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Authorised and notified according
to Article 29 of the Regulation (EU)
No 305/2011 of the European Par-
liament and of the Council of 9
March 2011

MEMBER OF EOTA



European Technical Assessment ETA-19/0831 of 2020/06/22

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

**Trade name of the construc-
tion product:**

Rotho Blaas LOCK Connectors

**Product family to which the
above construction product
belongs:**

Three-dimensional nailing plate (Connectors for tim-
ber, CLT, LVL, Glulam members to timber, steel or
concrete)

Manufacturer:

Rotho Blaas s.r.l
Via dell'Adige 2/1
IT-39040 Cortaccia (BZ)
Tel. + 39 0471 818400
Fax + 39 0471 818484
Internet www.rothoblaas.com

Manufacturing plant:

Rotho Blaas s.r.l
Manufacturing Plants: 1A-2A-3A

**This European Technical As-
sessment contains:**

33 pages including 2 annexes which form an inte-
gral part of the document

**This European Technical As-
sessment is issued in accord-
ance with Regulation (EU) No
305/2011, on the basis of:**

Guideline for European Technical Approval (ETAG)
No. 015 Three Dimensional Nailing Plates, April
2013, used as European Assessment Document
(EAD).

This version replaces:

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II SPECIAL PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

LOCK connectors are two-piece, face-fixed connectors to be used in timber-to-timber (LOCK T), in steel-to-timber or concrete-to-timber (LOCK C) connections.

LOCK connectors can be manufactured and supplied as extruded profiles and cut to length on site as multiples of the basic module width (LOCK T, LOCK T FLOOR, LOCK C FLOOR) or pre-cut to the fixed connector width required. The characteristic load-carrying capacity of LOCK connectors made of multiples basic modules is to be calculated according to the formulas in Annex B.

The LOCK connectors are made from aluminium grade AW 6005A T6 according to EN 755-2. Dimensions, hole positions and typical installations are shown in Annexes A and B.

The load-carrying capacity and geometry of LOCK T, LOCK T FLOOR and LOCK C FLOOR refer to the basic module with a standard connector width as shown in Annexes A and B. The load-carrying capacity of LOCK C is calculated in relation to the fixed connector width provided in Annex B.

2 Specification of the intended use in accordance with the applicable EAD

LOCK connectors are intended for use in making end grain to side grain connections in load bearing timber structures, as a connection between a main and secondary solid timber or wood based member, as well as steel-to timber or concrete-to-timber connections, where requirements for mechanical resistance and stability and safety in use in the sense of the Basic Work Requirements 1 and 4 of the Regulation 305/2011 (EU) shall be fulfilled.

The LOCK connectors can be installed as connections between members such as:

- Structural solid timber according to EN 14081,
- Glued laminated or glued solid timber according to EN 14080,
- LVL according to EN 14374 or ETA,
- Cross laminated timber according to ETA,
- Steel or concrete members.

However, the calculation methods are only allowed for a characteristic wood density of up to 500 kg/m³. Even though the wood based material may have a larger density, this must not be used in the formulas for the load-carrying capacities of the fasteners.

Annex B states the formulas for the characteristic load-carrying capacities and slip moduli of the connections with LOCK connectors. The design of the connections shall be in accordance with Eurocode 5 or a similar national Timber Code.

It is assumed that the force acting on the connection is the shear force F_2 in the direction of insertion.

The LOCK connectors are intended for use for connections subject to static or quasi static loading.

The LOCK connectors made of aluminium are for use in timber structures subject to the conditions defined by the service classes 1, 2 and 3 of EN 1995-1-1 (Eurocode 5).

The scope of the connectors regarding resistance to corrosion shall be defined according to national provisions that apply at the installation site considering environmental conditions and in conjunction with the admissible service conditions according to EN 1995-1-1 and the admissible corrosivity category as described and defined in EN ISO 12944-2.

Assumed working life

The assumed intended working life of the LOCK connectors for the intended use is 50 years, provided that they are subject to appropriate use and maintenance.

The information on the working life should not be regarded as a guarantee provided by the manufacturer or ETA Danmark. An “assumed intended working life” means that it is expected that, when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the essential requirements.

3 Characteristics of product and assessment

Characteristic	Assessment of characteristic
3.1 Mechanical resistance and stability (BWR 1)*)	
Characteristic load-carrying capacity	See Annex B
Stiffness	See Annex B
Ductility in cyclic testing	No performance assessed
3.2 Safety in case of fire (BWR 2)	
Reaction to fire	The connectors are made from aluminium classified as Euroclass A1 in accordance with EN 13501-1 and Commission Delegated Regulation 2016/364
3.3 Hygiene, health and the environment (BWR 3)	
Influence on air quality	No performance assessed
3.7 Sustainable use of natural resources (BWR 7)	No Performance assessed
3.8 General aspects related to the performance of the product	The LOCK connectors have been assessed as having satisfactory durability and serviceability when used in timber structures using the timber species described in Eurocode 5 and subject to the conditions defined by service classes 1, 2 and 3
Identification	See Annex A, B and C

*) See additional information in section 3.9 – 3.12.

3.9 Methods of verification

Safety principles and partial factors

The characteristic load-carrying capacities are based on the characteristic values of the connections with metal fasteners, the aluminium plates and the timber members.

In the case of timber failure or failure of the metal fasteners, the design values shall be calculated according to EN 1995-1-1 by dividing the characteristic values of the load-carrying capacities by different partial factors for the strength properties, and in addition multiplied with the coefficient k_{mod} .

In the case of aluminium failure, the design value shall be calculated according to EN 1999 by reducing the characteristic values of the load-carrying capacity with different partial factors.

The design value of the load-carrying capacity is the smaller value of all load-carrying capacities:

$$F_{\text{Rd}} = \min \left\{ \frac{k_{\text{mod}} \cdot F_{\text{Rk,T}}}{\gamma_{\text{M,T}}}; \frac{F_{\text{Rk,alu}}}{\gamma_{\text{M2,alu}}} \right\}$$

Therefore, for timber failure or failure of the metal fasteners the load duration class and the service class are included. The different partial factors γ_{M} for aluminium or timber failure, respectively, are also correctly taken into account.

3.10 Mechanical resistance and stability

See Annex B for characteristic load-carrying capacities of the LOCK connections.

The characteristic capacities of the connectors are determined by calculation assisted by testing as described in the EOTA Guideline 015 clause 2.4.1. They should be used for designs in accordance with Eurocode 5 or a similar national Timber Code.

The design models allow the use of fasteners described in the table on page 16 in Annex A:

- *Screws in accordance with EN 14592 or ETA-11/0030*
- *Bolts in accordance with EN ISO 898, EN ISO 4014, EN ISO 4016, EN ISO 4017, EN ISO 4018, EN 15048 or ETA*
- *Metal anchors in accordance with ETA*

No performance has been determined in relation to ductility of a joint under cyclic testing. The contribution to the performance of structures in seismic zones, therefore, has not been assessed.

3.11 Aspects related to the performance of the product

In accordance with ETAG 015 the LOCK connectors are produced from aluminium grade AW 6005A T6 according to EN 755-2 and could be either anodized or coated with an organic coating.

3.12 General aspects related to the use of the product

LOCK connectors are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

Optional inclined screws

It is possible to insert optional screws (without a structural function) in order to prevent a lateral or vertical displacement during the assembly phases. The geometry for the installation of the optional inclined screws is shown in Annex B.

Lateral locking system

It is possible to use an optional locking system (without a structural function) in order to prevent a lateral displacement during the assembly phases. The geometry of the lateral locking system is shown in Annex B.

The following provisions concerning product performance apply:

LOCK connector joints

A LOCK connector joint is assessed for the intended use provided:

- The timber member shall be free from wane under the LOCK connector.
- LOCK connectors are fastened to wood-based members by self-tapping screws in pre-drilled or non-pre-drilled holes.
- There shall be screws of equal length in all specified holes of each separate joist or header connector part. The screw lengths may be different in one connection in the joist or header part, respectively.
- The characteristic capacity of the LOCK connector joint is calculated according to the manufacturer's technical documentation dated 2019-12-05.
- The LOCK connector joint is designed in accordance with Eurocode 5 or an appropriate national code.
- The gap between the timber member and the connector surface, where contact stresses can occur during loading shall be limited. This means that for LOCK connectors the gap between the joist or

header connector part and the timber members shall be maximum 1 mm.

- When a LOCK T connector is used on each side of the main member, the width of the main member shall be so large to avoid contact between the screw tips.
- The spacing between adjacent LOCK connectors in connections containing more than one connector shall be large enough to fulfil minimum spacing requirements of the fasteners.
- Screws to be used shall have a diameter of 5 mm or 6 mm or 7 mm and head shape which fits the holes of the LOCK connectors.
- For loads perpendicular to the member axis it must be checked in accordance with Eurocode 5 or a similar national Timber Code that splitting will not occur in either the joist or the header.

4 Assessment and verification of constancy of performance (AVCP)

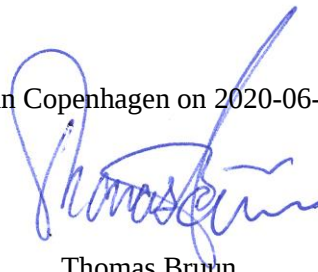
4.1 AVCP system

According to the decision 97/638/EC of the European Commission, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

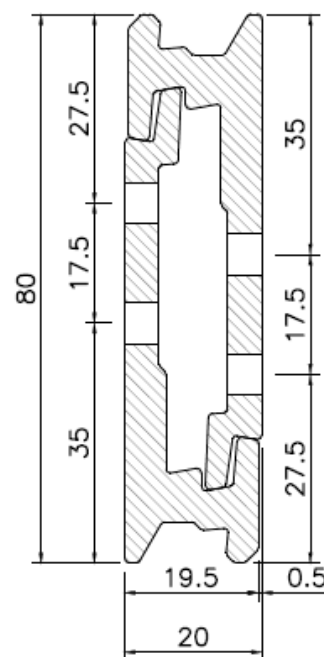
5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark.

