

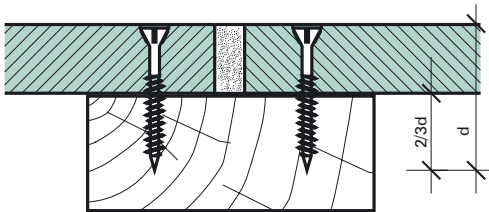
The CETRIS® boards can be fixed (fastened) to bearing structures with screwing, stapling eventually with threading. The use of nails or wood screws used for plasterboards is not recommended. All sorts of fixing hardware must have rust resistant surface treatment. The CETRIS® boards can be, alternatively, fastened to the bearing structure with cementing or with aid of fasteners. Both last mentioned methods are used namely for fastening of boards in suspended vented facade systems – see the chapter No. 8.7.6 Supplemental material.

5.1 Screwing

Screwing to wood

To install CETRIS® boards correctly, the maximal span of bearing structure and of fastening elements must be observed.

The most convenient method for fastening of CETRIS® boards are the self-drilling screws with double thread, hardened tip and countersunk head, provided with edges for countersunk. As supplemental material we can deliver this type of screws – trade mark BÜHNEN, diameter 4.2 mm, length 35, 45 and 55 mm for jointing of two CETRIS® boards in floating floor systems, or at fastening of boards onto horizontal or vertical wooden structures (flooring, partition, lower ceiling, and similar). At screwing the screw should be flushed into the wooden structure at least 2/3 of its length, for fastening of floor boards is sufficient to use screws, the length of which are sticking out 20 mm from the board thickness.



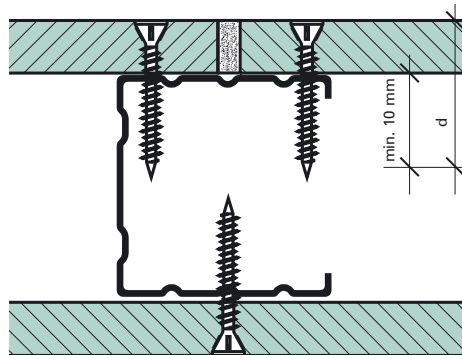
Self-drilling screw BÜHNEN into wood



Screwing to metal sheets

For fastening of CETRIS® boards onto metal sheet profiles in interior the self-drilling screw of type BÜHNEN, diameter 3.9 mm, length 22 and 33 mm is designed (this screw has a thread up to its head). As bearing structure mostly zinc coated profiles of type CW and UW are used. The horizontal UW profiles are fastened through sound insulating saddles to the structure of the ceiling (flooring). Into UW profiles the vertical CW profiles are inserted, the CW profiles should be by ca. 15 mm shorter as the height of the room. The CETRIS® boards of facade coating have to be fastened principally to the vertical profiles (CW stanchions) only.

At anchoring to metal sheet profiles the screw should sticking out at least 10 mm over the board thickness. In exterior, for fastening of boards of 12, 14 mm thickness the screws of type BÜHNEN, diameter 4.2 mm, length 25 mm can be used. The pre-boring of CETRIS® boards is recommended.



Self-drilling screw BÜHNEN into metal sheets



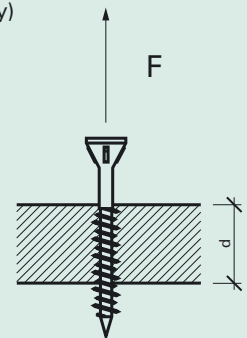
It is advisable to pre-drill holes for screws with hole diameter 1.2 times the diameter of the used screw and also to form a counter-sinking for the counter sunk screw head. Electric or pneumatic screwdrivers with controlled rotation speed should be used for professional screwing.

Resistance against extraction of screw from the cement-bonded particleboard of type CETRIS®

A) Determination of resistance against extraction of screw – upright to the board plane:

(informative values only)

Test Method: Czech standard ČSN EN 320
Screw type: BÜHNEN, diameter 4.2 mm, length 45 mm (see the picture) (in the board there was a pre-bored hole of 3.5 mm in diameter provided)

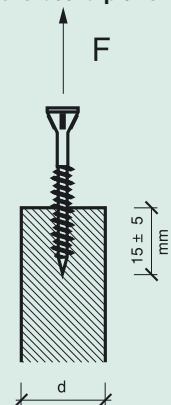


board thickness d	resistance
8 mm	597 N
10 mm	788 N
12 mm	1 305 N

B) Determination of resistance against extraction of screw – parallel to the board plane:

(informative values only)

