,99	0,72	0,64	0,56	0,43	0,21

[1] The values of h_{ef} are used for the calculation of N_{rec} only. For the calculation of V_{rec} smaller values of h_{ef} may be required for large values of e considering maximum length of HIK-T M12 = 302 mm and M16 = 392 mm.

Setting information

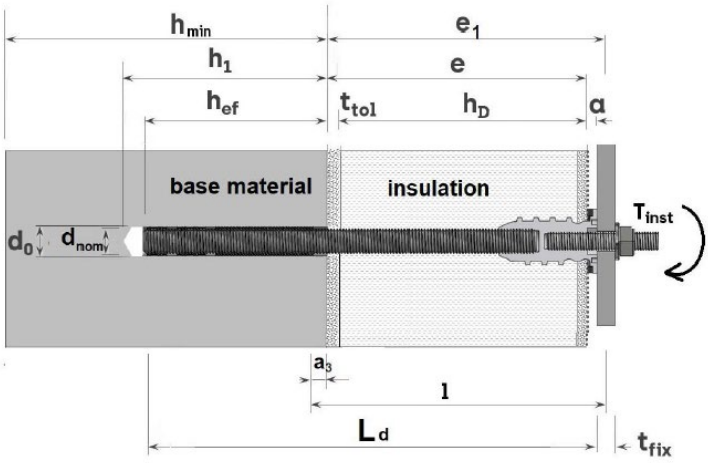
Setting instruction for use in concrete and masonry

For detailed information on installation in concrete and masonry base materials, please refer to the instructions for use given in ETA-22/0275 and the applicable anchor mortar ETA.

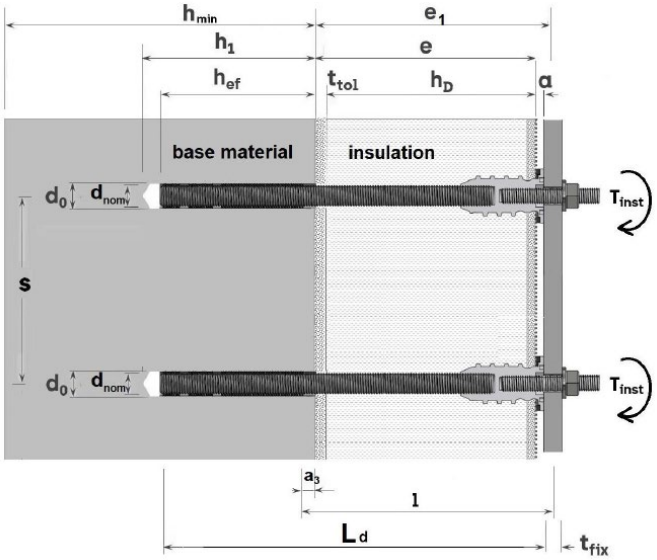
Setting instructions of the HIK-T system

Setting details

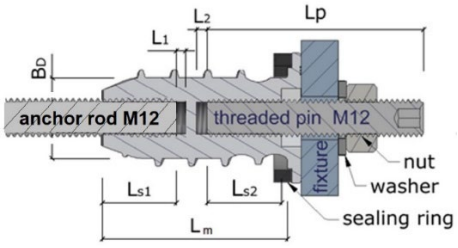
			HIK-T 12	HIK-T 16
Total length incl. anchor rod	L_d	[mm]	≤ 302	≤ 392
Length of the thermal separation module	L_m	[mm]	60	
Core diameter of the thermal separation module	B_D	[mm]	26	
Diameter cover disc	K_D	[mm]	42	
Diameter of anchor rod	d_{nom}	[mm]	12	16
Thickness of non-load bearing plaster, adhesive or similar materials	t_{tol}	[mm]	optional	optional
Insulation thickness (incl. insulation plaster)	h_D	[mm]	60 - 220	60 - 300
Lever arm for calculation of shear load with lever arm	l	[mm]	$a_3 + e_1$	
Distance between surface of base material to the plaster surface (non-bearing materials)	e	[mm]	$h_D + t_{tol}$	
Distance between shear load and surface of the base material	e_1	[mm]	$e + a + t_{fix} / 2$	
Gap between plaster surface and fixture	a	[mm]	3 – 3,5	
Additional length for lever arm	a_3	[mm]	$0,5 * d_{nom}$	
Min. screw-in depth M12 resp. M16 anchor rod	L_{s1}	[mm]	24	
Min. screw-in depth M12 (pin)	L_{s2}	[mm]	24	
Adjusting length M12 resp. M16 anchor rod (base material side)	L_1	[mm]	3	
Adjusting length M12 pin (fixture side)	L_2	[mm]	3,5	
Spacing between anchor rods	s	[mm]	in accordance with ETA of anchor adhesive	