Issued in Copenhagen on 2020-06-22 by



Thomas Bruun
Managing Director, ETA-Danmark

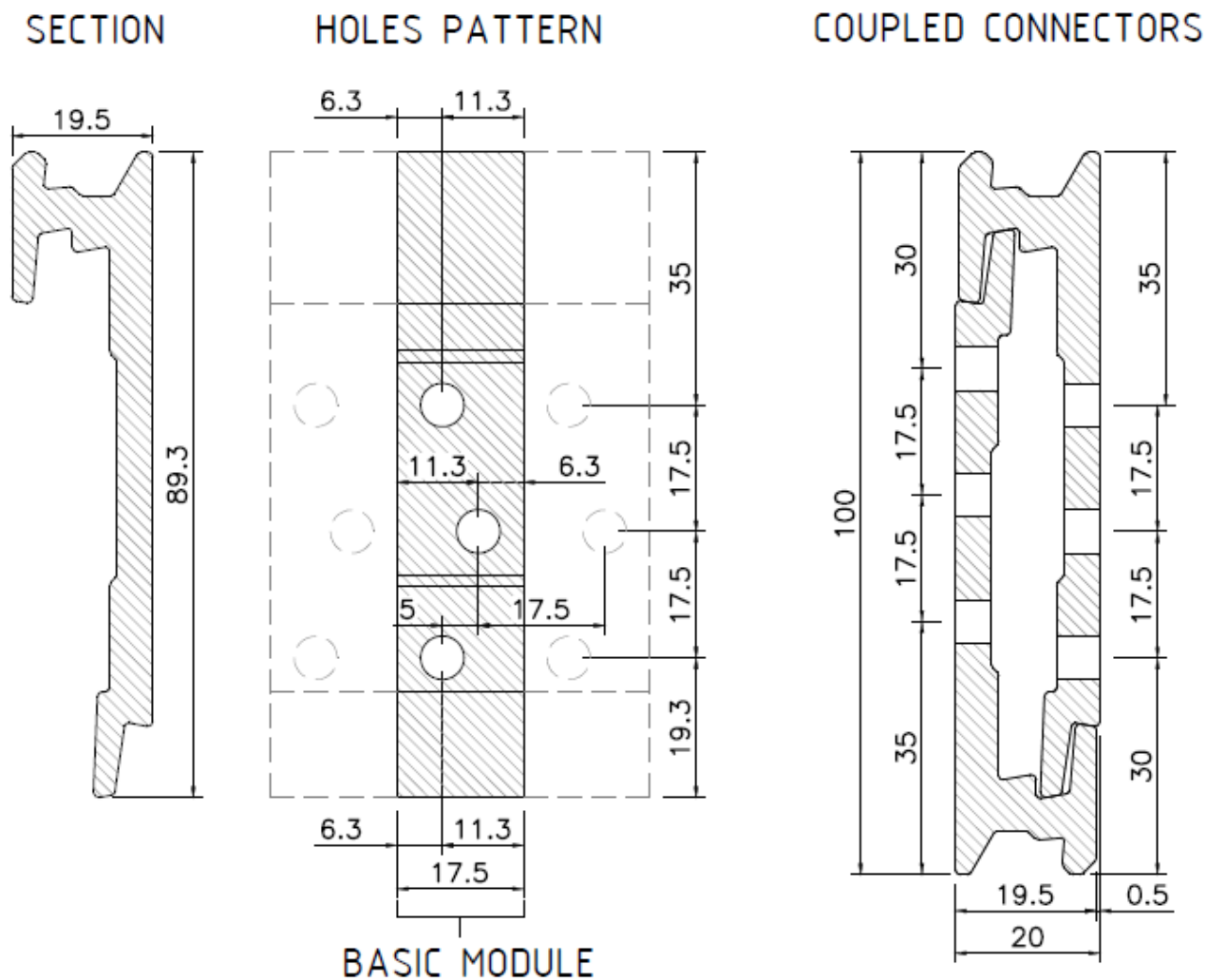


LOCK T 100 and LOCK T 100 FLOOR connector

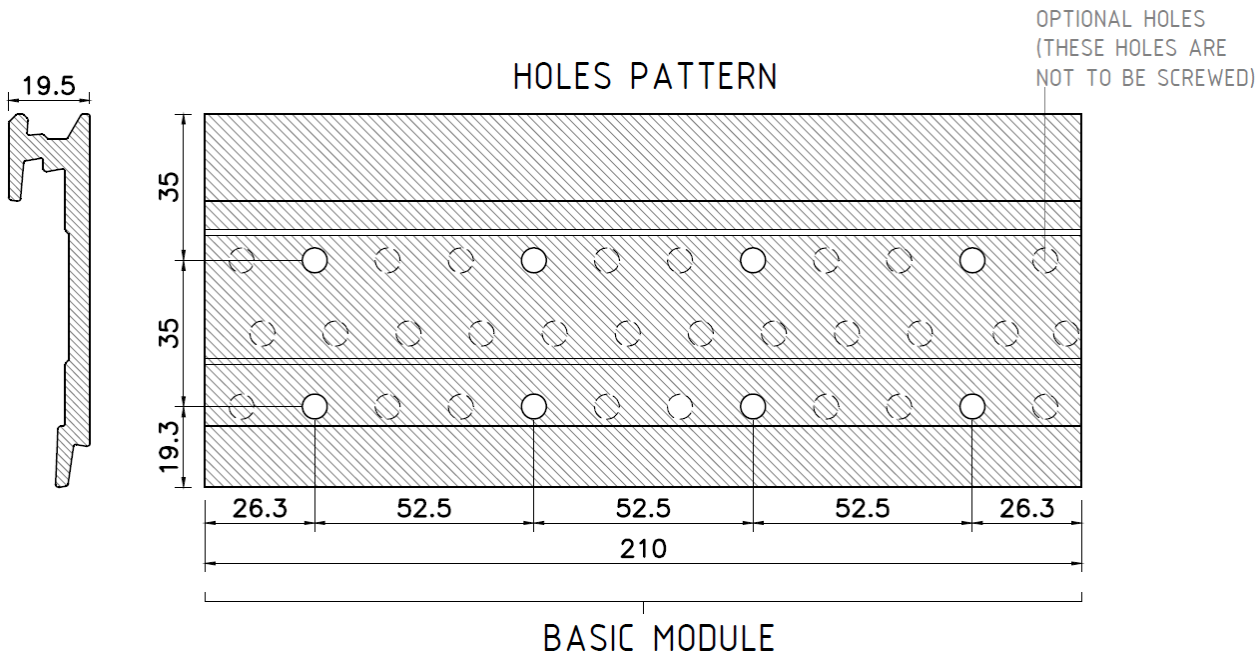
Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-timber connections with 5 mm screws.

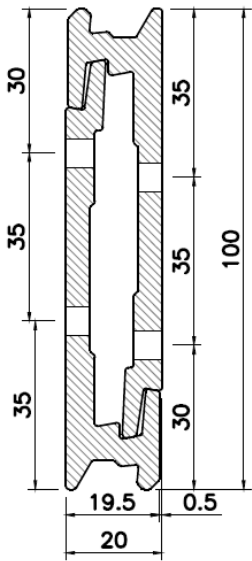
LOCK T 100

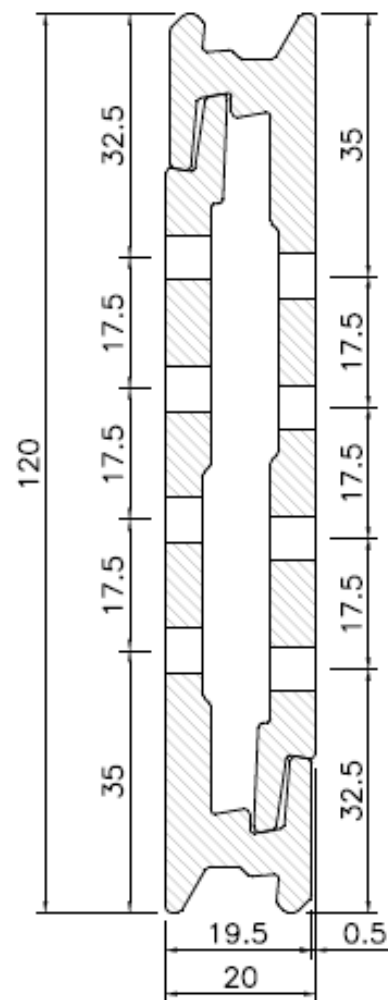


LOCK T 100 FLOOR



COUPLED CONNECTORS



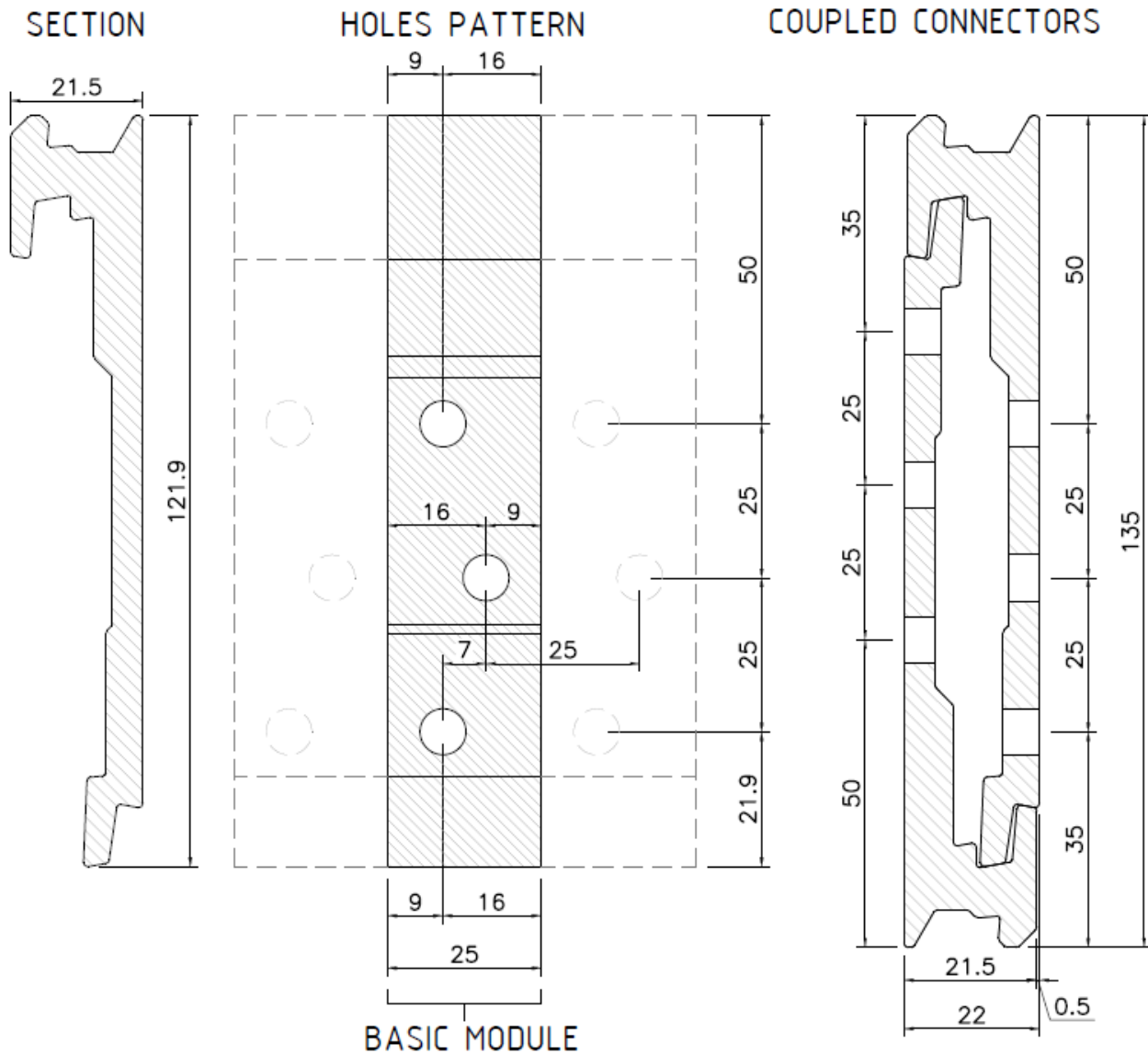


LOCK T 135 and LOCK T 135 FLOOR connector

Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-timber connections with 6 mm or 7 mm screws.

