Technical Sheet

ABR
ABR 170

Suitable for joints where you need a larger load, angle of ribs.
material

Features

Material

Steel grade:

S250GD + Z275 according to DIN EN10346

Corrosion protection:

275 g / m galvanized on both sides 20mm

Benefits

- **High levels of load in three directions**
- **optimized use of nails needed to install**
- **suitable for connection to the concrete**

Applications

Applicable materials

Wood, wood products, concrete, steel

Application area

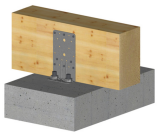
- **For connections of intersecting beams, purlins and rafters joint, as a substitute for a joist hanger, upper nail 160 mm, concrete screw M10**

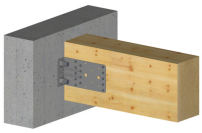
Values for joint wood and wood, two connections
**** Choose the largest number of nails for combined loads**

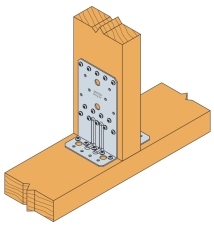
***** R4 / 5 s b> e 60 mm and <90 mm. For further dimensions b and e, viz. ETA**

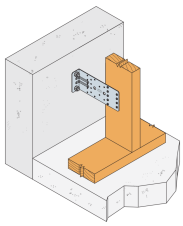
****** R4 / 5 with b> 60 mm and e <150 mm. For further dimensions b and e, viz.ETA**
Values for wood and concrete joint, two connecting
Screws are sold separately.

Load for each pair of screws at an angle are:

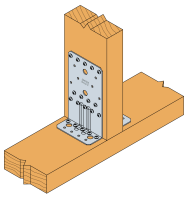


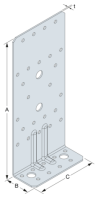






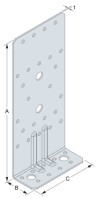
Technical Data





Product Dimensions

Reference	Connector Dimensions											
	Other				Product Dimensions[mm]				Joist[mm]		Flange B[mm]	
	Tun / DB nr.	NOB nr.	Qty per Box	Weight[kg]	A[mm]	B[mm]	C[mm]	Thickness[mm]	Round		Round	
									Ø5[mm]	Ø12	Ø5[mm]	Ø12
ABR170	1611299	46163812	25.0	0.28	170	40	95	2	20	2	9	2
ABR220	1805973	51165872	25.0	0.35	220	40	95	2	24	2	9	2



Characteristic capacities - timber to timber

Reference	Angle bracket capacity										
	Product capacities - Timber to timber - Full nailing										
	Number of Fasteners		Characteristic Capacities - Timber C24 - 2 angle brackets per connection[kN]								
	Joist	Flange B	$R_{1,k}$			R2,k = R3,k			R4/5,k		
	Qty	Qty	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR170	14.0	9.0	7.4	9.8	12.3	16.4	19.8	21.1	9.6/kmod^0.2	9.6/kmod^0.2	9.6/kmod^0.2
ABR220	14.0	9.0	7.4	9.8	12.3	16.4	19.8	21.1	9.6/kmod^0.2	9.6/kmod^0.2	9.6/kmod^0.2

In cases, where the load direction F_1 and/or F_2 are acting without load direction $F_{4/5}$, the number of nails can be reduce acc. to the ETA.

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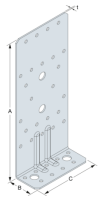
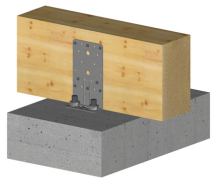
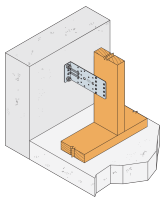


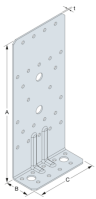


Characteristic capacities - timber to concrete

Reference	Angle bracket capacity												
	Product capacities - Timber to Concrete												
	Number of Fasteners				Characteristic values - Timber beam to rigid support[kN]								
	Joist		Flange B		$R_{1,k}$			R4/5,k			R2/3,k		
	Qty	Type	Qty	Type	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR170	14	CNA	2	Ø10	min. (33.0 ; 25.2/kmod)	min. (39.8 ; 25.2/kmod)	25.2/kmod	min (9.15 + 80/e*kmod ; 6.3*b / e*kmod)	min (9.15 + 80/e*kmod ; 6.3*b / e*kmod)	min (9.15 + 80/e*kmod ; 6.3*b / e*kmod)	19.7	min. (23.8 ; 24.6/kmod)	min. (25.4 ; 24.6/kmod)
ABR220	14	CNA	2	Ø10	min. (33.0 ; 25.2/kmod)	min. (39.8 ; 25.2/kmod)	25.2/kmod	min (9.15 + 80/e*kmod ; 6.3*b / e*kmod)	min (9.15 + 80/e*kmod ; 6.3*b / e*kmod)	min (9.15 + 80/e*kmod ; 6.3*b / e*kmod)	19.7	min. (23.8 ; 24.6/kmod)	min. (25.4 ; 24.6/kmod)