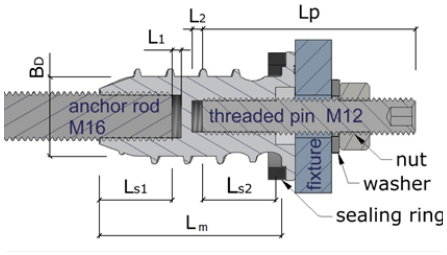
Single fixing – anchor's free end is rotatable under an acting shear load



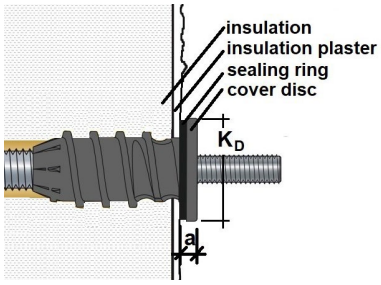
Multiple fixing – anchor's free end is not rotatable under an acting shear load, provided that the fixed baseplate is sufficiently rigid



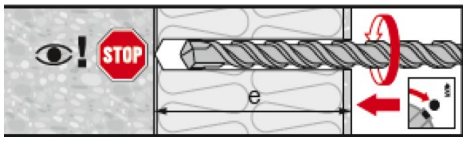
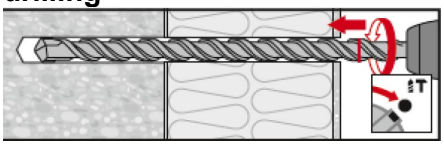
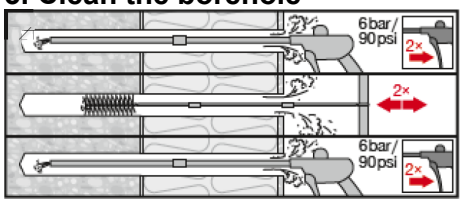
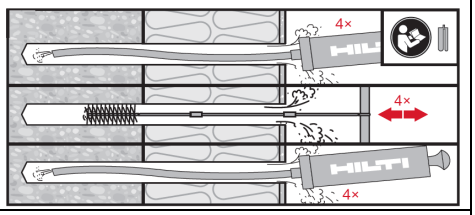
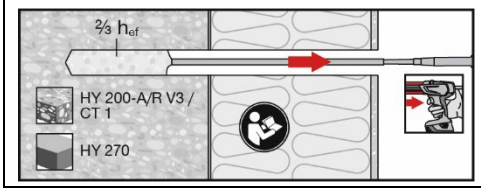
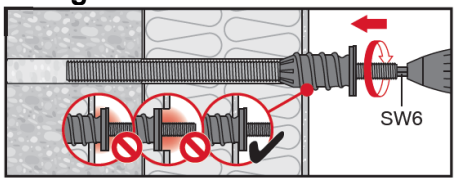
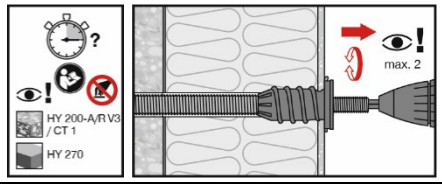
HIK-T 12 installed conditions



HIK-T 16 installed conditions



installed conditions to ensure sealing against driving rain

Setting instruction for HIK-T in solid base material		
1. Drill a hole through plaster in rotary mode 	**2. Drill a hole in the base material switching to hammer drilling** 	**3. Clean the borehole**  **or** 
4. Inject the adhesive starting at the back of the borehole 	**5. Screw-in the anchor system, use an electric screwdriver with hexagonal drive size SW6** 	**6. Checking the system** 

For installation in hollow base material please refer to the installation instruction delivered with the HIK-T.