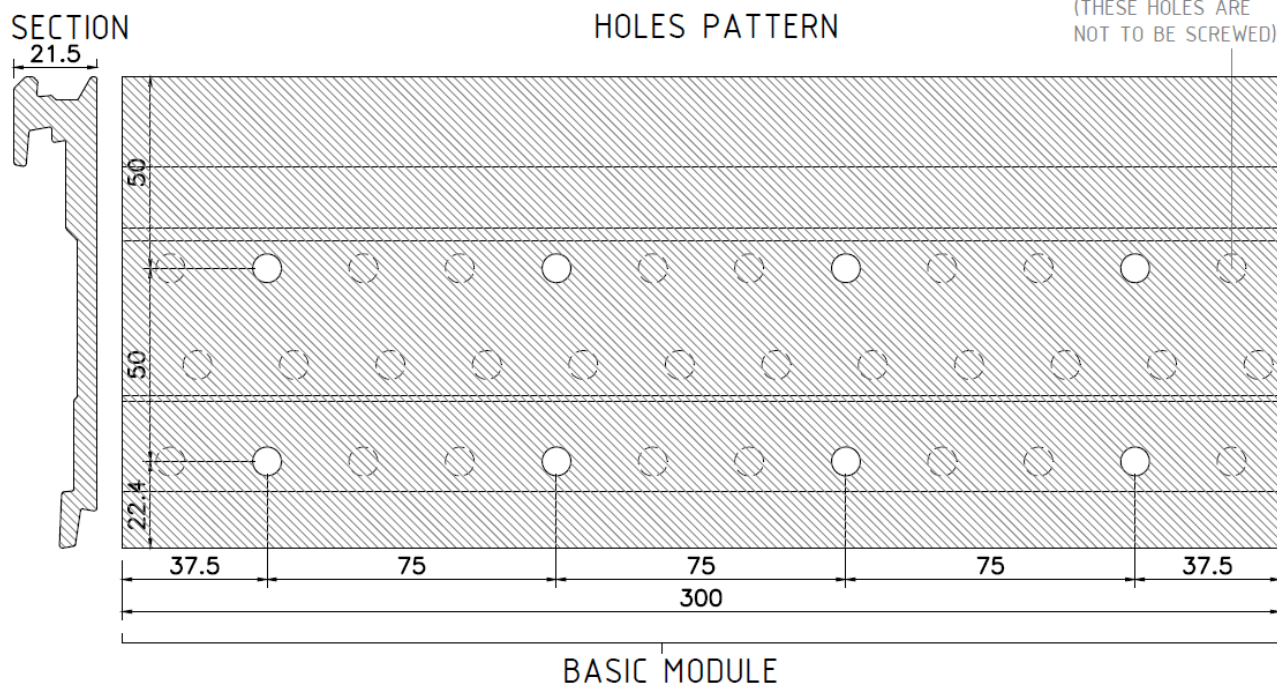
LOCK T 135



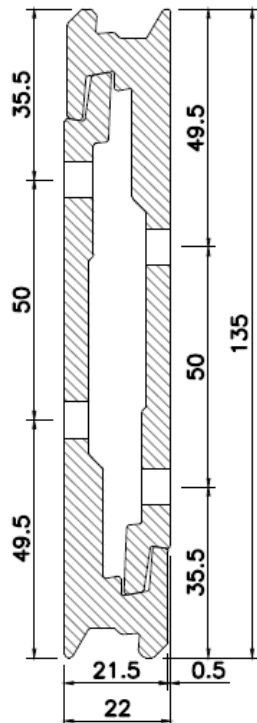
LOCK T 135 FL00R

HOLES PATTERN

OPTIONAL HOLES
(THESE HOLES ARE
NOT TO BE SCREWED)



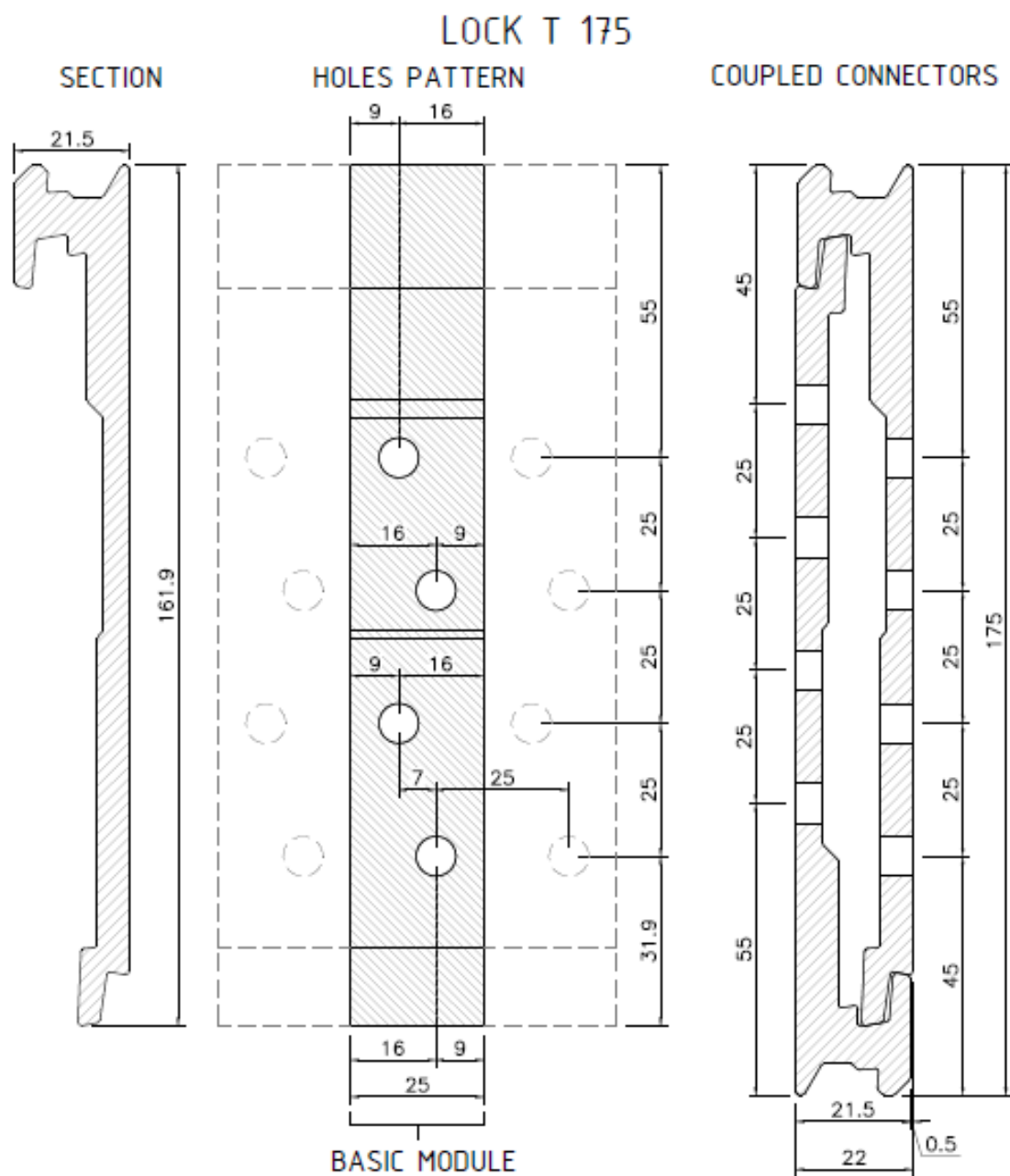
COUPLED CONNECTORS

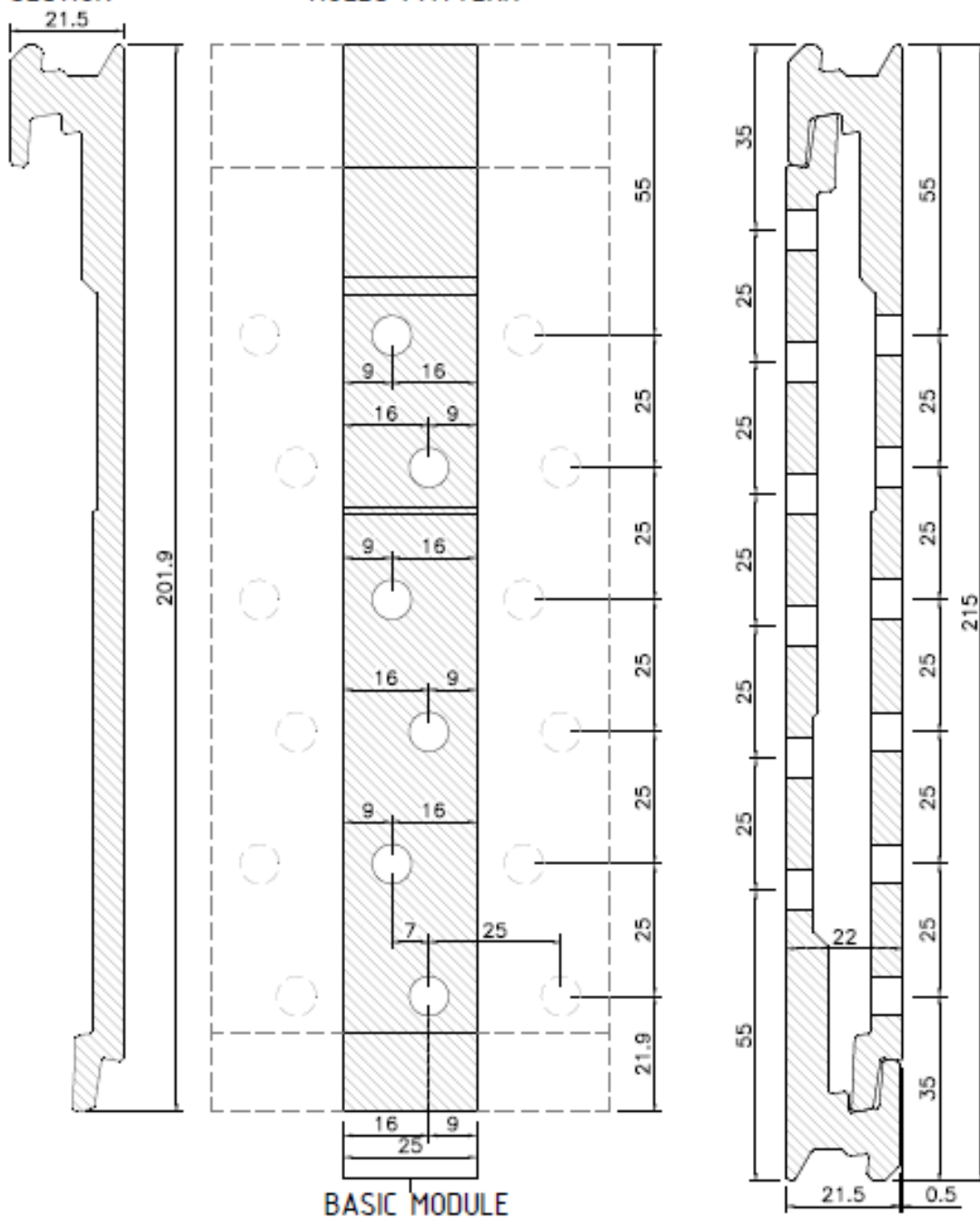


LOCK T 175 connector

Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-timber connections with 6 mm or 7 mm screws.

