

# Technical data sheet

**SIMPSON**

**Strong-Tie**

ABR

## Reinforced angle brackets

*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.

### Benefits

- High rigidity through double-sided splash back
- High load values

## 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

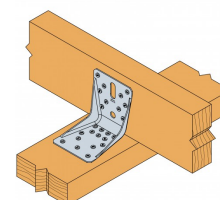
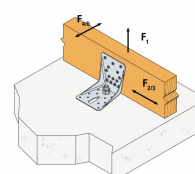
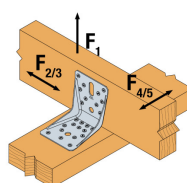
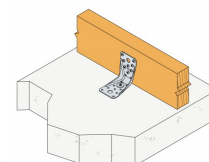
- Fastening of small trusses.
- Cladding plates, cladding uprights.
- Rafter anchors, cantilevers, headers, etc.



ABR9015



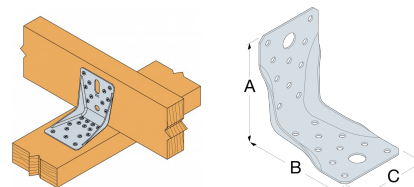
ABR100



## ABR Reinforced angle brackets

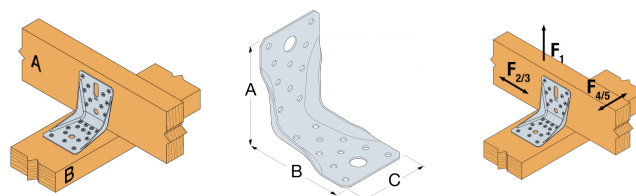
### Technical Data

#### Product Dimensions



References	Tun / DB nr.	NOB nr.	Product Dimensions [mm]				Joist [mm]				Holes flange B [mm]			Box Quantity	Weight [kg]
			A	B	C	t	Ø5	Ø12	Ø13	Ø12x32	Ø5	Ø12	Ø13		
ABR9015	1241530	41327081	89	89	60	1.5	10	-	1	-	10	-	1	50	0.11
ABR100	1329235	42424786	103	103	90	2	10	1	-	1	14	1	-	50	0.26

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

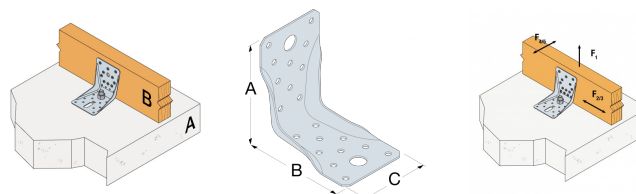


References	Product capacities - Timber to timber - Full nailing											
	Number of Fasteners		Characteristic capacities - Timber C24 - 2 angle brackets per connection									
	Joist	Flange B	R <sub>1,k</sub>					R <sub>2,k</sub> = R <sub>3,k</sub>				
	Qty	Qty	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x40	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x40
ABR9015	8	10	3.45	4.1	5.4	6.6	13.2	6.3	7.1	8	9.6	10.5
ABR100	10	14	9.7	11.7	15.7	19.7	min (26,7/kmod <sup>0,2</sup> ; 27 /kmod)	9.6	12.8	14.2	16.7	20.3

<sup>1)</sup>  $b = 75 \text{ mm}$  ;  $e = 130 \text{ mm}$

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

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



References	Product capacities - Timber beam to Concrete											
	Number of Fasteners				Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]							
	Joist		Flange B		R <sub>1,k</sub>			R <sub>2,k</sub> = R <sub>3,k</sub>			R <sub>4,k</sub> = R <sub>5,k</sub>	
	Qty	Type	Qty	Type	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x35	CNA4.0x40
ABR100	1	Ø10	10	CNA*	min (17,1; 21,6 /kmod)	min (20,6; 21,6 /kmod)	min (26,6; 21,6 /kmod)	7.2	8.7	10.9	8.6	10.4

\* Refer to Characteristic Capacity table columns for type of fasteners that can be used in Flange A. Capacities vary depending on fastener type used.

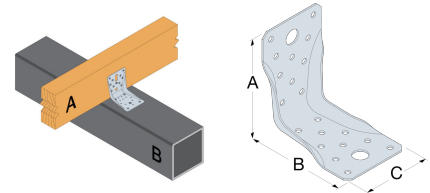
To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided that the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

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## ABR Reinforced angle brackets

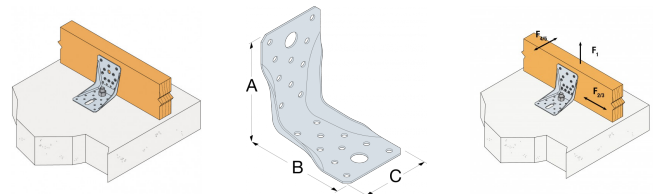
Characteristic capacities - Timber to steel - Connection with 2 brackets



References	Product capacities - Timber to Steel				
	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
ABR100	10	CNA*	4	PDPA-75	21.5

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.

