

Technical data sheet

SIMPSON

Strong-Tie

ABR-Z

Reinforced angle brackets

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

Features

Material

- **Steel grade:**
 - ABR9020Z Stal S250GD + Zpro according to EN 10346
 - ABR7015Z and ABR10525Z Steel S350GD + Zpro according to EN 10346
- **Anti-corrosion protection:**
ZPRO coating - corresponding to a zinc layer thickness of approx. 55 µm

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.



NEW

CE

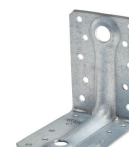
SC 3



EPD
EN 15804



ABR7015Z



ABR9020Z



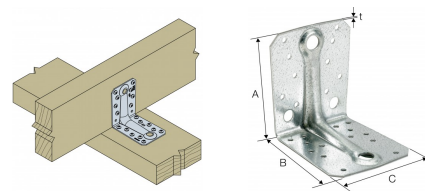
ABR10525Z

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Technical Data

Product Dimensions

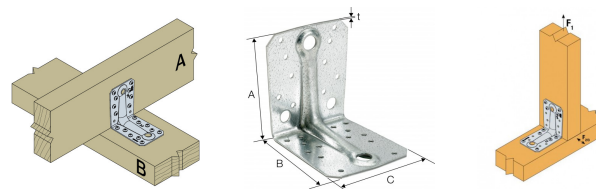


References	Tun / DB nr.	NOB nr.	Product Dimensions [mm]				Joist				Holes flange B				Box Quantity	Weight [kg]
			A	B	C	t	Ø5	Ø7	Ø11	Ø14	Ø5	Ø9	Ø13	Ø14		
ABR7015Z	2048395	55360480	70	70	55	1.5	8	1	-	-	8	1	-	-	50	0.081
ABR9020Z	1938737	52950361	88	88	65	2	10	-	1	-	10	-	1	-	50	0.17
ABR10525Z	2048396	55360514	105	105	90	2.5	10	-	2	1	14	-	-	1	50	0.34

For combined loads:

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

Capacities wood-wood connection - Full Nailing



References	Product capacities - Timber to timber - Maximum 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	CNA4.0x35	CNA4.0x40	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x60
ABR7015Z	6	8	5.2	6.1	-	6.7	7.3	-	4.2 /kmod ^{0,3}	4.8 /kmod ^{0,3}	-
ABR9020Z	8	10	9.7	10.8	14.9	9.4	10.3	13	4.6 /kmod ^{0,7}	4.9 /kmod ^{0,7}	5.8 /kmod ^{0,6}
ABR10525Z	10	14	12.7	17.2	29.5	10.7	12.2	19.7	10.6/kmod ^{0,2}	11.5 /kmod ^{0,4}	13.1 /kmod ^{0,8}

R 4/5 with b=75mm and e=130mm

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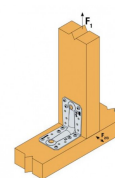
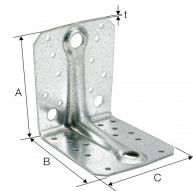
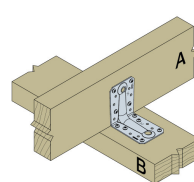
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Capacities wood-wood connection /
partialnailing



Product capacities - Timber to timber - Partial nailing

References	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	CNA4.0x35	CNA4.0x40	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x60	CNA4.0x35	CNA4.0x40	CNA4.0x60
ABR9020Z	4	6	4.9	5.9	9.8	5.9	6.4	8.1	4.6 /kmod ^{0,6}	4.8 /kmod ^{0,7}	5.8/kmod ^{0.6}
ABR10525Z	6	6	4.8	5.7	9.5	9.7	10.6	14.3	Refer to ETA-06/0106	Refer to ETA-06/0106	Refer to ETA-06/0106

R 4/5 with b=75mm and e=130mm

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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

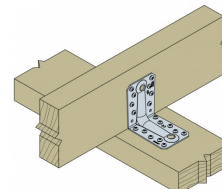
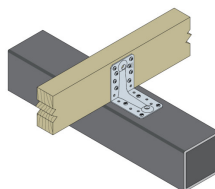
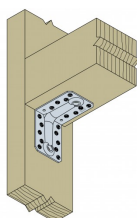
- *Mechanical anchor:* WA M10-78/5 OR WA M12-104/5 pin.
- *Chemical anchor:* AT-HP resin + LMAS M10-120/25 or LMAS M12-150/35 threaded rod.

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

Technical Notes

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.***

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