

Technical data sheet

SIMPSON

Strong-Tie

ABR

Reinforced Angle Bracket (105-R)

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

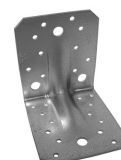
- **Supporting member:** solid wood, glued-laminated wood, concrete, steel, etc.
- **Supported member:** solid wood, composite lumber, glued-laminated wood, triangular trusses, profiles, etc.

When to Use

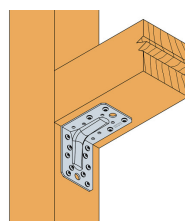
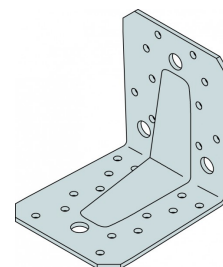
- Fastening of small trusses.
- Cladding plates, cladding uprights.
- Rafter anchors, cantilevers, headers, etc.



ABR70



ABR105



ABR105



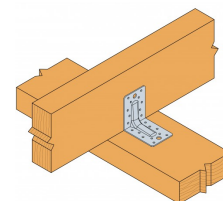
ABR90



ABR70



ABRL98

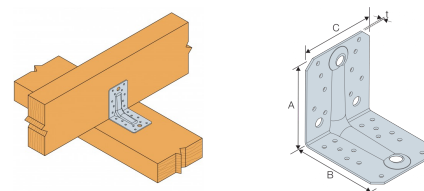


Wood to wood connection.

ABR Reinforced Angle Bracket (105-R)

Technical Data

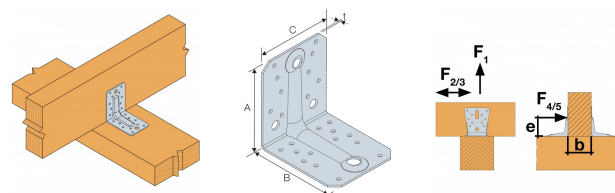
Product Dimensions



Wood to wood connection.

References	Product Dimensions [mm]				Joist					Holes flange B				Weight [kg]
	A	B	C	t	Ø5	Ø8.5	Ø11	Ø13	Ø13x40	Ø5	Ø8.5	Ø11	Ø13	
ABR70	70	70	55	2	6	1	-	-	-	6	1	-	-	0.11
ABR90	90	90	65	2.5	10	-	1	-	-	10	-	1	-	0.17
ABRL98	98	98	88	3	10	-	-	-	-	12	-	-	-	0.38
ABR105	105	105	90	3	10	-	3	-	-	14	-	1	-	0.4

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



Wood to wood connection.

References	Product capacities - Timber to timber - Full nailing										
	Number of Fasteners		Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]								
	Joist	Flange B	$R_{1,k}$			$R_{2,k} = R_{3,k}$			$R_{4,k} = R_{5,k}^*$		
	Qty	Qty	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR70	4	6	5.34	7.11	8.89	5	6.89	7.33	3,0 / kmod ^{0,5}	-	-
ABR90	8	10	7.87	10.66	13.32	9.21	11.07	11.78	8,1 / kmod ^{0,85}	-	9,1 / kmod ^{0,75}
ABRL98	10	12	11.8	15.7	19.7	13.7	17.5	19.8	13.3	13.7	14
ABR105	10	14	10.78	14.33	17.91	14.57	19.01	20.22	12,9 / kmod ^{0,5}	-	14,5 / kmod ^{0,75}

* $b = 75 \text{ mm}$ and $e = 130 \text{ mm}$

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.

Technical data sheet

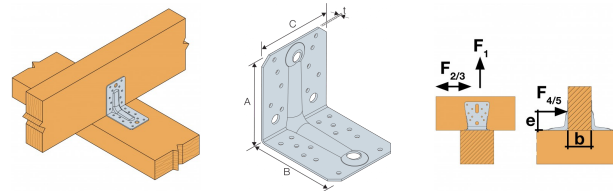
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Reinforced Angle Bracket (105-R)

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

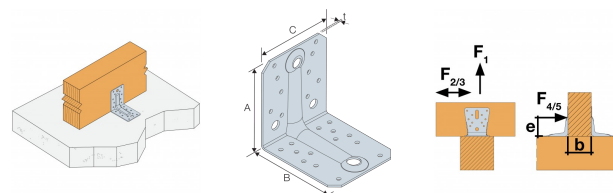


Wood to wood connection.

References	Product capacities - Timber to timber - Partial nailing										
	Number of Fasteners		Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]								
	Joist	Flange B	$R_{1,k}$			$R_{2,k} = R_{3,k}$			$R_{4,k} = R_{5,k}^*$		
	Qty	Qty	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR70	4	4	2,92 / $k_{mod}^{0,25}$	3.9	4.87	4.88	6.48	6.89	2,1 / $k_{mod}^{0,75}$	-	2,8 / $k_{mod}^{0,4}$
ABR90	4	6	5.34	7.11	8.89	5.68	6.9	7.34	7 / $k_{mod}^{0,4}$	-	8,5 / $k_{mod}^{0,75}$
ABRL98	4	6	7	9	10.8	6.9	8.8	9.7	11.6	13.1	13.3
ABR105	6	6	5.87	7.91	9.89	7.67	10.97	11.67	9 / $k_{mod}^{0,4}$	-	12,5 / $k_{mod}^{0,4}$

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

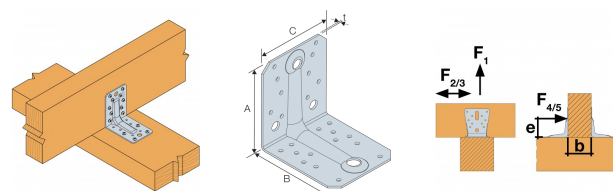


References	Product capacities - Timber to Concrete									
	Number of Fasteners		Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN]							
	Joist	Flange B	$R_{1,k}$			$R_{2,k} = R_{3,k}$				
	Qty	Type	Qty	Type	CNA4.0x40	CNA4.0x50	CNA4.0x60	CNA4.0x40	CNA4.0x50	CNA4.0x60
ABR105	10	CNA	1	Ø10	min(4,88; 7,7 / k_{mod})	min(6,48; 7,7 / k_{mod})	min(8,08; 7,7 / k_{mod})	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.

Product capacities - Timber beam to timber beam - Ø10 Connector screw - 2 angles brackets



References	Product capacities - Timber beam to timber beam - Connection with connector screws Ø10									
	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	SSH10x80	SSH10x40	SSH10x80	SSH10x40	SSH10x80
ABR105	1	SSH	3	SSH	6.3	12.2	5.7	9.9	5.7	9.9

Technical data sheet

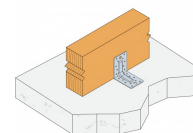
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Reinforced Angle Bracket (105-R)

Product capacities - Timber beam to rigid support - Ø10 connector screw
- 2 angle brackets



References	Product capacities - Timber beam to rigid support - Connection with Ø10 connector screws							
	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	SSH10x80	SSH10x40	SSH10x80
ABR105	1	SSH	2	Ø10	7.5	13.8	6.9	13.7

ABR Reinforced Angle Bracket (105-R)

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

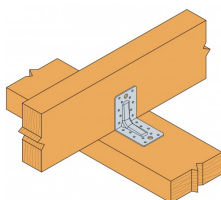
- *Mechanical anchor:* WA M10-78/5 OR WA M12-104/5 pin.
- *Chemical anchor:* AT-HP resin + LMAS M10-120/25 or LMAS M12-150/35 threaded rod.

Hollow masonry substrate:

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

On steel:

- Bolts.



Wood to wood connection.

