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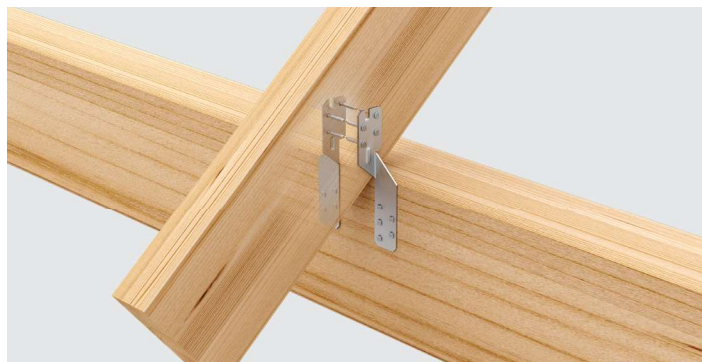
RAFTER ANCHORS TRUSS CLIPS



RAFTER ANCHORS / TRUSS CLIPS

RAFTER ANCHORS TYPE RLD

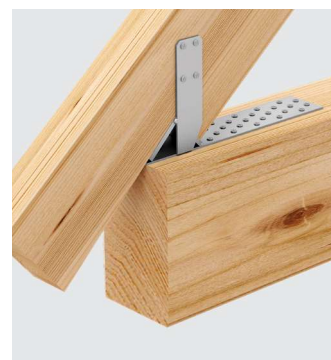
- Assembly mandrel
- Same product on the right and left side of the rafter
- For use in every rafter angle
- Patent-protected shape
- Optimised nail pattern
- Optional in **GREENLINE** = resource-saving manufacturing



Basics of statics **from page 226** / Products & statics **from page 228**

TRUSS CLIPS TYPE CONCRETE / TYPE TIMBER

- Abutment of rafters on concrete or ceiling beams
- The complex offset and the angled pivot, or clamping bolt, are not required (timber type)



Basics of statics **from page 232** / Products & statics **from page 234**

2-PIECE TRUSS CLIPS

- For fixing rafters on ceiling beams
- The complex offset and the angled pivot, or clamping bolt, are not required
- From a timber width of approx. 80 mm.



Products **on page 234**

RAFTER ANCHORS/TRUSS CLIPS

ASSORTMENT

						Length [mm]	Width [mm]	Basics Statics	Products & Statics	Products Made of V4A		
									from page	from page		
RAFTER ANCHOR RLD WITH ASSEMBLY MANDREL							170-250	36	226	228		
RAFTER ANCHORS								290-370	34,50	226	230	295
TRUSS CLIPS, TYPE CONCRETE							170	60-120	232	234		
TRUSS CLIPS, TYPE TIMBER							300	60-120	232	234		
2-PIECE TRUSS CLIPS							60	160		234		



CE symbol



Steel with indication of the steel quality and zinc coating



Stainless steel with material number



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

TRUSS CLIPS

TECHNICAL FEATURES

Geometry

W(B)	Width [mm]
L	Length [mm]
H	Height [mm]
T(S)	Material thickness [mm]

Tables

n_N	Number of nails in baseplate
n_{Bo}	Number of bolts in baseplate
$\alpha\Delta N$	Rafter angle [°]
KLED	Class of load impact duration

Timber connecting element

GH threaded nails ETA-13/0523 Ø 4.0 x 40/60 (mm)
GH screws 5.0 x 40 mm
Bolt, dowel or concrete anchor M16

Design

F_{Rk}	Design value [kN] of the load capacity of normal rafter force (1) that can be absorbed
a.	Normal force [kN] neglecting the influence of the contact force
b.	Normal force [kN] taking into account the contact force (c.); press length surface of 20 mm
c.	Normal force [kN] taking into account the contact force (c.); press length surface of 40 mm

**Steel with indication of the steel quality and zinc coating**

**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**

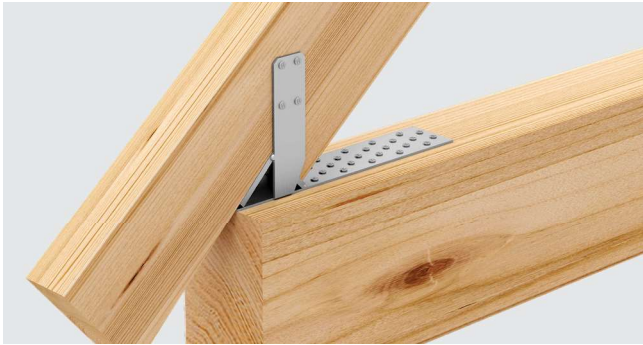
Includes climatic conditions that lead to higher moisture contents than in UC 2, e.g. structures that are exposed to the weather without protection. Eurocode 5 / DIN EN 1995-1-1 section 2.3.1.3

TRUSS CLIPS

APPLICATIONS

Application:

Truss clips are used to transfer the normal and shear forces from rafters to the timber or concrete substructure.



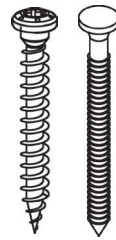
Materials:

250
GD
Z275

S235
JR
55µm

Material thickness:

2.5 mm



Connecting element:

GH threaded nails 4.0 x 40 mm

GH screws 5.0 x 40 mm

Bolt, dowel or concrete anchor M16

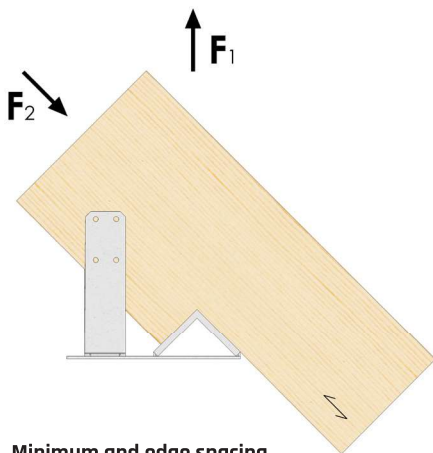
For use in usage classes



Load directions

The load is primarily introduced via two pressing surfaces.

