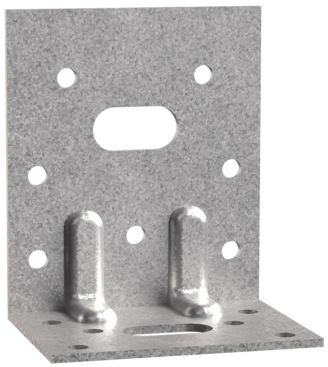
Technical Sheet

ER
Reinforced Angle Bracket

Reinforced angle brackets are suitable for structural applications in framing and wood-frame houses.



Features

Material

- Galvanized steel S250GD + Z275 according to NF EN 10346.

Applications

Header member

- **Supporting member:** solid wood, glued-laminated wood, concrete, steel, etc.
- **Supported member:** solid wood, composite lumber, glued-laminated wood, triangular trusses, profiles, etc.

For Use With

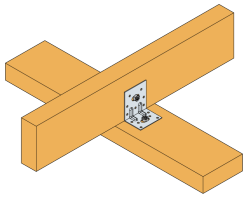
- Fastening of small trusses.
- Cladding plates, cladding uprights.
- Rafter anchors, cantilevers, headers, etc.

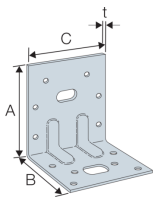
Technical Sheet

ER
Reinforced Angle Bracket

Technical Data

Product Dimensions

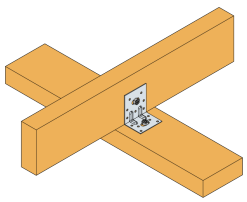


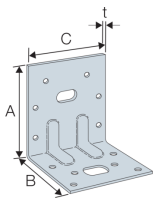


Reference	Connector Dimensions												
	Product Dimensions[mm]				Joist[mm]			Flange B[mm]					Other
	A[mm]	B[mm]	C[mm]	Thickness[mm]	Round		Obround	Round			Obround		Weight[kg]
					Ø5[mm]	Ø13	Ø11x22	Ø5[mm]	Ø11[mm]	Ø13[mm]	Ø11x22	Ø12x20	
E5/2	77	50	65	2	7	-	1	6	-	-	1	-	0.11
E19/3	153	53	75	3	15	2	-	4	-	1	-	-	0.33

*angle bracket folded at 135°

Wood/wood connection beam/beam type - assembly with 2 angle brackets





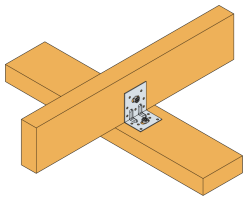
Reference	Angle bracket capacity									
	Product capacities - Timber to timber - Beam to beam - Full nailing									
	Number of Fasteners		Characteristic capacity - 2 angle brackets per connection - full nailing[kN]							
	Joist	Flange B	$R_{1,k}$				$R_{2,k}=R_{3,k}$[kN]			
	Qty	Qty	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60
E5/2	7	6	6.1	7.1	8.6	9.8	9.8	10.8	13	14
E19/3	15	4	4.9	5.6	6.7	7.4	8.2	9	10.7	11.4

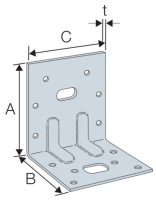
To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided that the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

Technical Sheet

ER
Reinforced Angle Bracket

Wood/wood connection post/beam type - assembly with 2 angle brackets

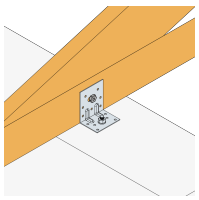


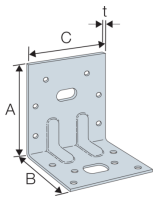


Reference	Angle bracket capacity									
	Product capacities - Timber to timber - Post to beam - Partial nailing									
	Number of Fasteners		Characteristic capacity - 2 angle brackets per connection - full nailing[kN]							
	Joist	Flange B	$R_{1,k}$				$R_{2,k}=R_{3,k}$			
	Qty	Qty	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60
E19/3	12.0	4.0	4.2	5.1	6.7	8.3	6.5	7.1	10.7	11.4

To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided that the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

Wood/rigid substrate connection beam/rigid substrate type - assembly with 2 angle brackets





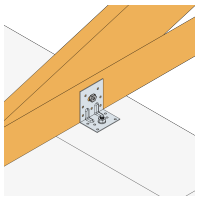
Reference	Angle bracket capacity											
	Product capacities - Timber to Concrete											
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]							
	Joist		Flange B		$R_{1,k}$				$R_{2,k}=R_{3,k}$			
	Qty	Type	Qty	Type	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60
E5/2	7	CNA	1	Ø10	8.4	8.4	8.4	8.4	- *	- *	- *	- *
E19/3	15	CNA	1	Ø12	28.1	28.1	28.1	28.1	8.1	9.2	11.6	13

