Technical Sheet

ABR
Reinforced Angle Bracket (105-R)

SIMPSON Strong-Tie

Reinforced angle brackets are suitable for structural applications in framing and wood-frame houses.



Features

Material

- Pre-galvanised mild steel.

Benefits

- Load capacity in all directions
- Improved capacities for full and partial nailing

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

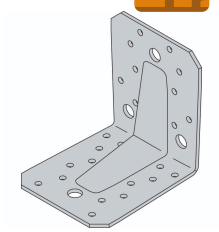
- Fastening of small trusses.
- Cladding plates, cladding uprights.
- Rafter anchors, cantilevers, headers, etc.

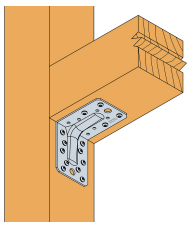


ABR70



ABR105







ABR105



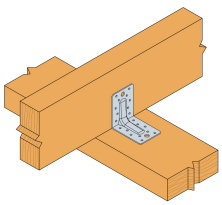
ABR90



ABR70



ABRL98



Wood to wood connection.



ABR105 Reinforced Angle Bracket



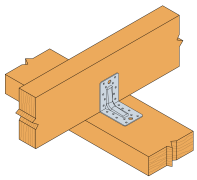
ABR105-R Reinforced Angle Bracket

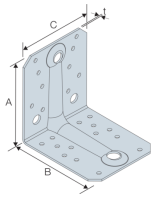
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Technical Data

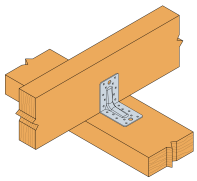
Product Dimensions

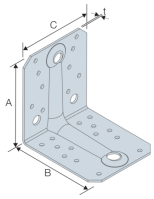




Reference	Connector Dimensions													
	Other	Product Dimensions[mm]				Joist[mm]					Flange B[mm]			
						Round				Obround	Round			
	Weight[kg]	A[mm]	B[mm]	C[mm]	Thickness[mm]	Ø5[mm]	Ø8.5[mm]	Ø11[mm]	Ø13	Ø13x40	Ø5[mm]	Ø8.5[mm]	Ø11[mm]	Ø13[mm]
ABR70	0.11	70	70	55	2	6	1	-	-	-	6	1	-	-
ABR90	0.21	90	90	65	2.5	10	-	1	-	-	10	-	1	-
ABRL98	0.38	98	98	88	3	10	-	-	-	-	12	-	-	-
ABR105	0.4	105	105	90	3	10	-	3	-	-	14	-	1	-

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





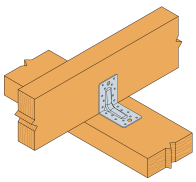
Reference	Angle bracket capacity										
	Product capacities - Timber to timber - Full nailing										
	Number of Fasteners		Characteristic capacity - 2 angle brackets per connection - full nailing[kN]								
	Joist	Flange B	$R_{1,k}$			$R_{2,k}=R_{3,k}$			R4,k = R5,k(1)		
	Qty	Qty	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR70	4.0	6.0	5.34	7.11	8.89	5	6.89	7.33	3,0 / kmod^0,5	-	-
ABR90	8.0	10.0	7.87	10.66	13.32	9.21	11.07	11.78	8,1 / kmod^0,85	-	9,1 / kmod^0,75
ABRL98	10.0	12.0	11.8	15.7	19.7	13.7	17.5	19.8	13.3	13.7	14
ABR105	10.0	14.0	10.78	14.33	17.91	14.57	19.01	20.22	12,9 / kmod^0,5	-	14,5 / kmod^0,75

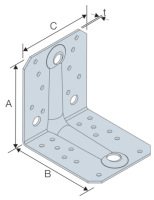
** b = 75 mm and e = 130 mm*
To obtain the resistance values for a single bracket, the values in the above table should be divided by two, provided that the supported beam is locked in rotation. Please consult our ETA-06/0106 if the beam is free to rotate.

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

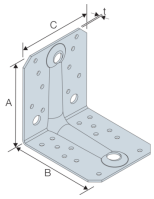




Reference	Angle bracket capacity										
	Product capacities - Timber to timber - Partial nailing										
	Number of Fasteners		Characteristic capacity - 2 angle brackets per connection - full nailing[kN]								
	Joist	Flange B	$R_{1,k}$			$R_{2,k}=R_{3,k}$			R4,k = R5,k(1)		
	Qty	Qty	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR70	4.0	4.0	2,92 / kmod^0,25	3.9	4.87	4.88	6.48	6.89	2,1 / kmod^0,75	-	2,8 / kmod^0,4
ABR90	4.0	6.0	5.34	7.11	8.89	5.68	6.9	7.34	7 / kmod^0,4	-	8,5 / kmod^0,75
ABRL98	4.0	6.0	7	9	10.8	6.9	8.8	9.7	11.6	13.1	13.3
ABR105	6.0	6.0	5.87	7.91	9.89	7.67	10.97	11.67	9 / kmod^0,4	-	12,5 / kmod^0,4

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 to rigid support - 2 angles brackets

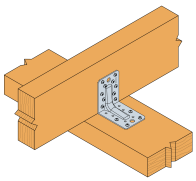


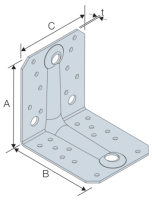
Reference	Angle bracket capacity									
	Product capacities - Timber to Concrete									
	Number of Fasteners				Characteristic capacity - 2 angle brackets per connection - full nailing[kN]					
	Joist		Flange B		$R_{1,k}$			$R_{2,k}=R_{3,k}$		
	Qty	Type	Qty	Type	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR105	10	CNA	1	Ø10	min(4,88; 7,7 / kmod)	min(6,48; 7,7 / kmod)	min(8,08; 7,7 / kmod)	2.68	3.55	4.37

Refer to the Simpson Strong-Tie anchor product range for suitable anchors. Typical anchor solutions depend on the concrete type, spacing and edge distances.
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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Product capacities - Timber beam to timber beam - Ø10 Connector screw - 2 angles 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	SSH10x80	SSH10x40	SSH10x80
ABR105	1.0	SSH	3.0	SSH	6.3	12.2	5.7	9.9

Product capacities - Timber beam to rigid support - Ø10 connector screw - 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	SSH10.0x80	SSH10.0x40	SSH10.0x80
ABR105	1.0	SSH	2.0	Ø10	7.5	13.8	6.9	13.7

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:

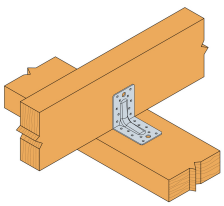
- *Chemical anchor*: AT-HP or POLY-GP resin + LMAS M12-150/35 threaded rod + SH M16-130 screen.

On steel:

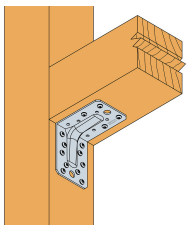
- Bolts.

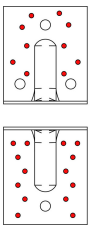
Installation

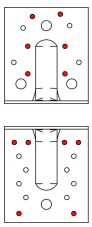
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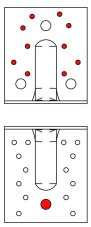


Wood to wood connection.









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