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These angles are used for connections wood / timber, or for connecting wooden structures in concrete, steel, masonry.

Features

Material

Steel quality:

- S250GD + Z275 according to DIN EN10346

Corrosion protection:

- 275 g / m galvanized on both sides 20mm

Benefits

- Connection wood / concrete
- Load in all directions 4

Applications

Applicable materials

Wood, wood products, concrete, steel

Application area

- Coupling elements of wood or wooden materials, components made of wood / wood materials or concrete / steel

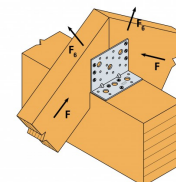
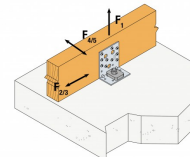
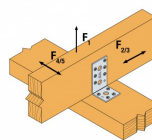
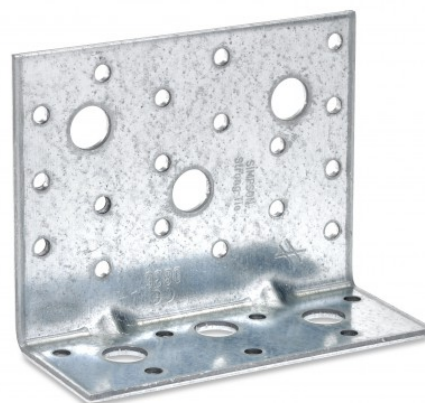
Values for joint wood and wood, two connection / partial nailing

1) $b = 80$ and $e = 120$

*) The number of nails AE116: 8 pieces in F1, F4 / 5 and 9 pieces in the F2 / 3 - Other nails found in ETA.

If the timber when the connection cannot twist, half of the values in the table can be adopted for connection with only one angle for R1 and R2 / 3 system.

If the purlins rotatable directions and forces F4 and F5 at other intervals, B and E, you can find more information on ETA.



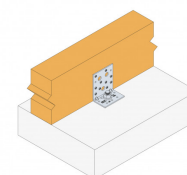
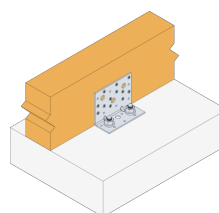
AE48



AE76



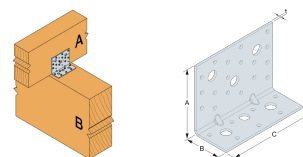
AE116



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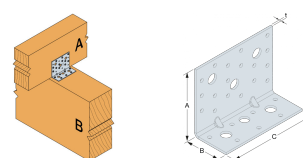
Technical Data

Product Dimensions



References	Tun / DB nr.	NOB nr.	Product Dimensions [mm]				Joist		Holes flange B	
			A	B	C	t	Ø5	Ø13	Ø5	Ø13
AE48	3779212	21220751	90	48	48	3	7	2	4	1
AE76-R	7742208	21594528	90	48	76	3	12	3	7	1
AE116	7742216	21594536	90	48	116	3	18	3	7	3

Capacities wood-wood connection - Full Nailing



References	Product capacities - Timber to timber - Maximum nailing											
	Number of Fasteners		Characteristic capacities - Timber C24 - 2 angle brackets per connection [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	CNA4.0x35	CNA4.0x40
AE48	6	4	2.5	2.9	3.8	4.9	3.5	4	4.9	6	1.1/kmod ^{0.25}	1.3/kmod ^{0.25}
AE76-R	9	7	5.1	5.8	7.7	9.8	10.4	11.6	13.4	15.6	2.5/kmod ^{0.25}	2.9/kmod ^{0.25}
AE116	12	7	5.1	5.8	7.7	9.8	14.7	16.6	20	23.2	2.8/kmod ^{0.25}	3.2/kmod ^{0.25}

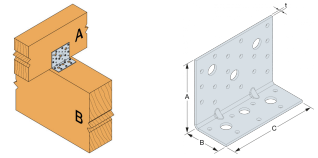
1) $R_{4/5}$ is determined for beam width $b = 75$ mm and eccentricity $e = 130$ mm.

The load capacity belongs to a load group with the modification factor k_{mod} .

