04 TENSION TIES

TENSION TIES

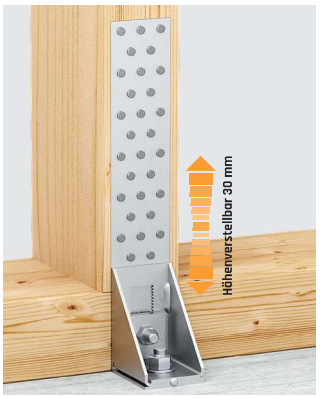
TENSION TIE HT

- Absorption of high tensile loads in timber framework construction
- Reduced overall height
- Short rib (150 mm)
- Optimised hole pattern
- They are also suitable for column connections
- Optional pressure platesl
- Use of pressure plates for tension loads up to 85 kN
- Without pressure plates for tension loads up to 42 kN

Basics of statics **from page 163** / Products & statics **from page 172**

TENSION TIEHT2

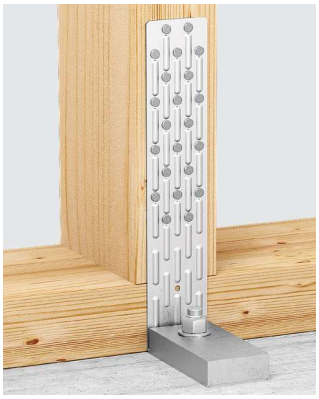
- Assembly of pull tab in wall production
- Interior walls can be fully panelled and completed
- No protruding parts during transport
- Simple and quick height compensation up to 30 mm possible on the building site
- Transfer of high tensile loads
- No improvement work on the building site



Basics of statics **from page 163** / Products & statics **from page 176**

TENSION TIE TOP 240 / TOP 280 VARIO

- Approved connection over intermediate layer
- Efficient wall or column connection on concrete
- Fast and practical processing
- Time savings - no more laborious marking and dowel drilling in advance
- Safe processing due to the coordinated system
- Direct connection to OSB boards between the timber beams is possible with GH screw



Basics of statics **from page 163** / Products & statics **from page 168**

CONNECTOR TOP 80 / TOP 120 VARIO

- No bothersome centre rib during processing
- Full nail fitting always possible
- High stability due to special, discreet corrugation
- Not a nail too many - optimal coordination of the bracket
- No fixing in the edge zone due to optimal hole pattern

Basics of statics **from page 163** / Products & statics **from page 184**

TENSION TIES

ASSORTMENT

4

							Basics Statics & Diagrams from page	Products & Statics from page
TENSION TIE TOP 240 / TOP 280 VARIO		CE	250 GD Z275	NKL 2			163	168
TENSION TIE HT		CE	355 MC galv. verzinkt	NKL 2			163	172
TENSION TIEHT2		CE	355 MC galv. verzinkt	NKL 2			163	176
TENSION TIE INCLUDING PRESSURE PLATE		CE	250 GD Z275	NKL 2			163	182
CONNECTOR TOP 80 / TOP 120 VARIO		CE	250 GD Z275	NKL 2			163	184
TENSION TIE HS		CE	250 GD Z275	NKL 2			163	186
TENSION TIE HB		CE	250 GD Z275	NKL 2			163	186
TENSION TIE HSB / FLAT STEEL ANCHOR		CE	250 GD Z275	NKL 2			163	188

CE symbol

Steel with indication of the steel quality and galvanisation

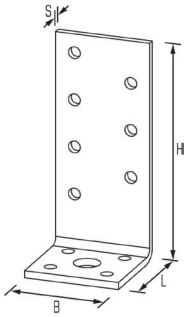
Timber/timber connection

Timber/concrete-connection

Usage class 1
Moisture content in the building materials that corresponds to a temperature of 20° C and a relative humidity of the ambient air that only exceeds a value of 65% for a few weeks per year, e.g. in the case of buildings that are closed on all sides and heated.
Comment: In UC 1, the average moisture content of most softwoods does not exceed 12 %.

Usage class 2
Moisture content in the building materials that corresponds to a temperature of 20° C and a relative humidity of the ambient air that only exceeds a value of 85% for a few weeks per year, e.g. in the case of open buildings covered by a roof.
Comment: In UC 2, the average moisture content of most softwoods does not exceed 20 %.