For calculation of $R_{4/5}$, it is to use: e ≥ 50 mm





Simplified characteristic capacities - Timber to concrete

Reference	Angle bracket capacity									
	Simplified product capacities - Timber to Concrete									
	Number of Fasteners				Simplified characteristic capacities - Timber C24 - 2 angle brackets per connection[kN]					
	Joist		Flange B		$R_{1,k}$			R2,k = R3,k		
	Qty	Type	Qty	Type	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR170	14.0	CNA	2.0	Ø10	28	28	28	19.7	23.8	25.4
ABR220	14.0	CNA	2.0	Ø10	28	28	28	19.7	23.8	25.4

** Refer to Characteristic Capacity table columns for type of fasteners that can be used in Flange A. Capacities vary depending on fastener type used.*
Refer to the Simpson Strong-Tie anchor product range for suitable anchors. Typical anchor solutions depend on the concrete type, spacing and edge distances.
*** The published characteristic capacity is based on short term load duration and service class 2 according to EC5 (EN 1995) – kmod = 0,9. For other load duration and service class, please refer to the ETA to get more accurate capacities*

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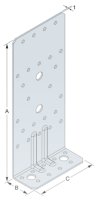


Characteristic capacities - timber to facade

Characteristic capacities - timber to facade
See full table online ➡️

Reference														
												R6,k		
	CNA4.0x35											.0x40	CNA4.0x50	CN
ABR170	10.2	min. (11,8 ; 12.1/kmod)	min.(14,9 ; 12.1/kmod)	min. (16,9 ; 12.1/kmod)	3.5	3.8	4.7	4.9	min. (14,9; 11.0/kmod)	min. (16,5; 11.0/kmod)	min. (20; 11.0/kmod)	mi 11		

Allowable capacities - Timber to facade - CSTB Cahier 3316

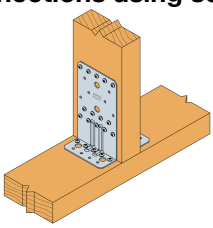
Reference	Angle bracket capacity						
	Product allowable capacities - Timber to Concrete - CSTB Cahier 3316						
	Number of Fasteners				Product capacities, beam to facade, full nailing, 1 ABR per connection[daN]		
	Joist		Flange B		R1,d	R2/3,d	
	Qty	Type	Qty	Type		1 mm	3 mm
ABR170	9.0	CSA	1.0	M10	450	67.7	76.3
ABR220	9.0	CSA	1.0	M10	450	33.3	80

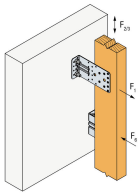
The capacities are given for one ABR, in the case, that in total more ABR are placed alternate opposite on the beam.
Only the upper bolt has to be installed on the ABR.
The distance of the beam to the support shall be less than 132 mm for ABR220, and less than 86 mm for ABR170.

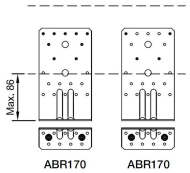
Installation

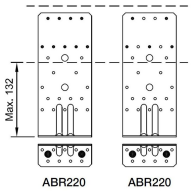
Installation

- **connections using screws or nails CSA5,0xl CNA4,0xl**









Technical Notes

Technical info

Particular situation with two angle brackets per assembly positioned opposite to each other
F1 Continious force in the central axis of the purlin.
F2 and F3 Lateral force that works between the purlin and the beam in the purlin direction.
F4 and F5 Lateral force that works in the center of the angle brackets in the beam direction positioned e above the beam.
Particular situation with only one angle bracket per assembly
F1 Continious force in the central axis of the purlin with a distance f between the vertical contact surface. 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.
F2 and F3 Lateral force that works between the purlin and the beam in the purlin direction.
F4 Lateral force that works in the center of the angle brackets in the beam direction. Works towards the bracket positioned e above the beam.
F5 Lateral force that works in the center of the angle brackets in the beam direction. Works away from the bracket positioned e above the beam.

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