If the overall structure prevents the rotation of the purlin, the load values $R_{1,k}$ and $R_{2/3,k}$ in an assembly with only one of the given values in the table

* For higher $F_{2/F3}$ capacities, Load combination and other nail patterns, refer to ETA-06/0106

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Capacities wood-wood connection / partial nailing

References	Product capacities - Timber to timber - Partial nailing											
	Number of Fasteners		Characteristic capacities - Timber C24 - 2 angle brackets per connection [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	CNA4.0x35	CNA4.0x40
AE48	4	4	2.5	2.9	3.8	4.9	3.4	3.9	4.7	5.4	1.1/kmod ^{0.25}	1.3/kmod ^{0.25}
AE76-R	7	7	5.1	5.8	7.7	9.8	8.2	9.5	11.4	13.1	2.5/kmod ^{0.25}	2.9/kmod ^{0.25}
AE116	8	7	5.1	5.8	7.7	9.8	11.9	13.8	16.9	19.4	2.8/kmod ^{0.25}	3.2/kmod ^{0.25}

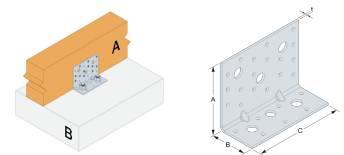
1) $R_{4/5}$ is determined for beam width $b = 75$ mm and eccentricity $e = 130$ mm.

The load capacity belongs to a load group with the modification factor k_{mod} .

If the overall structure prevents the rotation of the purlin, the load values $R_{1,k}$ and $R_{2/3,k}$ in an assembly with only one of the given value in the table

* For higher $F_{2/F3}$ capacities, Load combination and other nail patterns, refer to ETA-06/0106

Characteristic capacities - Timber to concrete



References	Product capacities - Timber to Concrete													
	Number of Fasteners				Characteristic capacities - Timber C24 - 2 angle brackets per connection [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	CNA4.0x35	CNA4.0x40
AE48	6	CNA*	1	M12	min: 12.3 ; 12.6/kmod	min: 14.9 ; 12.6/kmod	12.6/kmod	12.6/kmod	1.9	2.1	3.2	3.5	-	min 4.2/kmod
AE76-R	9	CNA*	1	M12	min: 18.7 ; 16.8/kmod	min: 22.7 ; 16.8/kmod	16.8/kmod	16.8/kmod	6.7	7.5	10.3	11.2	-	min 6.1/kmod
AE116	12	CNA*	2	M12	20.7	25.1	min: 33.3 ; 28.1/kmod	min: 38.1 ; 28.1/kmod	23	25.8	25.5	27.7	-	9 kmod

1) $R_{4/5}$ is determined for beam width $b = 75$ mm and eccentricity $e = 130$ mm.

The load capacity belongs to a load group with the modification factor k_{mod} . The characteristic anchoring strength is minimum 15,3 kN for both withdrawal and shear force. The bearing capacity value for the assembly must be reduced if the bearing capacities of the bolt is less than 15,3 kN.

If the overall structure prevents the rotation of the purlin, the load values $R_{1,k}$ and $R_{2/3,k}$ in an assembly with only one half of the given value in the table

*For higher $F_{2/F3}$ capacities, Load combination and other nail patterns, refer to ETA-06/0106

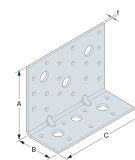
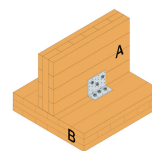
Technical data sheet

SIMPSON

Strong-Tie®

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Product capacities - CLT Beam to CLT beam - Ø12 connector screws - 2 angle brackets



References	Product capacities - CLT beam to CLT beam - Ø12 connector screws - 2 angle brackets					
	Fasteners				Characteristic capacities - Timber CLT- 2 angle brackets per connection [kN]	
	Flange A		Flange B		$R_{1,k}$	$R_{2,k} = R_{3,k}$
	Qty	Type	Qty	Type	SSH12x80	SSH12x80
AE48	-	-	-	-	-	-
AE116	3	SSH	3	SSH	33	29.5

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Installation

Installation

- Timber to timber:
 - CNA4,0xℓ nails or CSA5,0xℓ screws for fastening in wood.
- Timber to concrete :
 - One or two M12 bolts with washer US40/40/10G for fastening.
- CLT beam to CLT beam :
 - SSH Ø 12.0 x 80 mm (for AE116)

