

Technical data sheet

SIMPSON

Strong-Tie

HTT Hold Down

Ideal for existing or new construction, HTT Tension ties provide a high strength timber to concrete, or timber to masonry, tension connection

The long vertical leg makes it possible to add the required number of fasteners (CNA Nails and CSA Screws) in a vertical post and still comply to relevant standards with regards to fastener spacing requirements.

The unique design of the HTT - a multi ply seat formed from a single piece of steel - gives the tension tie extra strength at the concrete / masonry anchorage point

Features

Material

Z275 Pre-galvanised mild steel.

Benefits

- Enables a connection to concrete structure.

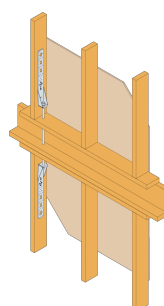
Applications

Connections

Timber Members

When to Use

- Timber structures which exerted to high uplift forces can be connected to concrete structures with the HTT Hold Down.
- Tension force connection between timber floor joists and masonry walls



HTT Hold Down

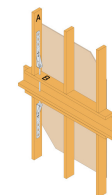
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Product Dimensions



References	DB nr.	NOBB nr.	Product Dimensions [mm]						Flange A			Flange B			Box Quantity
			A	B	C	D	E	t	Ø4,7	Ø5	Ø21	Ø17,5	Ø18	Ø25	
HTT4	1388657	42922721	314	60	64	11.4	35	2.8	18	-	-	1	-	-	16
HTT5	1388655	42922755	403	56	64	11.4	35	2.8	26	-	-	1	-	-	10
HTT22E	2049836	-	558	60	63	12	33	3	-	31	3	-	1	-	10
HTT31	2151752	-	790	60	90	12	33	3	-	41	6	-	-	1	5

Capacities



References	Number of Fasteners				Characteristic capacities - Timber C24 to concrete [kN]									
	Joist		Flange B		R _{1,k} (without US50/50/8 washer)								R	
	Qty	Type	Qty	Type	CNA4,0x35	CNA4,0x40	CNA4,0x50	CNA4,0x60	CSA5,0x35	CSA5,0x40	CSA5,0x50	CSA5,0x80	CNA4,0x35	
HTT4	n	CNA	1	M16	min [(n-3.5)*1.66; 15.4; 43/kmod]	min [(n-3.5)*1.83; 18.6; 43/kmod]	min [(n-3.5)*2.22; 24.7; 43/kmod]	min [(n-3.5)*2.36; 31; 43/kmod]	-	-	-	-	min [(n-3.5)*1.66; 19.7]	
HTT5	n	CNA	1	M16	min [(n-3.5)*1.66; 15.4; 43/kmod]	min [(n-3.5)*1.83; 18.6; 43/kmod]	min [(n-3.5)*2.22; 24.7; 43/kmod]	min [(n-3.5)*2.36; 31; 43/kmod]	-	-	-	-	min [(n-3.5)*1.66; 19.7]	
HTT22E	n (1)	CNA/CSA	1	M16	min [(n-3.5)*1.66; 32.6; 57.5/kmod]	min [(n-3.5)*1.83; 39.6; 57.5/kmod]	min [(n-3.5)*2.22; 42.3; 57.5/kmod]	min [(n-3.5)*2.36; 53.1; 57.5/kmod]	min [(n-3.5)*1.99; 91.1; 57.5/kmod]	min [(n-3.5)*2.25; 106.7; 57.5/kmod]	min [(n-3.5)*2.63; 138.2; 57.5/kmod]	min [(n-3.5)*3.5; 232.4; 57.5/kmod]	-	
HTT31	n (2)	CNA/CSA	1	M24	min [(n-4)*1.66; 144.1; 85.1/kmod]	min [(n-4)*1.83; 144.1; 85.1/kmod]	min [(n-4)*2.22; 144.1; 85.1/kmod]	min [(n-4)*2.36; 144.1; 85.1/kmod]	min [(n-4)*1.99; 144.1; 85.1/kmod]	min [(n-4)*2.25; 144.1; 85.1/kmod]	min [(n-4)*2.63; 144.1; 85.1/kmod]	min [(n-4)*3.5; 144.1; 85.1/kmod]	-	

Quantity of fasteners (n) may be chosen by the user. Capacity is then calculated with this number n.

