

Technical data sheet

SIMPSON

Strong-Tie

ABR

Reinforced Angle Bracket

Reinforced angle brackets are suitable for structural applications in framing and timber framed houses as well as light gauge steel construction.

Features

Material

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

Benefits

- Reinforcing ribs provide enhanced performance.

Applications

Suitable On

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

When to Use

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



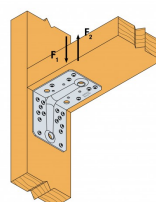
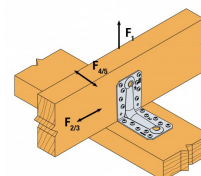
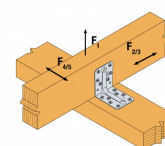
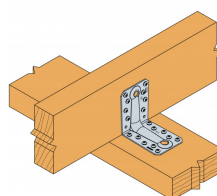
ABR7015



ABR9020

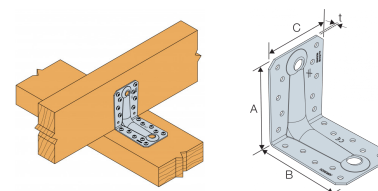


ABR10525



ABR Reinforced Angle Bracket

Technical Data



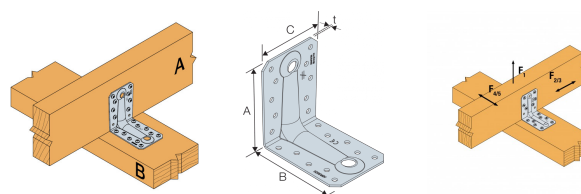
Product Dimensions

References	Product Dimensions [mm]				Joist				Holes flange B				Box Quantity	Weight [kg]
	A	B	C	t	Ø5	Ø7	Ø11	Ø14	Ø5	Ø9	Ø13	Ø14		
ABR9020	88	88	65	2	10	-	1	-	10	-	1	-	50	0.17
ABR10525	105	105	90	2.5	10	-	2	1	14	-	-	1	50	0.34

Combined loads:

$$\sqrt{\left(\frac{F_{1,d}}{R_{1,d}} + \frac{F_{4/5,d}}{R_{4/5,d}}\right)^2 + \left(\frac{F_{2/3,d}}{R_{2/3,d}}\right)^2} \leq 1$$

Product capacities - Timber to timber - Full nailing - 2 angles brackets



References	Product capacities - Timber beam to timber beam - Full nailing - 2 angle brackets												
	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}					C _{cr}
	Qty	Qty	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x40	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x40	
ABR9020	8	10	9.7	10.8	11.9	14.9	14.6	9.4	10.3	12.2	13	12.3	kr
ABR10525	10	14	12.7	17.2	23.5	29.4	-	10.8	12.1	18.5	19.7	-	kr

* b = 75 mm and e = 130 mm

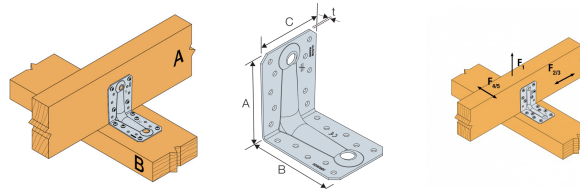
To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

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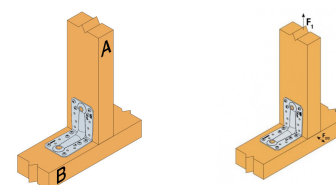
Product capacities - Timber to timber - Partial nailing - 2 angles brackets



References	Product capacities - Timber beam to timber beam - Partial nailing - 2 angle brackets									
	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
ABR9020	4	6	4.9	5.9	7.8	9.8	5.9	6.5	7.6	8.1
ABR10525	6	6	4.8	5.7	7.6	9.5	9.7	10.6	13.4	14.3

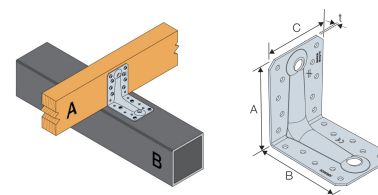
To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided that the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

Product capacities - Timber column to timber beam - 2 angle brackets



References	Product capacities - Timber column to timber beam - 2 angle brackets							
	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	CNA4.0x40	CNA4.0x60	CSA5.0x40	CNA4.0x40	CNA4.0x60	CSA5.0x40
ABR9020	4	6	6	9.8	11.8	5.1	6.9	7.1
ABR10525	6	8	9.4	14.8	25.5	10.2	13.9	14.2

Product capacities - Timber beam to steel 6 mm - Partial nailing - 2 angles brackets



References	Product capacities - Timber beam to steel beam 6 mm - Partial nailing - 2 angle brackets						
	Number of Fasteners				Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]		
	Joist		Flange B		$R_{1,k}$		
	Qty	Type	Qty	Type	CNA4.0x60		
ABR9020	8	CNA	4	PDPA-75	12.1		
ABR10525	10	CNA	4	PDPA-75	15.3		

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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

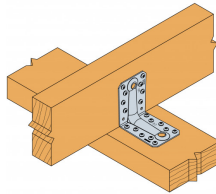
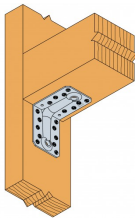
- *Mechanical anchor:* WA M10-78/5 OR WA M12-104/5 pin.
- *Chemical anchor:* AT-HP resin + LMAS M10-120/25 or LMAS M12-150/35 threaded rod.

Hollow masonry substrate:

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

On steel:

- Bolts.



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Technical Notes

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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.***