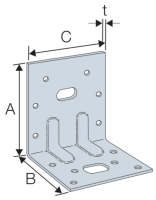
** No capacities are given as it is a slip connection due to oblong hole.*
To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided that the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

Technical Sheet

ER
Reinforced Angle Bracket

Wood/rigid substrate connection post/rigid substrate type - assembly with 2 angle brackets

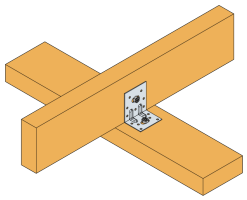


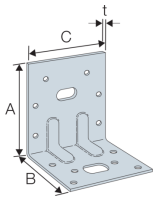


Reference	Angle bracket capacity											
	Product capacities - Timber post to rigid support											
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]							
	Joist		Flange B		$R_{1,k}$				$R_{2,k}=R_{3,k}$			
	Qty	Type	Qty	Type	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60
E19/3	12.0	CNA	1.0	Ø12	10	12.2	15.3	19.2	5.9	6.5	10	10.7

** No capacities are given as it is a slip connection due to oblong hole.*
To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided that the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

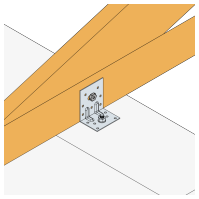
Product characteristic capacities - Timber beam to timber beam - Ø10 connector screws - 2 angle brackets

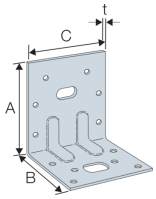




Reference	Angle bracket capacity				
	Product capacities - Timber beam to timber beam - Ø10 connector screws - 2 angle brackets				
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]
	Joist		Flange B		$R_{1,k}$
	Qty	Type	Qty	Type	SSH10x40

Product characteristic capacities - Timber beam to rigid support - Ø10 connector screws - 2 angle brackets





Reference	Angle bracket capacity				
	Product capacities - Timber beam to concrete - Ø10 connector screws - 2 angle brackets				
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]
	Joist		Flange B		$R_{1,k}$
	Qty	Type	Qty	Type	SSH10x40

Installation

Fixing

On wood:

- CNA annular ring-shank nails dia. 4.0 x 35 or dia. 4.0 x 50 mm.
- CSA screws dia. 5.0 x 35 mm or CSA screws dia. 5.0 x 40 mm.
- Bolts.
- LAG screws.

On concrete:
Concrete substrate

- *Mechanical anchor:* WA M10-78/5 OR WA M12-104/5 pin.
- *Chemical anchor:* AT-HP resin + LMAS M10-120/25 or LMAS M12-150/35 threaded rod.

Hollow masonry substrate:

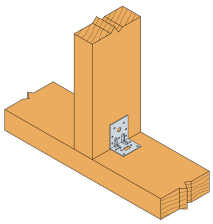
- *Chemical anchor:* AT-HP or POLY-GP resin + LMAS M12-150/35 threaded rod + SH M16-130 screen.

On steel:

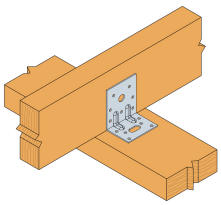
- Bolts.

Installation

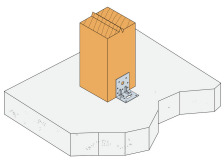
1. Come with the joist,
2. Add nails. It can be also screwed,
3. If the header is made out of timber, the angle bracket can be attached to it with nails or screw,
4. If the header is made out of concrete, the angle bracket must be attached with adapted anchors (using the installation data from the anchor)



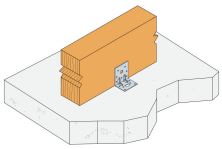
Post connection



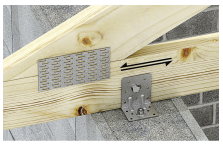
Beam connection



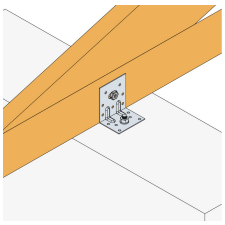
Post connection



Beam connection



E5 - Fastening Timber on rigid support/ sliding support



Technical Notes

Informations

F1: tensile force in the central axis of the angle-bracket
Particular situation of a fastening with only one angle-bracket:

- If the overall structure prevents the rotation of the purlin or the post, the tensile strength is equal to half of the given value for two angle-brackets.
- Otherwise, the connection resistance depends on the « f » distance between the vertical contact surface and the point of load application.

F2 and F3: shear lateral force
Particular situation of a connection with only one angle-bracket:

- The resistance value to consider is equal to half of the one given for two angle-brackets.

F4 and F5: transversal force directed towards or opposite the angle-bracket

- The connection resistance depends on the « e » distance between the base of the angle-bracket and the point of load application.
- To consult corresponding loads, contact us.

Only F1, F2 and F3 forces for connections with 2 angle-brackets are present on this sheet.
For more information, contact us.

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