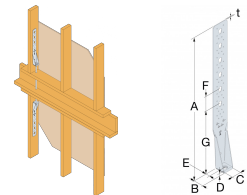
(1) n is equal to 10 a maximum.

(2) 4 CSA5.0x80 must always be installed on the bottom extremity of the oblong holes to reach the capacities of other fastener in these 4 holes, the capacity shall be calculated according to ETA.

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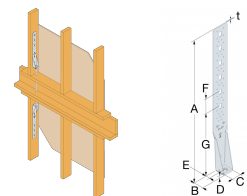
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Product capacities - simplified values

References	Product capacities - Timber to Concrete													
	Number of Fasteners				Characteristic capacities - Timber C24 to concrete [kN]									
	Flange A		Flange B		$R_{1,k}$ (without US50/50/8 washer)								$R_{1,k}$ (V)	
	Qty	Type	Qty	Type	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x35	CSA5.0x40	CSA5.0x50	CSA5.0x80	CNA4.0x35	CNA4.0x40
HTT4	18	CNA	1	M16	15.4	18.6	24.7	31	-	-	-	-	19.7	-
HTT5	18	CNA	1	M16	15.4	18.6	24.7	31	-	-	-	-	19.7	-
HTT22E	26	CNA/CSA	1	M16	32.6	39.6	42.3	52.3	44.8	50.6	52.3	52.3	-	-
HTT31	39	CNA/CSA	1	M24	58.1	64.1	77.4	77.4	69.7	77.4	77.4	77.4	-	-

Simplified numerical characteristic capacities values are based on load duration and service class assumption (class 2, $k_{mod} = 1.1$). For other load duration, service class and fasteners, please refer to ETA-07/0285. For HTT31, 4 CSA5.0x50 must always be installed on the bottom extremity of the oblong holes to reach the capacities. For other fasteners in these holes, the calculation shall be calculated according to ETA.



Product capacities with Zykt, simplified

References	Product capacities with ZYKT [kN]						
	Fastener						Characteristic capacities - Timber C24 to concrete [kN]
	Flange A				Flange B		$R_{1,k}$
	Qty	Type	Qty	Type	Qty	Type	
HTT4	-	-	-	-	-	-	-
HTT5	-	-	-	-	-	-	-
HTT22E	-	-	-	-	-	-	-
HTT31	-	-	-	-	-	-	-

The capacities for the ZYKT69 are determined for an embedding length of the screws of the ZYKT of 280 mm. Details of the Zykt are given in ETA-07/0317. The essential CNA / CSA have to be placed in the oblong holes (lower side), and for the HTT22E also in the 2 lowermost holes Ø5 mm. Simplified numerical characteristic capacities values are based on load duration and service class assumption (Instantaneous, Service class 2, $k_{mod} = 1.1$). For other load duration, please refer to ETA-07/0285.

HTT Hold Down

Installation

Fixing

Fastening into Timber Stud:

- 4mm CNA Nails
- 5mm CSA Screws

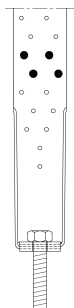
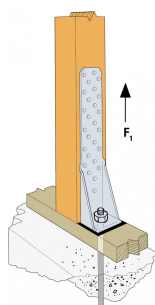
for fastener & capacity options see 'Product Capacities - Simplified Values' table

Fastening to the concrete:

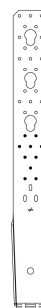
- Mechanical anchors: M16 WA Anchor or BOAX-II
- Chemical anchors: injection mortar SET-XP or AT-HP + M16 threaded rod LMAS

Installation

- The connector is mounted with a suitable M16 bolt to the concrete or masonry wall, and the vertical leg is fastened with 4mm CNA Nails, or 5.0mm CSA Screws, to the timber.



For HTT5 these holes must always be filled.



For HTT22E these holes must always be filled



HTT22E Nail pattern

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