Usage class 3
Includes climatic conditions that lead to higher moisture contents than in UC 2, e.g. structures that are exposed to the weather without protection. Eurocode 5 / DIN EN 1995-1-1 section 2.3.1.3



TENSION TIES

TYPE HS

ETA-13 0900

NKL 2

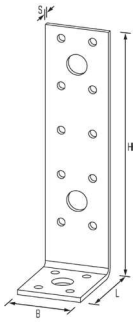
250 GD Z275

Art. No.	Dimensions [mm]							nN	nBo	EAN	Weight	Pallet	PU		
	H	x	L	x	W(B)	x	T(S)	Ø 5	Ø 11	4019346	kg				
943	90	x	35	x	40	x	3,0	11	1	110256	0.103	5400	100	■	■
944	110	x	35	x	40	x	3,0	13	1	110263	0.119	5400	100	■	■
945	130	x	35	x	40	x	3,0	15	1	110270	0.136	5100	100	■	■

4

Angle brackets HS were developed to achieve a secure fastening of timber parts on other building materials such as concrete or steel.
The short leg transfers a suction force, together with a M10 screw (+ Ø 30 washer), into the substructure.

The installation of an anchor rail (e.g. HTA 28/15 Halfen iron) enables subsequent adjustment and thus makes installation much easier. To prevent the timber parts from twisting, it is recommended that 2 brackets per connection are used.



TENSION TIES

TYPE HB

ETA-10 0010

NKL 2

250 GD Z275

Art. No.	Dimensions [mm]							nN	nBo	EAN	Weight	Pallet	PU		
	H	x	L	x	W(B)	x	T(S)	Ø 5	Ø 13	4019346	kg				
1543	155	x	50	x	40	x	3,0	18	3	110324	0.169	4200	100		■

Angle brackets HB were developed to achieve a secure fastening of timber parts on other building materials such as concrete or steel.
The short leg transfers a suction force, together with a screw into the substructure.

The installation of an anchor rail (e.g. HTA 28/15 Halfen iron) enables subsequent adjustment and thus makes installation much easier. To prevent the timber parts from twisting, it is recommended that 2 brackets per connection are used.

TYPE HS

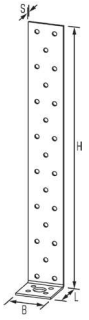
Timber / Concrete

Art. No.	Dimensions [mm]										
	H	L	W(B)	T(S)	n_a	NB	VM	$F_{1,T,Rk}$	$F_{1,Bo,ax,rk}$	$F_{2/3,T,RK}$	$F_{2/3,Bo,sx,rk}$
943	90	35	40	3,0	7	Full	4.0x40	-	-	1,70	1,70
							4.0x60	-	-	2,60	2,60
					3	Partial	4.0x40	0,90	2,20	-	-
							4.0x60	0,90	2,20	-	-
944	110	35	40	3,0	9	Full	4.0x40	-	-	2,20	2,20
							4.0x60	-	-	3,30	3,30
					5	Partial	4.0x40	0,90	2,20	-	-
							4.0x60	0,90	2,20	-	-
945	130	35	40	3,0	11	Full	4.0x40	-	-	2,80	2,80
							4.0x60	-	-	4,10	4,10
					7	Partial	4.0x40	0,90	2,20	-	-
							4.0x60	0,90	2,20	-	-

TYPE HB

Timber / Concrete

Art. No.	Dimensions [mm]				n	nBo	charakt. / KLED	4.0x40 | 5.0x40		4.0x50 | 5.0x50		4.0x60 | 5.0x60			
	H	L	B	S	Ø 5	Ø 13		$F_{z,Rk/Rd}$	n_{erf}	$F_{z,Rk/Rd}$	n_{erf}	$F_{z,Rk/Rd}$	n_{erf}	$F_{Rd,steel}$	k_t
1543	155	50	40	3,0	14	3	charact.	3,50	2	3,50	2	3,50	2	3,50	3,08
							Short	3,50	3	3,50	3	3,50	3		
							Very short	3,50	3	3,50	2	3,50	2		