Simplified characteristic capacities - Timber to concrete - Connection with 2 brackets



References	Simplified product capacities - Timber to Concrete									
	Number of Fasteners				Simplified characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]					
	Joist		Flange B		R <sub>1,k</sub> **			R <sub>2,k</sub> = R <sub>3,k</sub>		
	Qty	Type	Qty	Type	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x35	CNA4.0x40	CNA4.0x50
ABR100	1	Ø10	10	CNA*	17.1	20.6	24	7.2	8.7	10.9

\* 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) –  $k_{mod} = 0.9$ . For other load duration and service class, please refer to the ETA to get more accurate capacities

With combined loads, the following formula shall be fulfilled

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

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 data sheet

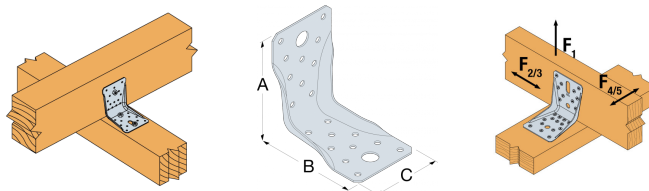
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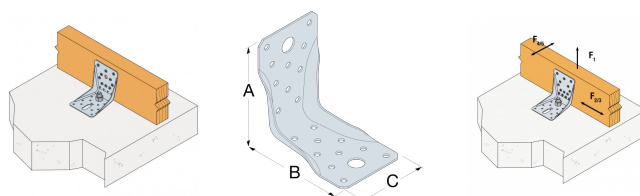
## Reinforced angle brackets

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



References	Product capacities - Timber beam to timber beam - Ø10 connector screws - 2 angle brackets					
	Fasteners				Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]	
	Flange A		Flange B		$R_{1,k}$	$R_{2,k} = R_{3,k}$
	Qty	Type	Qty	Type	SSH10x40	SSH10x40
ABR100	2	SSH	1	SSH	5.2	2.7

Characteristic capacities - Timber beam to concrete - Ø10 connector screws - 2 angle brackets



References	Product capacities - Timber beam to rigid support - Ø10 connector screws - 2 angle brackets					
	Fasteners				Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]	
	Flange A		Flange B		$R_{1,k}$	$R_{2,k} = R_{3,k}$
	Qty	Type	Qty	Type	SSH10x40	SSH10x40
ABR100	1	Ø10	1	SSH	5.7	4.1

Refer to the Simpson Strong-Tie anchor product range for suitable anchors. Typical anchor solutions are FM753, AT-HP, depending on the concrete type, spacing and edge distances.

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**Reinforced angle brackets**

## 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***

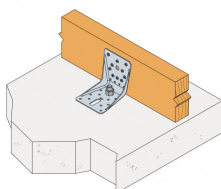
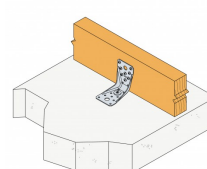
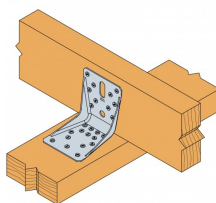
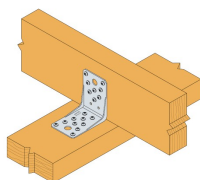
- *Mechanical anchor:* WA M10-78/5 OR WA M12-104/5 pin.
- *Chemical anchor:* AT-HP resin + LMAS M10-120/25 or LMAS M12-150/35 threaded rod.

##### ***Hollow masonry substrate:***

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

#### **On steel:**

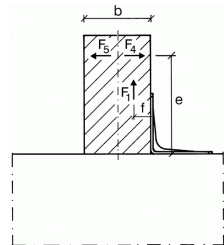
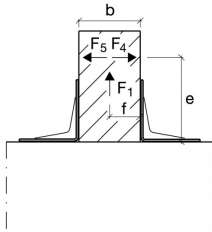
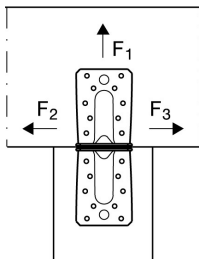
- Bolts.



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# Technical Notes



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