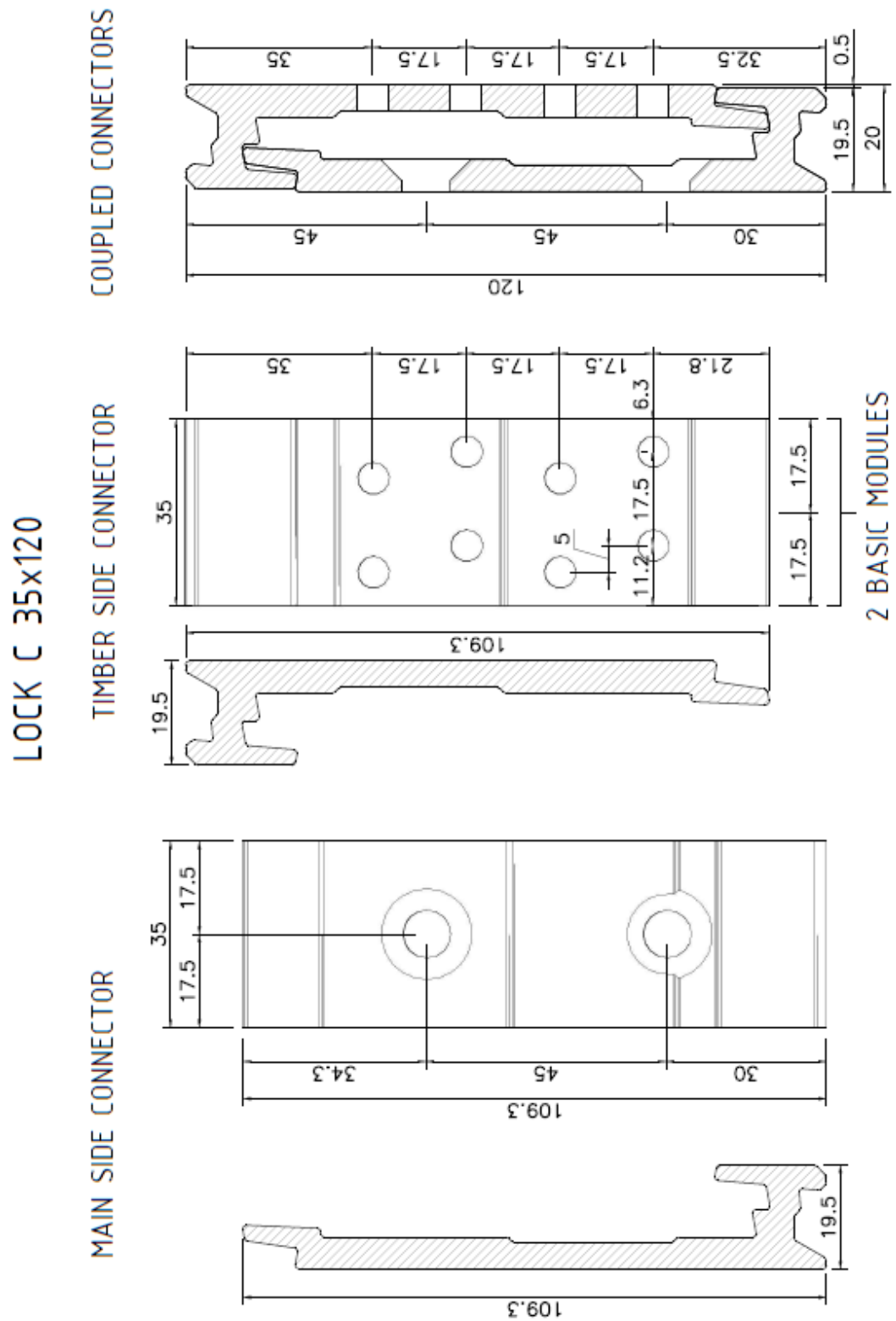




LOCK C 35x120 or 53x120 connector

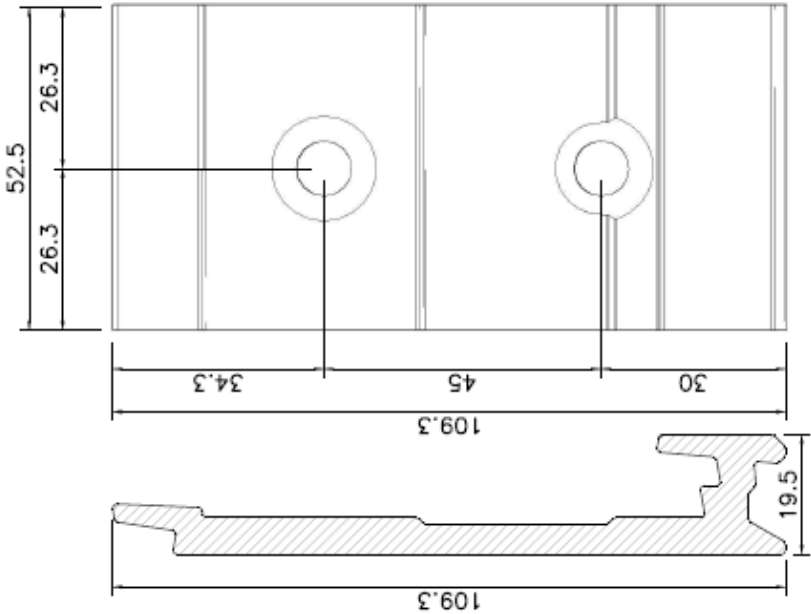
Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-concrete or timber to steel connections with 5 mm screws and 8 mm bolts or metal anchors.

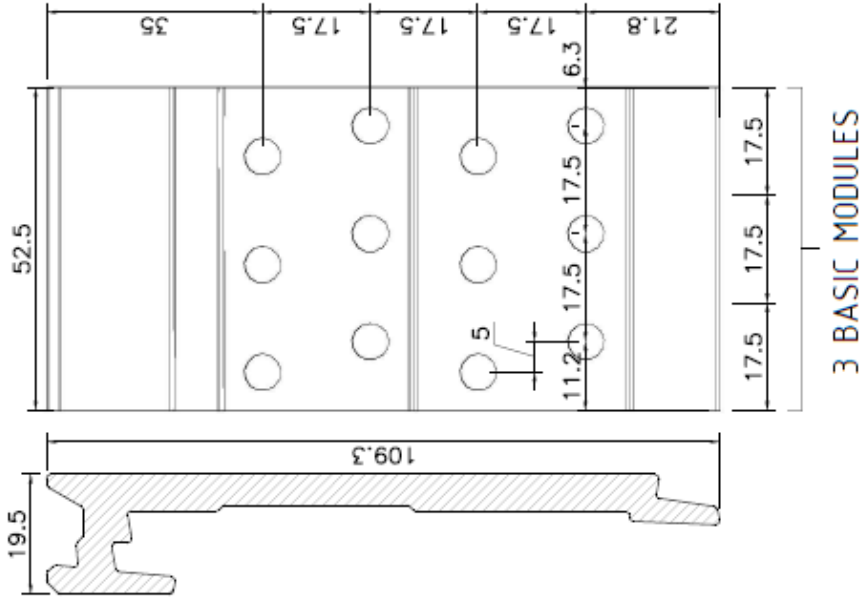


LOCK C 53x120

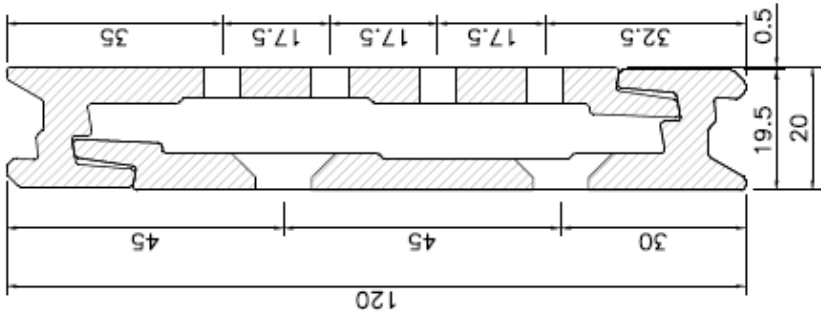
MAIN SIDE CONNECTOR



TIMBER SIDE CONNECTOR



COUPLED CONNECTORS

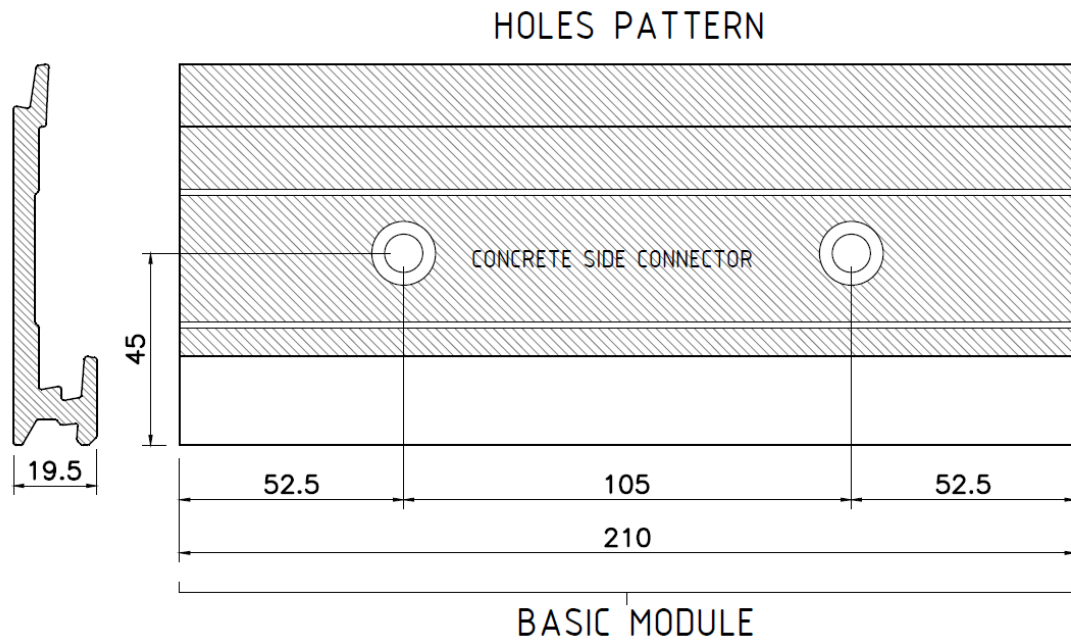


LOCK C 100 FLOOR connector

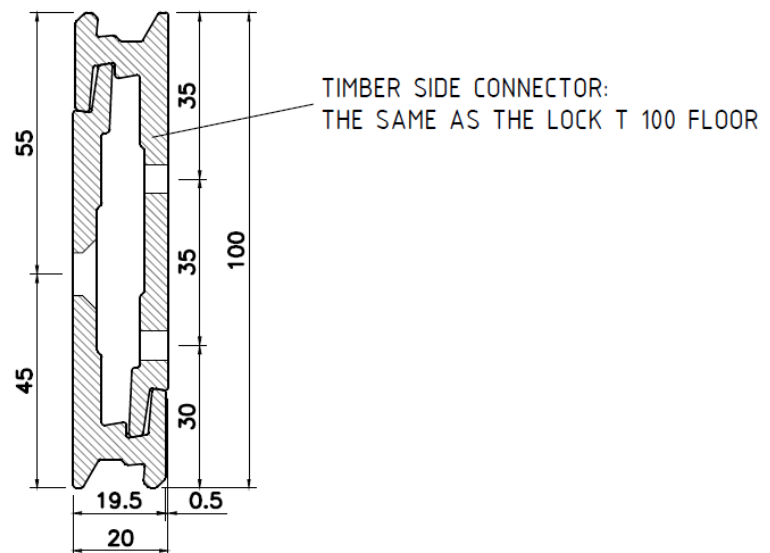
Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-concrete or timber to steel connections with 5 mm screws and 10 mm bolts or metal anchors.