Press surface 1 is formed between the end grain surface and steel bracket. The normal forces from the rafter are transferred to the angle via the end grain surface. The angular deviation between the perpendicular to the bracket surface and the grain direction of the rafter (for roof pitches $\alpha \geq 45^\circ$) generates a deflection force, which must also be introduced into the connector by pressing via pressing surface 2 or via the nails in the vertical leg of the truss clip. Some of these deflection forces are also overpressurised.



Minimum and edge spacing

Minimum spacing according to Eurocode 5 must be observed.

Connection to timber

The holes of vertical tabs must be fully filled with nails. With a lower number of nails, the load capacity must be reduced linearly.

Necessary contact force according to type statics;

Press surface 2 is formed between the top edge of the beam position/Concrete ceiling or the rafter holder and the bottom edge of the rafter. Additional suction loads can be absorbed by the vertical legs of the truss clip, provided the legs are nailed with comb nails 4 x 40 mm.

if the contact force is lower, the normal force increase must be reduced linearly according to the contact force difference. The load capacities only apply in combination with GH threaded nails 4.0 x 40 mm.

Connection to concrete/ steel

The type B connection is made using bolts, dowels or concrete anchors M16. Proof of fastening in concrete or to rail systems must be provided separately, depending on the manufacturer.

Design tables

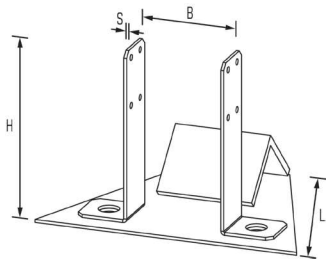
The load capacities listed in the tables were determined assuming usage classes 1 and 2 and material quality C24 or GL24c.

Calculation of the design value of load capacities according to DIN 1052:2008.12 and approval

All calculations and values are exclusively for GH products and their connecting elements. The load capacities were calculated on the basis of the corresponding approval and the specifications contained therein. Transfer of the values to other makes is not possible.

TRUSS CLIP

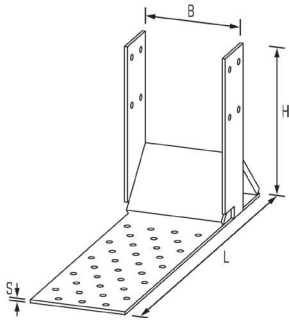
TYPE CONCRETE



Art. No.	Dimensions [mm]					nN		EAN	Weight	Pallet	PU		
	W(B)	x	L	x	T(S)	Ø 5	Ø 17	4019346	kg				
21100	60	x	170	x	2,5	8	2	155080	1.020	360	15		
21101	80	x	170	x	2,5	8	2	155035	1.200	360	15		
21102	100	x	170	x	2,5	8	2	155042	1.350	360	15		
21103	120	x	170	x	2,5	8	2	155066	1.500	240	10		

TRUSS CLIP

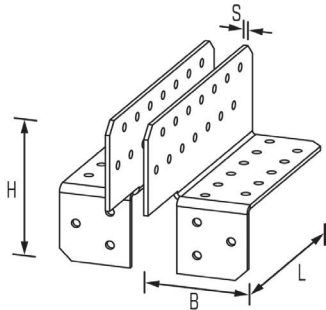
TYPE TIMBER



Art. No.	Dimensions [mm]							nN	EAN	Weight	Pallet	PU		
	W(B)	x	L	x	H	x	T(S)	Ø 5	4019346	kg				
22100	60	x	300	x	140	x	2,5	8+25	155059	1.150	480	20		
22101	80	x	300	x	140	x	2,5	8+35	155011	1.310	240	10		
22102	100	x	300	x	140	x	2,5	8+45	155028	1.470	240	10		
22103	120	x	300	x	140	x	2,5	8+55	155073	1.620	240	10		

TRUSS CLIP

TYPE 2-PIECE



Art. No.	Dimensions [mm]					nN		EAN	Weight	Pallet	PU		
	W(B)	x	L	x	T(S)	Ø 5		4019346	kg				
23101	160	x	60	x	2,5	8		155004	0.600	1200	25		

TYPE CONCRETE

Timber					Concrete				
Art. No.	H	L	W(B)	T(S)	$\alpha\Delta N^\circ$	η_{Bo} ø17	KLED medium		
							a. F_{Rd}	b. F_{Rd}	c. F_{Rd}
21100	140	170	60	2,5	60	2	11,50	17,70	21,30
21101	140	170	80	2,5	60	2	15,30	23,70	28,40
21102	140	170	100	2,5	60	2	19,10	29,60	35,50
21103	140	170	120	2,5	60	2	22,90	35,50	42,60

7

TYPE TIMBER

Timber					Timber				
Art. No.	H	L	W(B)	T(S)	$\alpha\Delta N^\circ$	η_N ø5	KLED medium		
							a. F_{Rd}	b. F_{Rd}	c. F_{Rd}
22100	140	300	60	2,5	60	6	11,50	17,70	21,30
22101	140	300	80	2,5	60	8	15,30	23,70	28,40
22102	140	300	100	2,5	60	10	19,10	29,60	35,50
22103	140	300	120	2,5	60	12	22,90	35,50	42,60