ETA-10 0010

NKL 2

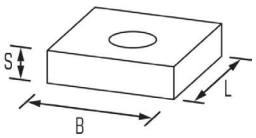
250 GD Z275

TENSION TIES

TYPE HSB

Art. No.	Dimensions [mm]							nN	nBo	EAN	Weight	Pallet	PU		
	H	x	L	x	W(B)	x	T(S)	Ø 5	Ø 14	4019346	kg				
522	200	x	40	x	40	x	2,0	19	1	110706	0.132	4200	100		■
532	300	x	40	x	40	x	2,0	27	1	110713	0.187	2400	50		■
542	400	x	40	x	40	x	2,0	34	1	110720	0.242	1800	50		■
90504	500	x	40	x	40	x	2,0	36	1	135075	0.297	2000	20		■
90505	600	x	40	x	40	x	2,0	48	1	135082	0.351	2000	20		■
524	200	x	40	x	40	x	4,0	19	1	110737	0.264	2100	50		■
534	300	x	40	x	40	x	4,0	27	1	110744	0.373	1600	50		■
544	400	x	40	x	40	x	4,0	34	1	110751	0.483	900	25		■
90512	500	x	40	x	40	x	4,0	36	1	135099	0.593	1000	20		■
90513	600	x	40	x	40	x	4,0	48	1	135006	0.703	1000	20		■

PRESSURE PLATE



TYPE HB / HSB

NKL 2

235 JR verzinkt

Art. No.	Dimensions [mm]					nBo	EAN	Weight	Pallet	PU		
	L	x	W(B)	x	T(S)	Ø 14	4019346	kg				
555	43	x	40	x	10,0	1	109991	0.137	5000	50		■

The HSB concrete flat steel anchors are used to achieve a secure fastening of timber parts on other building materials such as concrete or steel. The short leg transfers a suction force, together with a M10 screw (+ Ø 30 washer), into the substructure.

The installation of an anchor rail (e.g. HTA 28/15 half-iron) enables subsequent adjustment and thus makes installation much easier.

To prevent the timber parts from twisting, it is recommended that 2 brackets per connection are used.

For use as a flat steel anchor, the upturned part is cast in concrete.

TYPE HSB

Timber | Concrete

Art. No.	H	L	W(B)	T(S)	n	nBo	charakt. / KLED	4.0x40 | 5.0x40		4.0x50 | 5.0x50		4.0x60 | 5.0x60			
					Ø 5	Ø 13		$F_{z,Rk/Rd}$	n_{erf}	$F_{z,Rk/Rd}$	n_{erf}	$F_{z,Rk/Rd}$	n_{erf}	$F_{Rd,Stahl}$	k_t
522	200	40	40	2,0	19	1	charact.	11,60	7	11,60	6	11,60	6	11,60	3,16
							Short	11,38	9	11,60	8	11,60	8		
							Very short	11,60	8	11,60	7	11,60	7		
532	300	40	40	2,0	27	1	charact.	11,60	7	11,60	6	11,60	6	11,60	3,16
							Short	11,60	10	11,60	8	11,60	8		
							Very short	11,60	8	11,60	7	11,60	7		
542	400	40	40	2,0	34	1	charact.	11,60	7	11,60	6	11,60	6	11,60	3,16
							Short	11,60	10	11,60	8	11,60	8		
							Very short	11,60	8	11,60	7	11,60	7		
90504	500	40	40	2,0	37	1	charact.	11,60	7	11,60	6	11,60	6	11,60	3,16
							Short	11,60	10	11,60	8	11,60	8		
							Very short	11,60	8	11,60	7	11,60	7		
90505	600	40	40	2,0	48	1	charact.	11,60	7	11,60	6	11,60	6	11,60	3,16
							Short	11,60	10	11,60	8	11,60	8		
							Very short	11,60	8	11,60	7	11,60	7		
524	200	40	40	4,0	19	1	charact.	16,44	9	19,22	9	20,40	9	23,10	4,00
							Short	11,38	9	13,31	9	14,12	9		
							Very short	13,91	9	16,26	9	17,26	9		
534	300	40	40	4,0	27	1	charact.	23,10	13	23,10	11	23,10	11	23,10	4,00
							Short	21,50	17	23,10	16	23,10	15		
							Very short	23,10	15	23,10	13	23,10	13		
544	400	40	40	4,0	34	1	charact.	23,10	13	23,10	11	23,10	11	23,10	4,00
							Short	23,10	19	23,10	16	23,10	15		
							Very short	23,10	15	23,10	13	23,10	13		
90512	500	40	40	4,0	37	1	charact.	23,10	13	23,10	11	23,10	11	23,10	4,00
							Short	23,10	19	23,10	16	23,10	15		
							Very short	23,10	15	23,10	13	23,10	13		
90513	600	40	40	4,0	48	1	charact.	23,10	13	23,10	11	23,10	11	23,10	4,00
							Short	23,10	19	23,10	16	23,10	15		
							Very short	23,10	15	23,10	13	23,10	13		