LOCK C 100 FLOOR



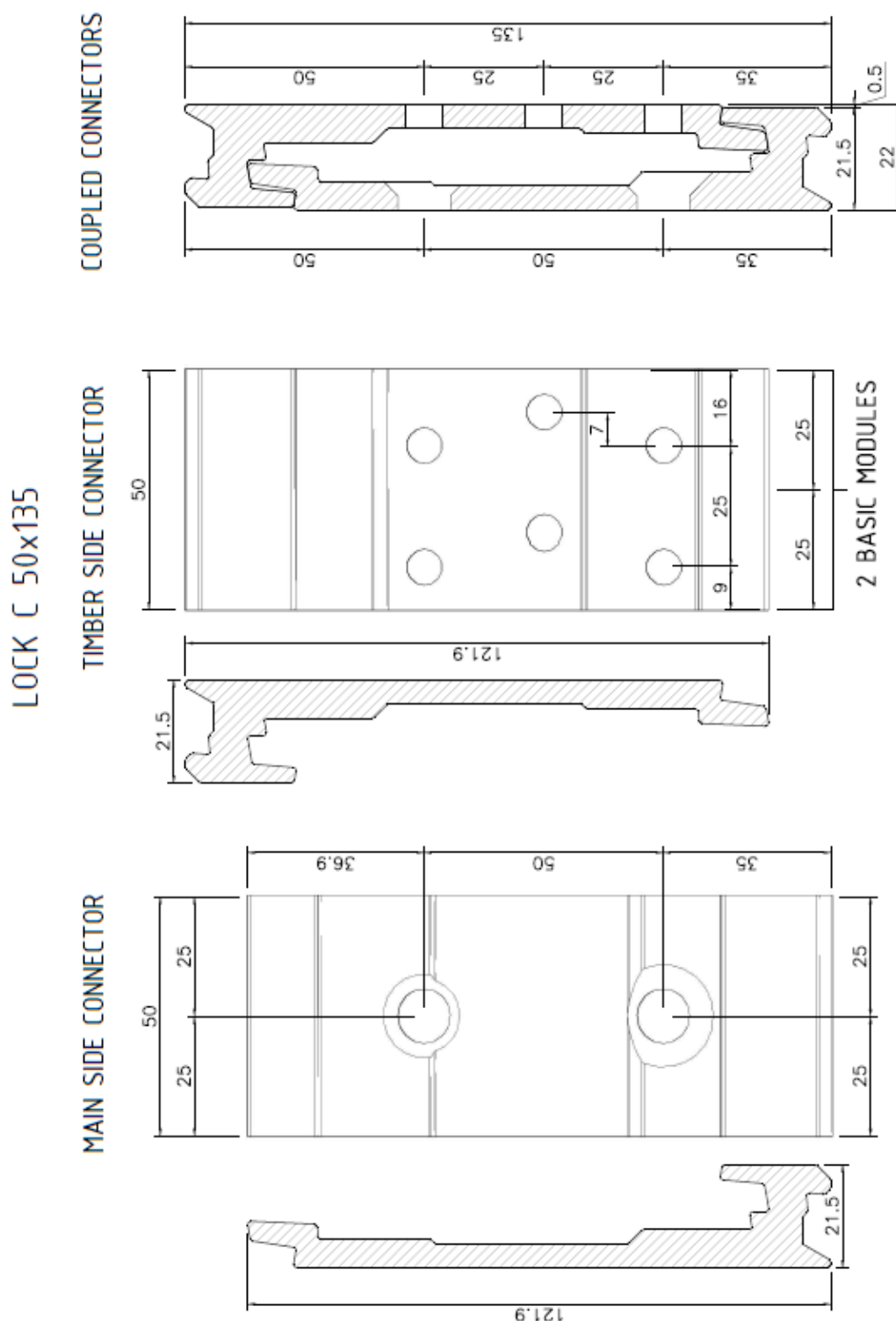
COUPLED CONNECTORS



LOCK C 50x135 or 75x135 connector

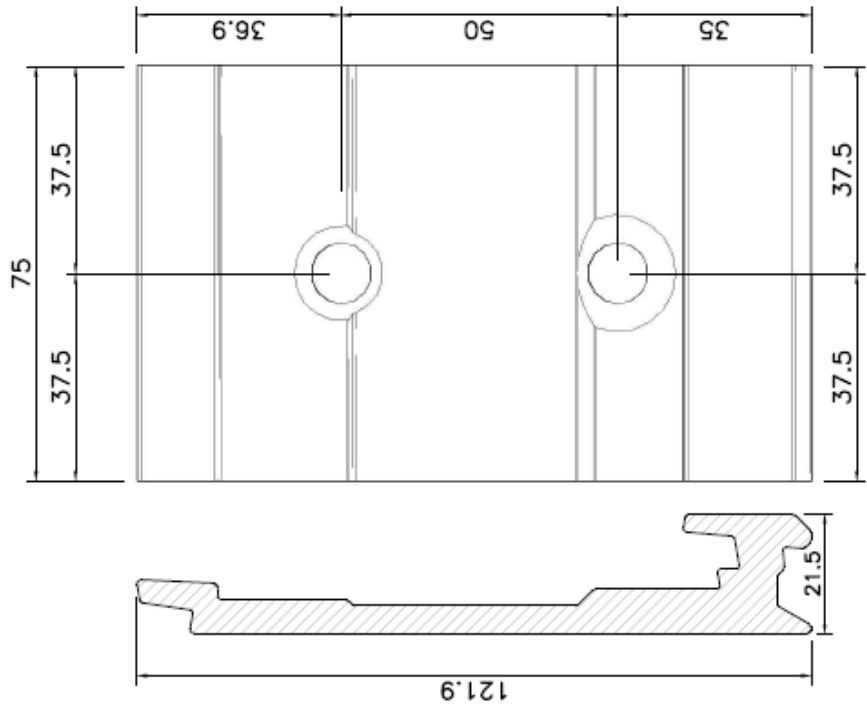
Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-concrete or timber to steel connections with 6 mm or 7 mm screws and 10 mm bolts or metal anchors.

