Technical Sheet

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

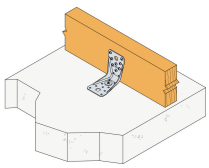
- Fastening of small trusses.
- Cladding plates, cladding uprights.
- Rafter anchors, cantilevers, headers, etc.

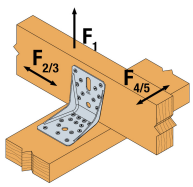


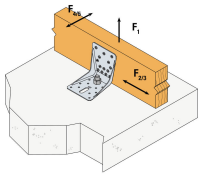
ABR9015

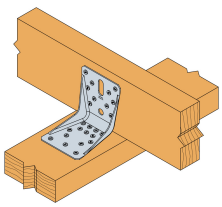


ABR100











ABR100



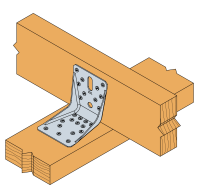
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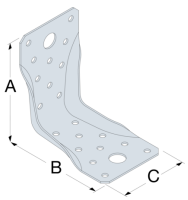
Technical Sheet

ABR
Reinforced angle brackets

Technical Data

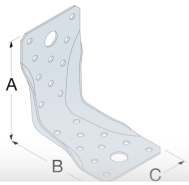
Product Dimensions

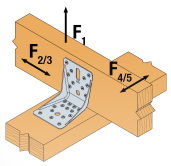




Reference	Connector Dimensions														
	Other				Product Dimensions[mm]				Joist[mm]				Flange B[mm]		
	Tun / DB nr.	NOB nr.	Qty per Box	Weight[kg]	A[mm]	B[mm]	C[mm]	Thickness[mm]	Round			Obround	Round		
									Ø5[mm]	Ø12	Ø13	Ø12x32	Ø5[mm]	Ø12	Ø13[mm]
ABR9015	1241530	41327081	50.0	0.11	89	89	60	1.5	10	-	1	-	10	-	1
ABR100	1329235	42424786	50.0	0.26	103	103	90	2	10	1	-	1	14	1	-

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

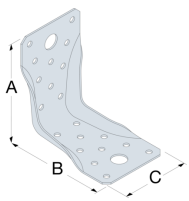


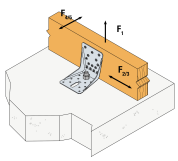


Wood/wood connection beam/beam type - assembly with 2 angle brackets
See full table online ➡️

Reference	Number of Fasteners		Angle bracket capacity											
			Product capacities - Timber beam to concrete											
			Characteristic capacity - 2 angle brackets per connection - full nailing[kN]											
	Joist	Flange B	$R_{1,k}$			$R_{2,k}=R_{3,k}$						$R_{4/5,k}$		
	Qty	Qty	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x40	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x40

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



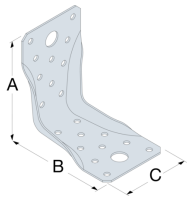


Reference	Angle bracket capacity													
	Product capacities - Timber beam to concrete													
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]									
	Joist		Flange B		$R_{1,k}$			$R_{2,k}=R_{3,k}$					$R_{4/5,k}$	
	Qty	Type	Qty	Type	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x40	CNA4.0x35	CNA4.0x40
ABR100	1.0	Ø10	10.0	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.

Technical Sheet

ABR
Reinforced angle brackets

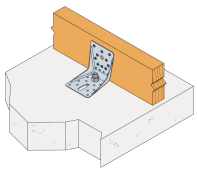


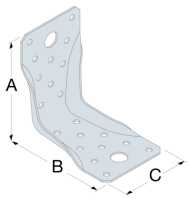
Characteristic capacities - Timber to steel - Connection with 2 brackets

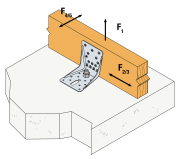
Reference	Angle bracket capacity				
	Product capacities - Timber beam to Steel				
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]
	Joist		Flange B		$R_{1,k}$
	Qty	Type	Qty	Type	CNA4.0x60
ABR100	10.0	CNA*	4.0	PDPA-75	21.5