Test Method: Czech standard ČSN EN 320
Screw type: BÜHNEN, diameter 4.2 mm, length 45 mm (see the picture) (in the board there was a pre-bored hole of 3.5 mm in diameter provided)



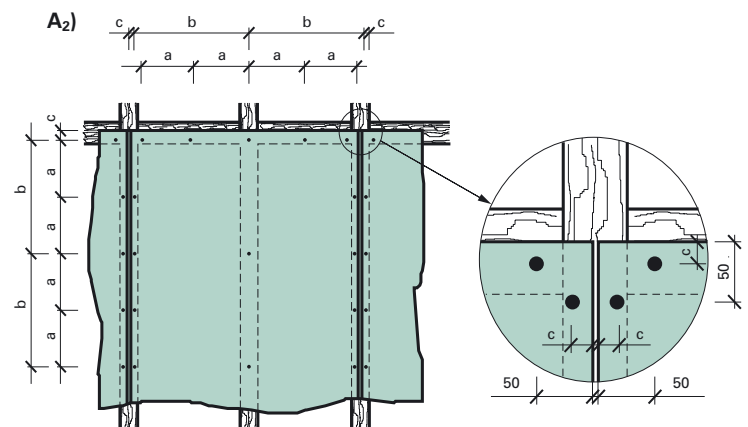
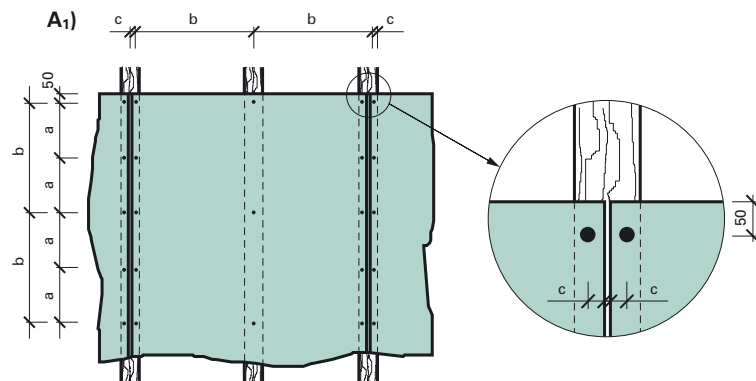
board thickness d	resistance
22 mm	1 039 N

Different types of fastening of CETRIS® boards, according to application type:

A₁) Fastening to a unidirectional not vented structure (wall, lower ceiling)

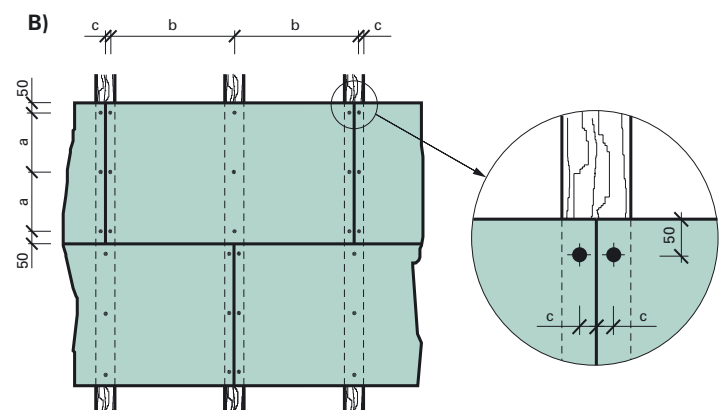
A₂) Fastening to a bi-directional contact structure (wall, lower ceiling)

Board thickness (mm)	a (mm)	b (mm)	c (mm)	
8, 10, 12, 14	< 200	< 400	> 25	< 50
16, 18, 20	< 300	< 600	> 25	< 50
22, 24, 26, 28, 30	< 400	< 800	> 25	< 50
32, 34, 36, 38, 40	< 600	< 1200	> 40	< 50



B) Fastening of cement-bonded particleboards of type CETRIS® – flooring structures

Product type Board thickness (mm)	a (mm)	b (mm)	c (mm)	
CETRIS® boards for floating floor, board thickness 12 mm	The upper layer of boards is pre-bored in the production plant			
CETRIS® PD (PDB) tl. 16, 18, 20, 22, 24 mm	≤ 300	max. 621	> 25	< 50
CETRIS® PD (PDB) tl. 26, 28 mm	≤ 400	max. 621	> 25	< 50



All dimensions in mm.