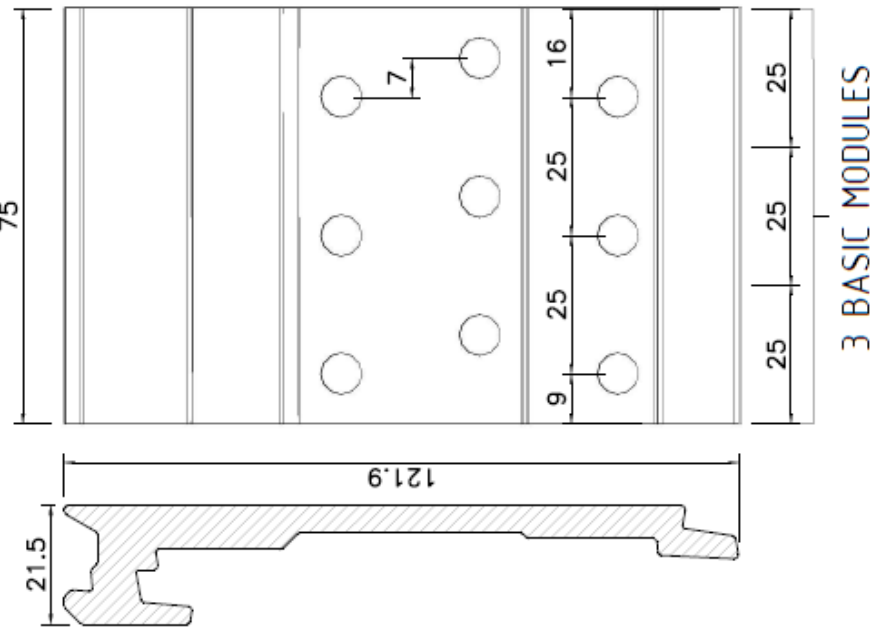


LOCK C 75x135

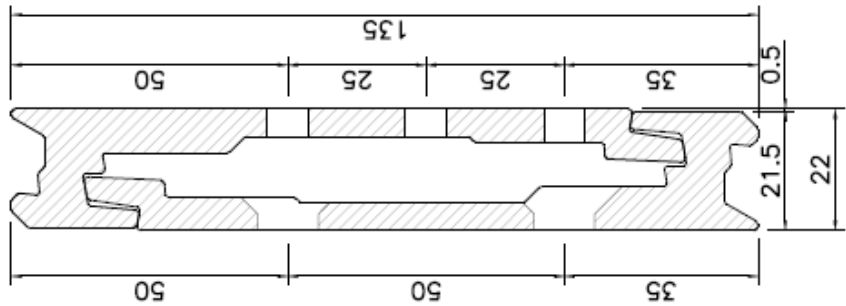
MAIN SIDE CONNECTOR



TIMBER SIDE CONNECTOR



COUPLED CONNECTORS



LOCK C 135 FLOOR connector

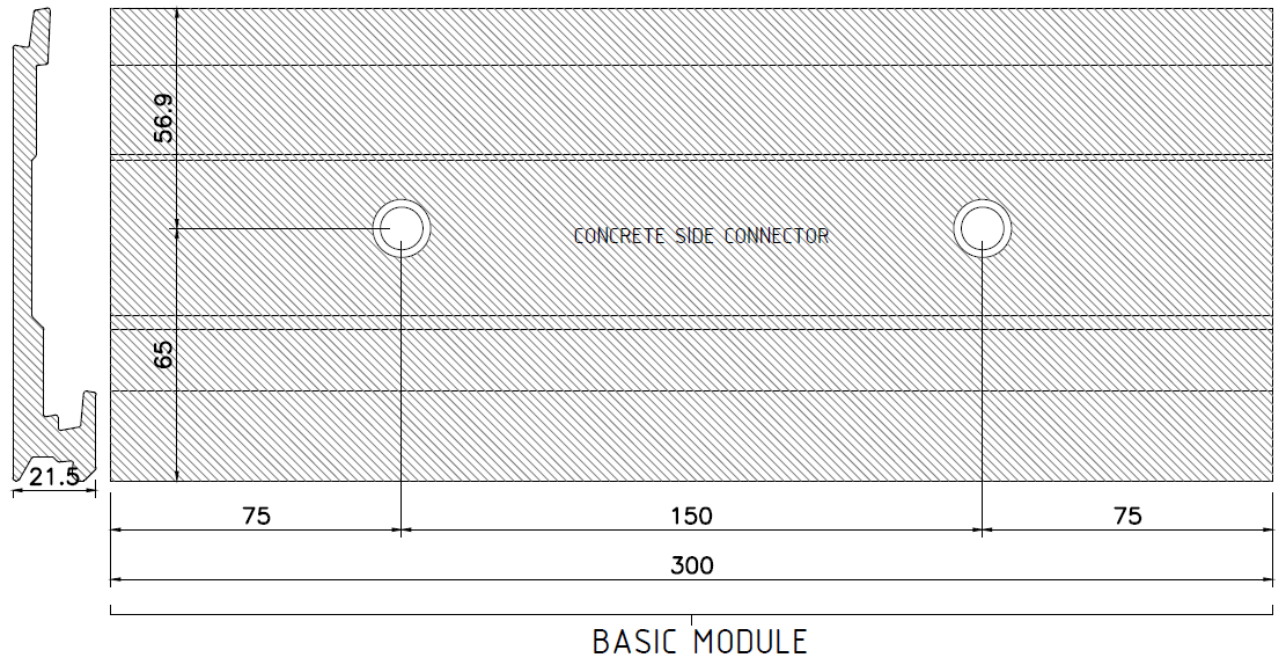
Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-concrete or timber to steel connections with 6 mm or 7 mm screws and 10 mm bolts or metal anchors.

LOCK C 135 FLOOR

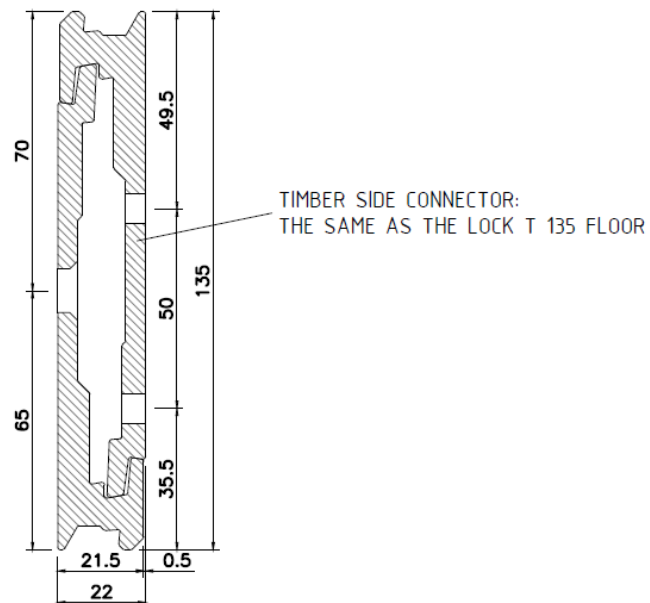
SECTION

HOLES PATTERN



BASIC MODULE

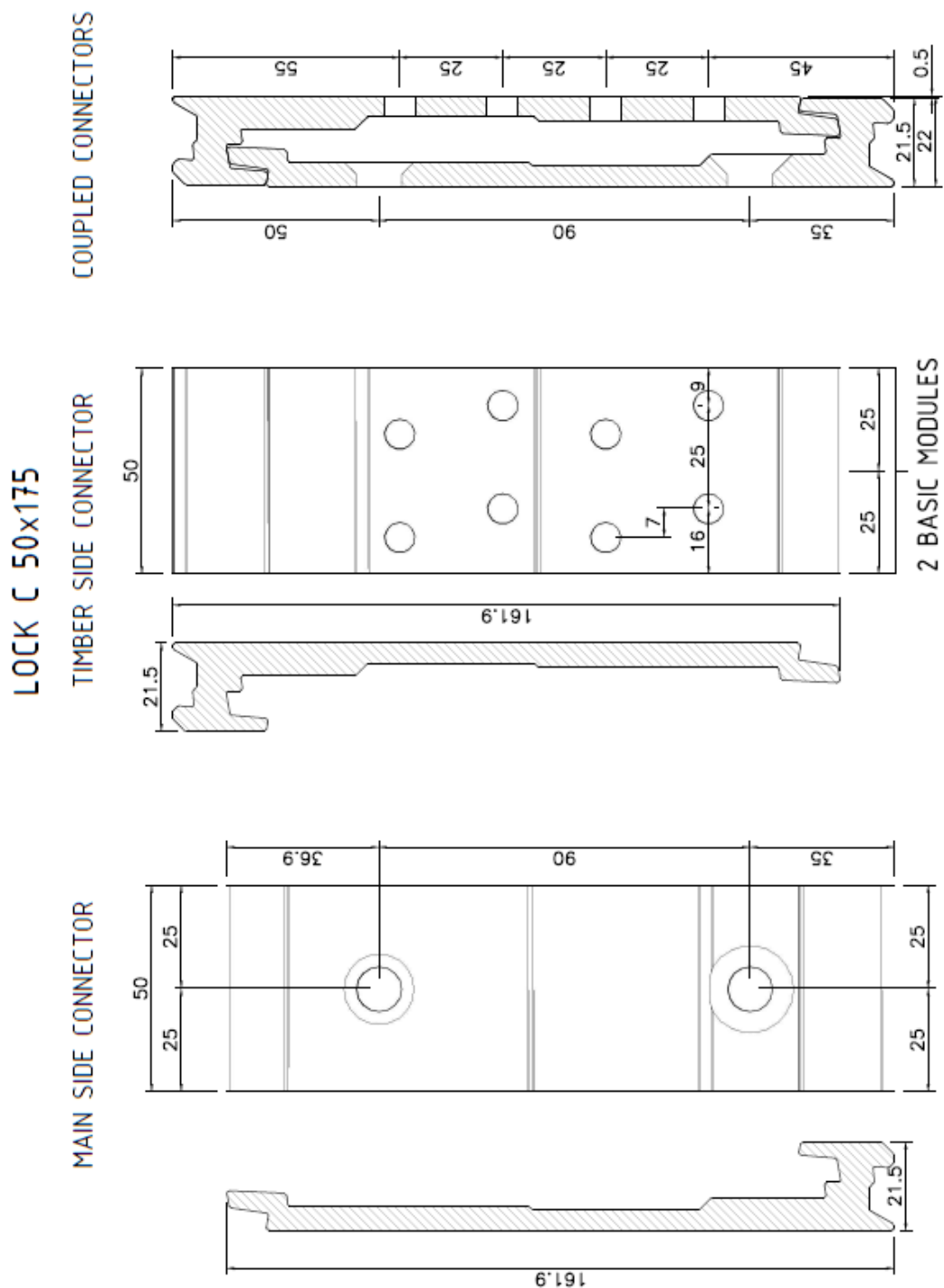
COUPLED CONNECTORS



LOCK C 50x175 or 75x175 connector

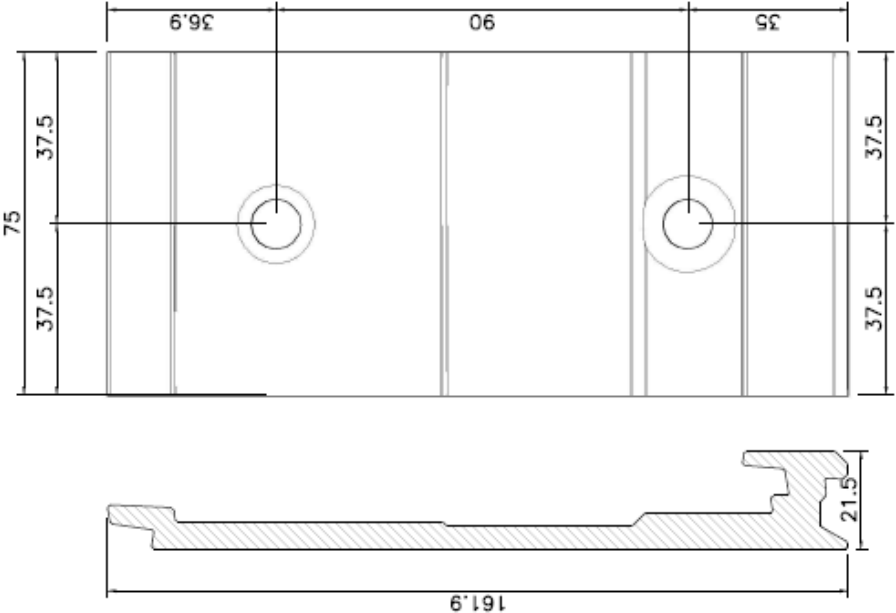
Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-concrete or timber to steel connections with 6 mm or 7 mm screws and 10 mm bolts or metal anchors.