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







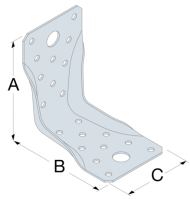
Reference	Angle bracket capacity									
	Simplified product capacities - Timber to Concrete									
	Number of Fasteners				Characteristic Capacities - Timber C24 - 2 Angle Brackets per Connection[kN]					
	Joist		Flange B		$R_{1,k}$			$R_{2,k}=R_{3,k}$		
	Qty	Type	Qty	Type	CNA4.0x35	CNA4.0x40	CNA4.0x50	CNA4.0x35	CNA4.0x40	CNA4.0x50
ABR100	1.0	Ø10	10.0	CNA*	17.1	20.6	24	7.2	8.7	10.9

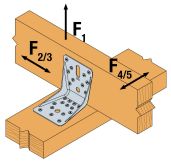
* Refer to Characteristic Capacity table columns for type of fasteners that can be used in Flange A. Capacities vary depending on fastener type used.
Refer to the Simpson Strong-Tie anchor product range for suitable anchors. Typical anchor solutions deepend on the concrete type, spacing and edge distances.
** 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} \le 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 Sheet

ABR
Reinforced angle brackets

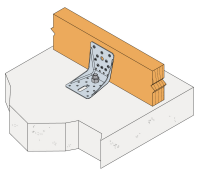
Characteristic capacities - Timber beam to timber beam - Ø10 connector screws - 2 angle brackets

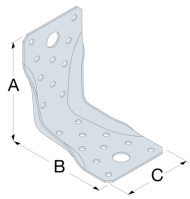


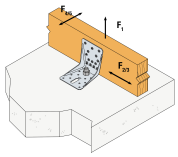


Reference	Angle bracket capacity					
	Product capacities - Timber beam to timber beam - Ø10 connector screws - 2 angle brackets					
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]	
	Joist		Flange B		$R_{1,k}$	$R_{2,k}=R_{3,k}$
	Qty	Type	Qty	Type	SSH10x40	SSH10x40
ABR100	2.0	SSH	1.0	SSH	5.2	2.7

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







Reference	Angle bracket capacity					
	Product capacities - CLT beam to rigid support - Ø10 connector screws - 2 angle brackets					
	Number of Fasteners				Characteristic capacities - Timber CLT - 2 angle brackets per connection[kN]	
	Joist		Flange B		$R_{1,k}$	$R_{2,k}=R_{3,k}$
	Qty	Type	Qty	Type	SSH10.0x40	SSH10.0x40
ABR100	1.0	Ø10	1.0	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.

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

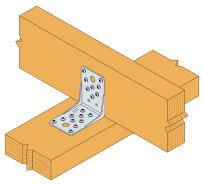
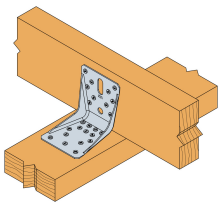
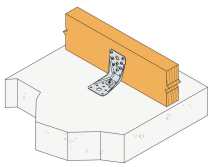
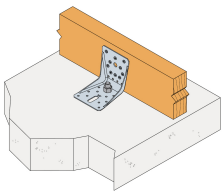
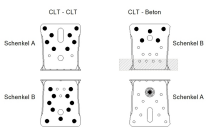
- *Mechanical anchor*: WA M10-78/5 OR WA M12-104/5 pin.
- *Chemical anchor*: AT-HP resin + LMAS M10-120/25 or LMAS M12-150/35 threaded rod.

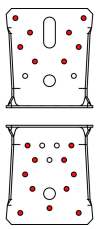
Hollow masonry substrate:

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

On steel:

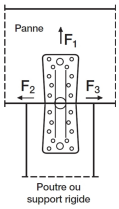
- Bolts.

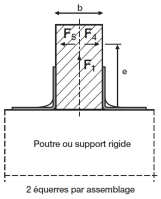






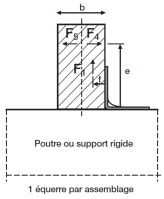


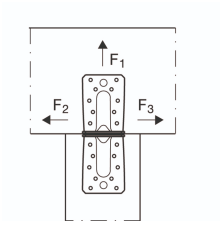

ABR
Reinforced angle brackets

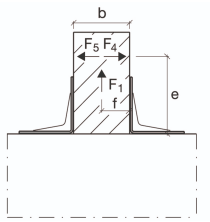
Technical Notes

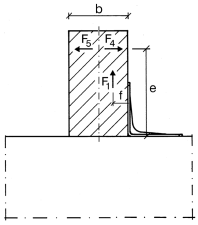












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