



„Innovationen im Holzbau“

GH - HT tension tie

ETA-10/0010



Properties

Steel grade S 355
Surface Fe Zn 12c

Fasteners

Fixing on the floor in concrete, masonry, steel, timber

Concrete screw, stud anchor, chemical anchor, screws and bolts to DIN 601 / ISO 4016

Wall fixing in timber with connectors to ETA-13/0523

GH connector nails (threaded nails) 4.0 x 40 / 50 / 60 / 75 / 100 mm

GH screw 5.0 x 35 / 40 / 50 / 60 / 70 mm

The wall/column joint can also be made with an interlayer (e.g. OSB) according to ETA 10/0010.

Nail pattern

Minimum number of nails/screws, see load-capacity table, "min. $n_{\text{nail/screw}}$ " column

Calculation of the design value of the load-carrying capacities to ETA-10/0010

n_1	=	Number of holes, timber
n_2	=	Number of holes, concrete
LDC	=	Load duration class to EN 1995-1-1
$n_{\text{nail/screw}}$	=	Minimum number of nails \varnothing 4 mm or screws \varnothing 5 mm
$F_{z,Rk}$	=	Characteristic value of the load-carrying capacity in the load direction F_z
$F_{z,Rd}$	=	Design value of load-carrying capacity in load direction F_z
k_1	=	Factor for calculating the tensile force in the anchor bolt/concrete dowel: $F_{B,Ed} = k_1 \cdot F_{z,Ed}$

Remarks:

The load-bearing capacities only apply to the given minimum number of fasteners $n_{\text{nail/screw}}$. The table values apply to a char. density of timber of at least 350 kg/m³.

The fastener minimum edge distances to EC5 shall be satisfied. Minimum distance of the fastener from the end-grain end $a_{3,t}$: 60 mm for nails \varnothing 4 mm and 75 mm for screws \varnothing 5 mm.

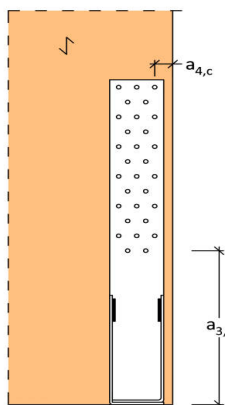
All calculations and values are exclusively for GH products and their fasteners.

The load-bearing capacities were determined on the basis of ETA 13/0523. It is not possible to transfer the values to third party makes.

Disclaimer:

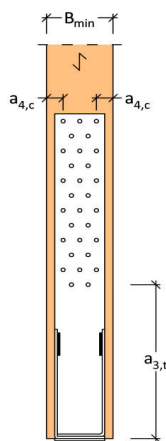
Despite careful calculations and checking, no liability is accepted for the technical data. Subject to change without notice

Anschluss CLT Wandelement



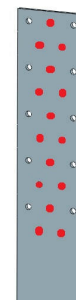
$a_{3,t} = 15 d$
 $a_{4,c} = 5 d$

Stützenanschluss (VH, BSH)



$B_{\min} = 80 \text{ mm}$ für Nägel \varnothing 4 mm
 $B_{\min} = 90 \text{ mm}$ für Schrauben \varnothing 5 mm
 $a_{3,t} = 15 d$
 $a_{4,c} = 5 d$

Example for possible nail pattern



ETA-13/0523





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Resistances without washer

Art.No.	Type	Dimensions [mm]						n ₁ Ø 5.0	n ₂ Ø	LDC	4x40 5x40		4x50 5x50		4x60 5x60		k _t	
		H	L	B	T	min. n _{Nä screw}	F _z [kN]				min. n _{Nä screw}	F _z [kN]	min. n _{Nä screw}	F _z [kN]				
															F _z [kN]	F _z [kN]		F _z [kN]
11060340	GH HT16	340	x	63	x	60	x	3,0	20	1x17	short-term	20	26,2	20	29,5	20	31,4	1,0
											instantaneous	20	32,0	20	36,1	20	38,3	
											charac.	20	37,8	20	42,0	19	42,0	
11060440	GH HT22	440	x	63	x	60	x	3,0	30	1x17	short-term	30	39,3	29	27	22	42,0	1,0
											instantaneous	27	42,0	24	42,0	19	42,0	
											charac.	23	42,0	20	42,0	19	42,0	
11060540	GH HT28	540	x	63	x	60	x	3,0	45	1x17	short-term	33	42,0	29	27	22	42,0	1,0
											instantaneous	27	42,0	24	42,0	19	42,0	
											charac.	23	42,0	20	42,0	19	42,0	
11080620	GH HT34	620	x	83	x	80	x	3,0	55	1x22	short-term	33	42,0	29	27	22	42,0	1,0
											instantaneous	27	42,0	24	42,0	19	42,0	
											charac.	23	42,0	20	42,0	19	42,0	

Resistances (load-carrying capacities) with washer type 60 for F_z larger than 42 kN

Art.No.	Type	Dimensions [mm]						n ₁ Ø 5.0	n ₂ Ø	LDC	4x40 5x40		4x50 5x50		4x60 5x60		k _t	
		H	L	B	T	min. n _{Nä screw}	F _z [kN]				min. n _{Nä screw}	F _z [kN]	min. n _{Nä screw}	F _z [kN]				
															F _z [kN]	F _z [kN]		F _z [kN]
11060540	GH HT28	540	x	63	x	60	x	3,0	45	1x17	short-term	39	50,7	35	50,7	33	50,7	1,0
											instantaneous	32	63,4	29	63,4	27	63,4	
											charac.	34	63,4	30	63,4	28	63,4	
1105056	Washer type 60	50 x 56 x 10,0							Ø 18									

Resistances (load-carrying capacities) with washer type 80 for F_z larger than 42 kN

Art.No.	Type	Dimensions [mm]						n ₁ Ø 5.0	n ₂ Ø	LDC	4x40 5x40		4x50 5x50		4x60 5x60		k _t	
		H	L	B	T	min. n _{Nä screw}	F _z [kN]				min. n _{Nä screw}	F _z [kN]	min. n _{Nä screw}	F _z [kN]				
															F _z [kN]	F _z [kN]		F _z [kN]
11080620	GH HT34	620	x	83	x	80	x	3,0	55	1x22	short-term	53	68,2	47	68,2	44	68,2	1,0
											instantaneous	43	85,2	38	85,2	36	85,2	
											charac.	46	85,2	40	85,2	38	85,2	
1107077	Washer type 80	70 x 77 x 20,0							Ø 22									

Maximum threshold level, taking into consideration the distances from the loaded end-grain end to EC5:

130 mm for nails Ø 4 mm and 115 mm for screws Ø 5 mm for GH HT16

150 mm for nails Ø 4 mm and 135 mm for screws Ø 5 mm for GH HT22, HT28, HT34