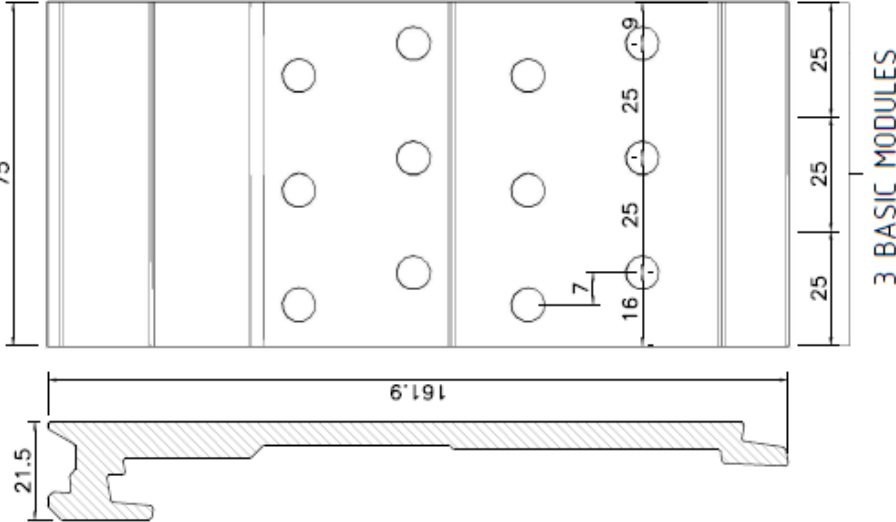


LOCK C 75x175

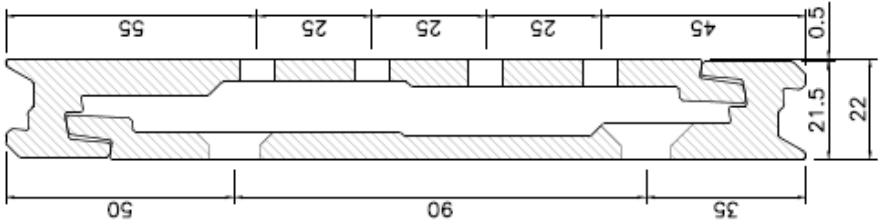
MAIN SIDE CONNECTOR



TIMBER SIDE CONNECTOR



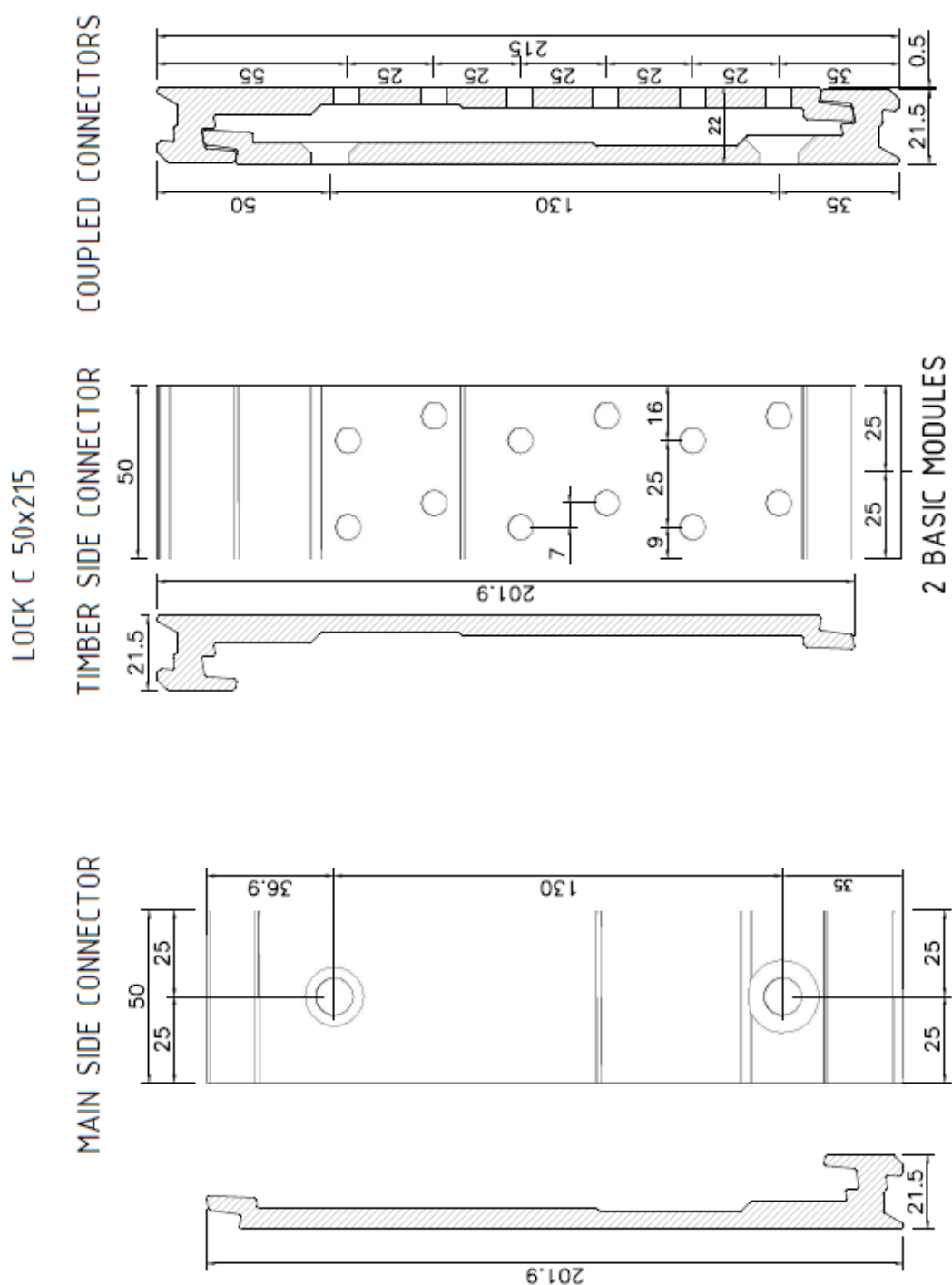
COUPLED CONNECTORS

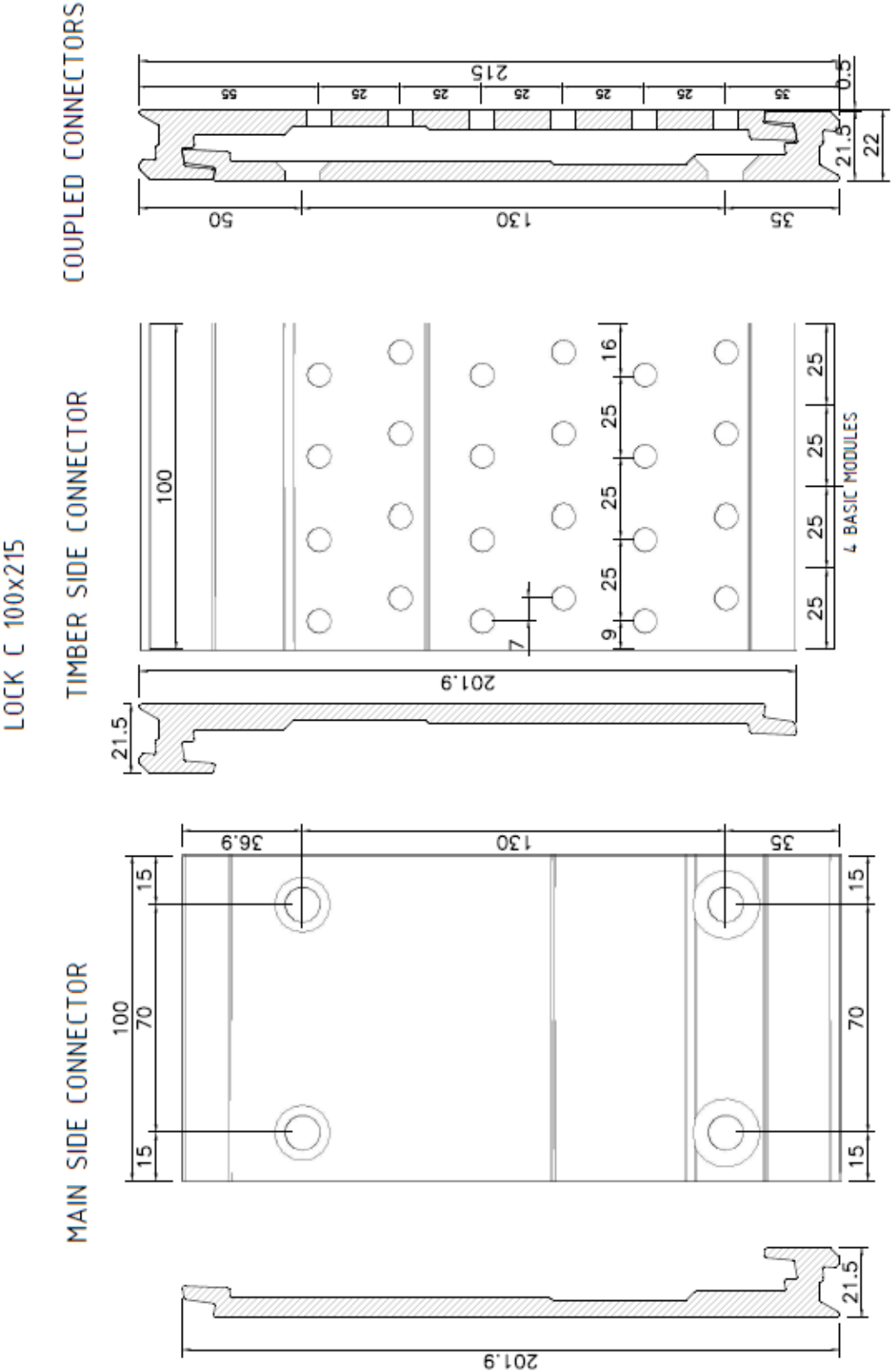


LOCK C 50x215 or 100x215 connector

Face mount two-piece connector. Aluminium grade AW 6005A T6 according to EN 755-2.

Timber-to-concrete or timber to steel connections with 6 mm or 7 mm screws and 10 mm bolts or metal anchors.





Fastener types and sizes

SCREW diameter [mm]	Length [mm]	Screw type
5.0	40 - 100	Rotho Blaas screws according to ETA-11/0030 or EN 14592
6.0	60 - 120	Rotho Blaas screws according to ETA-11/0030 or EN 14592
7.0	60 - 160	Rotho Blaas screws according to ETA-11/0030 or EN 14592

BOLTS diameter [mm]	Length [mm]	Bolt type
8.0 – 10.0	80 - 500	Bolts or threaded rods with metric thread min. 4.6 according to EN ISO 898, EN ISO 4014, EN ISO 4016, EN ISO 4017, EN ISO 4018, EN 15048 or ETA

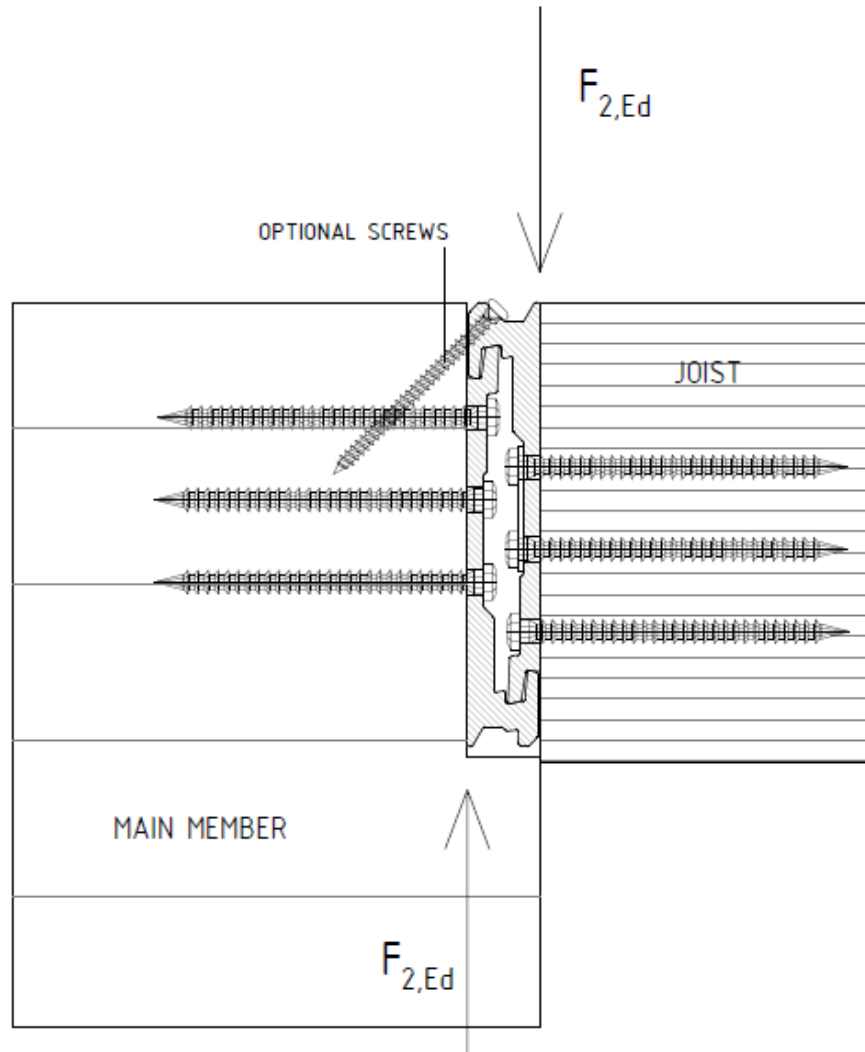
Metal anchors diameter [mm]	Length [mm]	Anchor type
8.0 – 10.0	80 - 500	Metal anchors for use in concrete according to ETA

Annex B

Characteristic values of load-carrying-capacities and slip moduli

Timber-to-timber connections with screws and bolt loaded in shear

The forces are assumed to act in the direction of insertion. Only a full fastener pattern is specified, where there are screws of equal length in all the holes of each connector part. The screw lengths in the joist and header connector parts, respectively, may be different. The angle between connector plane and grain direction of the secondary member may be between 0° and 90°.