C) Fastening of cement-bonded particleboards of type CETRIS® – an example for facade facing with visible joints – system VARIO

For fastening of CETRIS® boards in VARIO system (with visible joints) stainless screws with round head or hexagon head with thrust waterproof plates are used. The lower side of these plates contains a vulcanized elastomer of type EPDM, which ensures the waterproof and elastic connection of materials. The

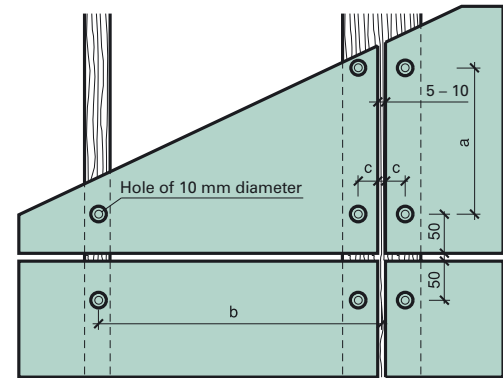
screw type is depending also from the type of the support – the used bearing grid. *

The CETRIS® board has to be pre-bored with a drill of 10 mm in diameter (an 8 mm diameter is sufficient at using of CETRIS® boards with maximal size up to 1600 mm).

Product type Board thickness (mm)	a (mm)	b (mm)	c (mm)	
10	< 500	< 500	> 25	< 50
12	< 500	< 625	> 25	< 50
14	< 600	< 625	> 25	< 50

* The recommended screw types for the VARIO system you can find in the chapter No. 8.7.6 Supplemental material.

C)



D) Fastening of cement-bonded particleboards of type CETRIS® – an example for facade facing with lapped joint – system PLANK

For fastening of CETRIS® boards in PLANK system (lapped joint) galvanized screws eventually stainless screws with countersunk head are used. The board has to be pre-bored with a drill diameter of 1.2 fold of screw diameter.

The recommended screws for CETRIS® boards of 10

(12 mm thickness, at wooden bearing structure:

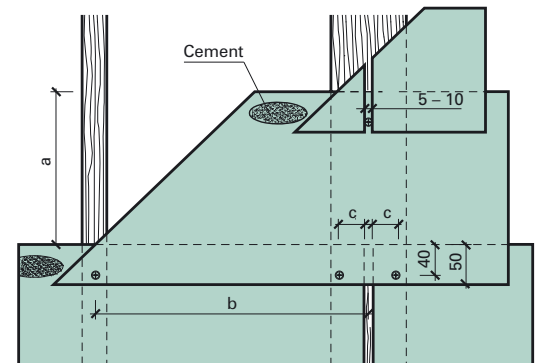
- screw of type BÜHNEN, diameter 4.2 mm, length 35 mm

The recommended screws for CETRIS® boards of 10 (12 mm thickness, at bearing structure of type Euro-Fox:

- EJOT type screw, Climadur-Dabo TKR – 4.8 x 35

Product type Board thickness (mm)	a (mm)	b (mm)	c (mm)	
10	< 450	< 500	> 35	< 50
12	< 350	< 625	> 35	< 50
14	< 600	< 625	> 35	< 50

D)



5.2 Stapling

The fast and economical stapling technology is advisable for mass production of building modules.

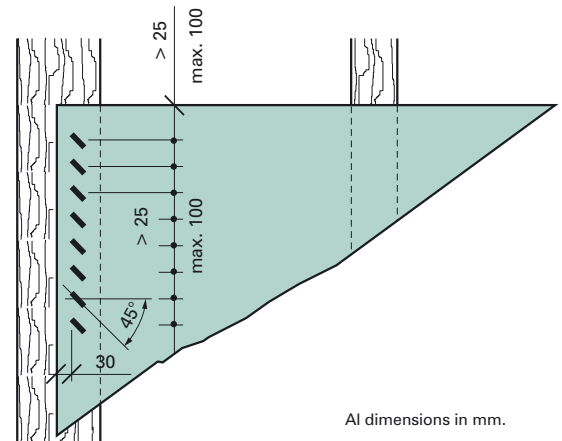
Air operated stapling machines with controlled air pressure and adjustable optimum stapling drive force is the best choice.



The minimal thickness of CETRIS® board to be fixed by stapling should be 12 mm, for end to end fixing 16 mm. The staples should be placed under 45° angle, for end to end stapling parallel to the board edge.

Only vertically positioned CETRIS® board can be fixed by stapling. CETRIS® boards used as lower ceiling or for declined planes should not be fixed by stapling.

It is always necessary to consult the supplier of the stapling technology about stapling at the particular constructions.



All dimensions in mm.