



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



[ETA-06/0106](#), [UK-DoP-e06/0106](#)

## FEATURES



### Material

- Galvanized steel S250GD + Z275 according to NF EN 10346.

### Benefits

- Reinforcing ribs provide enhanced performance.



ABR7015



ABR9020



ABR10525

## APPLICATIONS

### Suitable On

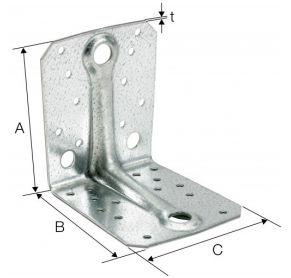
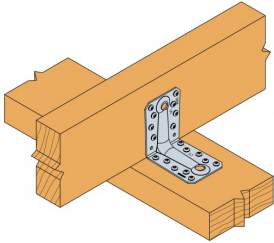
- Supporting member:** solid wood, glued-laminated wood, concrete, steel, etc.
- Supported member:** solid wood, composite lumber, glued-laminated wood, triangular trusses, profiles, etc.

### When to Use

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

TECHNICAL DATA

Product Dimensions

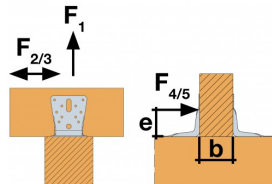
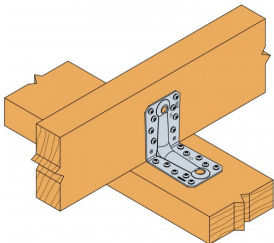


| References | Tun / DB nr. | NOB nr.  | Product Dimensions [mm] |     |    |     | Joist |    |     |     | Holes flange B |    |     |     |
|------------|--------------|----------|-------------------------|-----|----|-----|-------|----|-----|-----|----------------|----|-----|-----|
|            |              |          | A                       | B   | C  | t   | Ø5    | Ø7 | Ø11 | Ø14 | Ø5             | Ø9 | Ø13 | Ø14 |
| ABR7015    | 1553168      | 45554233 | 70                      | 70  | 55 | 1.5 | 8     | 1  | -   | -   | 8              | 1  | -   | -   |
| ABR9020    | 1241531      | 41327099 | 88                      | 88  | 65 | 2   | 10    | -  | 1   | -   | 10             | -  | 1   | -   |
| ABR10525   | 1553164      | 45540683 | 105                     | 105 | 90 | 2.5 | 10    | -  | 2   | 1   | 14             | -  | -   | 1   |

Combined loads:

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

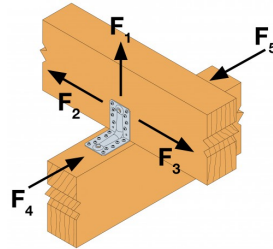
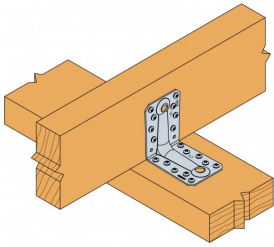
Product capacities - Timber to timber - Full nailing - 2 angles brackets



| References | Product capacities - Timber beam to timber beam - Full nailing - 2 angle brackets |          |   |          |          |          |          |          |                                     |          |          |          |                                       |                           |
|------------|---|----------|---|----------|----------|----------|----------|----------|-------------------------------------|----------|----------|----------|---------------------------------------|---------------------------|
|            | 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   | Qty      | CNA4.0x3  | CNA4.0x4 | CNA4.0x5 | CNA4.0x6 | CSA5.0x4 | CNA4.0x3 | CNA4.0x4                            | CNA4.0x5 | CNA4.0x6 | CSA5.0x4 | CNA4.0x3                              | CNA4.0x4                  |
| ABR7015    | 6   | 8        | 5.2   | 6.1      | -        | -        | -        | 6.6      | 7.3                                 | -        | -        | -        | 4,2 / kmod <sup>0,3</sup>             | 4,8 / kmod <sup>0,3</sup> |
| ABR9020    | 8   | 10       | 9.68  | 10.78    | 11.92    | 14.9     | 13.1     | 9.43     | 10.33                               | 12.23    | 13.01    | 10.4     | 4,6 / kmod <sup>0,7</sup>             | -                         |
| ABR10525   | 10  | 14       | 12.68   | 17.22    | 23.56    | 29.44    | -        | 10.79    | 12.11                               | 18.51    | 19.69    | -        | 10,6 / kmod <sup>0,2</sup>            | -                         |

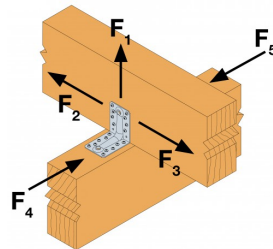
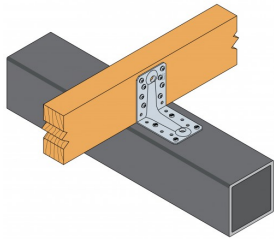
\* b = 75 mm and e = 130 mm

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



| References | Product capacities - Timber beam to timber beam - Partial nailing - 2 angle brackets |          |   |           |           |           |                                     |           |           |           |
|------------|--|----------|---|-----------|-----------|-----------|-------------------------------------|-----------|-----------|-----------|
|            | 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> |           |           |           |
|            | Qty  | Qty      | CNA4.0x35   | CNA4.0x40 | CNA4.0x50 | CNA4.0x60 | CNA4.0x35                           | CNA4.0x40 | CNA4.0x50 | CNA4.0x60 |
| ABR9020    | 4  | 6        | 4.9   | 5.89      | 7.82      | 9.78      | 5.9                                 | 6.48      | 7.62      | 8.11      |
| ABR10525   | 6  | 6        | 4.8   | 5.7       | 7.6       | 9.5       | 9.7                                 | 10.6      | 13.4      | 14.3      |

Product capacities - Timber beam to steel 6 mm - Partial nailing - 2 angles brackets



| References | Product capacities - Timber beam to steel beam 6 mm - Partial nailing - 2 angle brackets |      |          |         |   |
|------------|--|------|----------|---------|---|
|            | Number of Fasteners  |      |          |         | Characteristic capacities - Timber C24 - 2 angle brackets per connection [kN] |
|            | Joist  |      | Flange B |         |   |
|            | Qty  | Type | Qty      | Type    | R <sub>1,k</sub>  |
| ABR9020    | 8  | CNA  | 4        | PDPA-75 | 12.1  |
| ABR10525   | 10   | CNA  | 4        | PDPA-75 | 15.3  |

## 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

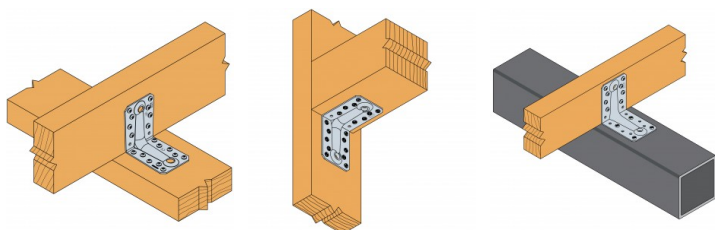
- Mechanical anchor: WA M10-78/5 OR WA M12-104/5 pin.
- Chemical anchor: AT-HP resin + LMAS M10-120/25 or LMAS M12-150/35 threaded rod.

#### Hollow masonry substrate:

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

#### On steel:

- Bolts.



## 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.