Example shown: LOCK T 135 inserted into main member loaded by force $F_{2,Ed}$

$$F_{2,Rk} = \min \left\{ \sum_{i=1}^{n_j} F_{v,J,Rk}^i; \left(\sqrt{\left(\frac{1}{\sum_{i=1}^{n_H} F_{v,H,Rk}^i} \right)^2 + \left(\frac{1}{k_{H,2} \cdot F_{ax,H,Rk}} \right)^2} \right)^{-1}; F_{2,alu,Rk} \right\} \quad (B.1)$$

$F_{v,J,Rk}$ Characteristic load-carrying capacity per shear plane per joist fastener according to EN 1995-1-1 8.2.3 for thin outer steel plates; in equation (8.9a) in EN 1995-1-1 8.2.3 the rope effect may be considered additionally:

$$F_{v,J,Rk} = \min \begin{cases} 0,4 \cdot f_{h,J,k} \cdot t_1 \cdot d + 0,25 \cdot F_{ax,J,Rk} \\ 1,15 \cdot \sqrt{2 \cdot M_{y,Rk} \cdot f_{h,J,k} \cdot d} + 0,25 \cdot F_{ax,J,Rk} \end{cases}$$

- $f_{h,J,k}$ Characteristic embedment strength for joist screws according to ETA-11/0030 in Mpa;
- d outer thread diameter in mm;
- ρ_k characteristic density in kg/m³;
- $F_{v,H,Rk}$ Characteristic load-carrying capacity per shear plane per header fastener according to ETA-11/0030 for thin outer steel plates; in equation (8.9a) in EN 1995-1-1 8.2.3 the rope effect may be considered additionally:
- $$F_{v,H,Rk} = \min \begin{cases} 0,4 \cdot f_{h,H,k} \cdot t_1 \cdot d + 0,25 \cdot F_{ax,H,Rk} \\ 1,15 \cdot \sqrt{2 \cdot M_{y,Rk} \cdot f_{h,H,k} \cdot d} + 0,25 \cdot F_{ax,H,Rk} \end{cases}$$
- $F_{ax,Rk}$ Characteristic axial capacity of a joist or header screw according to ETA-11/0030 for Rotho Blaas LOCK Connectors arranged at angles $0^\circ \leq \alpha \leq 90^\circ$ to the grain. For the rope effect in the joist, the axial withdrawal capacity of screws arranged parallel to grain may be assumed as 5/6 of the withdrawal capacity of screws arranged perpendicular to grain;
- $M_{y,Rk}$ Characteristic fastener yield moment;
- n_J number of joist screws;
- n_H number of header screws;
- $k_{H,2}$ form factor, see Table 1;
- $F_{2,alu,Rk}$ characteristic capacity of the Rotho Blaas LOCK Connector, see Table 1.

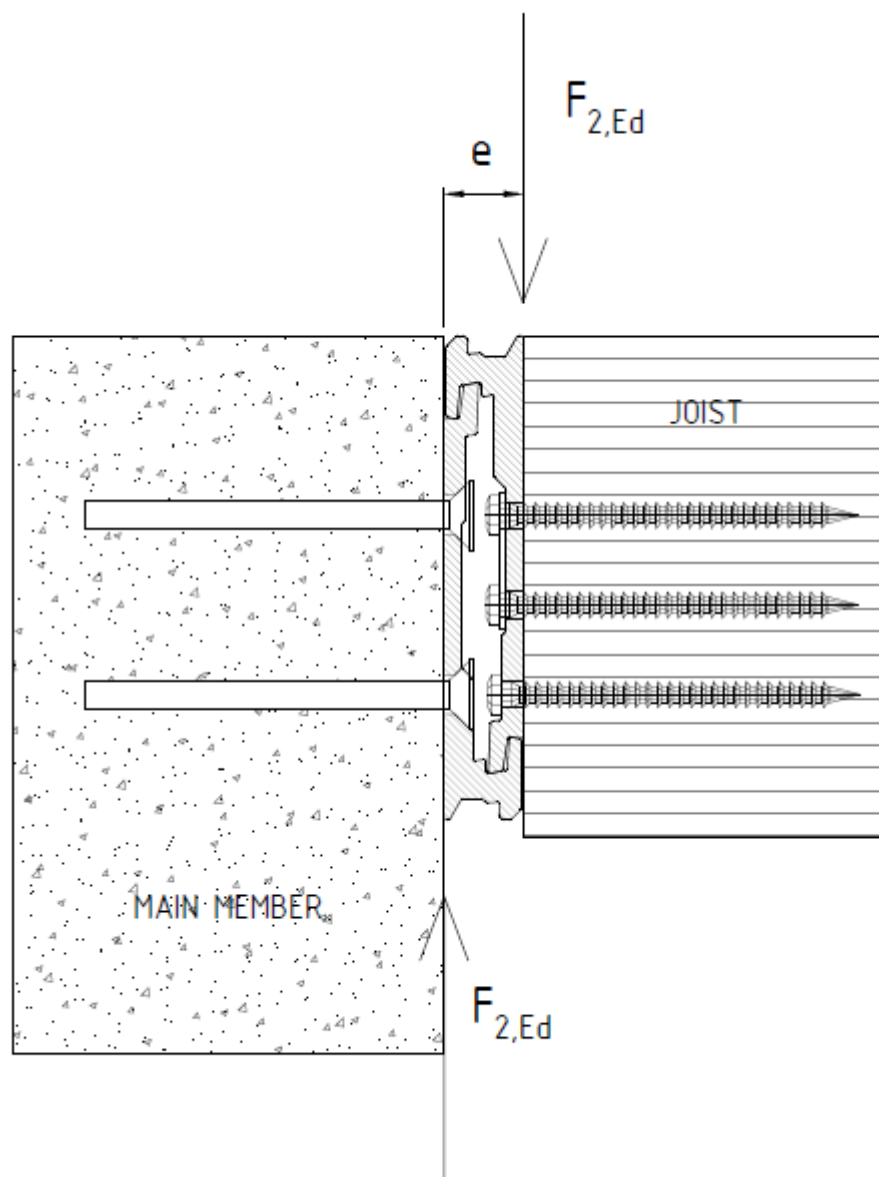
Table B.1: Rotho Blaas LOCK T Connectors: form factor $k_{H,2}$ and connector capacity $F_{2,alu,Rk}$ for load direction F_2 in timber-to-timber connections

Rotho Blaas LOCK Connectors	Module width [mm]	$k_{H,2}$	$F_{2,alu,Rk}$ [kN]
LOCK T 80	17,5	$n_M \cdot 2,19$	$n_M \cdot 10$
LOCK T 100	17,5	$n_M \cdot 4,39$	$n_M \cdot 10$
LOCK T 100FLOOR	210	$n_M \cdot 12,5$	$n_M \cdot 130$
LOCK T 120	17,5	$n_M \cdot 7,36$	$n_M \cdot 10$
LOCK T 135	25,0	$n_M \cdot 5,30$	$n_M \cdot 15$
LOCK T 135FLOOR	300	$n_M \cdot 15,3$	$n_M \cdot 240$
LOCK T 175	25,0	$n_M \cdot 10,7$	$n_M \cdot 20$
LOCK T 215	25,0	$n_M \cdot 18,3$	$n_M \cdot 20$
n_M is the number of basic modules, see product drawings			

Steel-to-timber or concrete-to-timber connections with screws and bolts or metal anchors loaded in shear

The forces are assumed to act in the direction of insertion. Only a full fastener pattern is specified, where there are screws and bolts or metal anchors of equal length in all the holes of the connector. The angle between connector plane and grain direction of the secondary member may be between 0° and 90° .

If bolts or metal anchors according to ETA are used, the calculation methods given in the ETA of the bolts or metal anchors or by national standards have to be applied instead of the second summand in equation (B.2).



Example shown: LOCK C 135 inserted into concrete main member loaded by force $F_{2,Ed}$

$$F_{2,Rk} = \min \left\{ \sum_{i=1}^{n_J} F_{v,J,Rk}^i; \left(\sqrt{\frac{1}{\sum_{i=1}^{n_H} F_{v,bolt,Rk}^i}} + \left(\frac{1}{k_{H,2} \cdot F_{ax,bolt,Rk}} \right)^2 \right)^{-1}; F_{2,alu,Rk} \right\} \quad (B.2)$$

If bolts or metal anchors according to ETA are used, the calculation methods given in the ETA of the bolts or metal anchors or by national standards have to be applied to determine $F_{2,H,Rk}$ instead of the second summand in equation (B.2).

Where:

- $F_{v,J,Rk}$ Characteristic load-carrying capacity per shear plane per joist fastener as for LOCK T connectors
- $F_{v,bolt,Rk}$ Characteristic load-carrying capacity per shear plane per bolt or metal anchor;
- $F_{ax,bolt,Rk}$ Axial capacity of a bolt or metal anchor;
- n_J Number of joist screws;
- n_H Number of bolts or metal anchors in the header;
- $k_{H,2}$ Form factor, see Table 2;

$F_{2,alu,Rk}$ Characteristic capacity of the Rotho Blaas LOCK Connector, see Table 2.

Table B.2: Rotho Blaas LOCK C Connectors: form factor $k_{H,2}$ and connector capacity $F_{2,alu,Rk}$ for load direction F_2 in timber-to-concrete or timber-to-steel connections

Rotho Blaas LOCK Connectors	Connector width [mm]	$k_{H,2}$	$F_{2,alu,Rk}$ [kN]
LOCK C 35x120	35,0	3,56	20
LOCK C 53x120	52,5	3,56	30
LOCK C 50x135	50,0	3,79	30
LOCK C 75x135	75,0	5,68	45
LOCK C 50x175	50,0	5,47	40
LOCK C 75x175	75,0	8,20	60
LOCK C 50x215	50,0	7,75	40
LOCK C 100x215	100	15,5	80
LOCK C 100FLOOR	$n_M \cdot 210$	$n_M \cdot 3,50$	$n_M \cdot 130$
LOCK C 135FLOOR	$n_M \cdot 300$	$n_M \cdot 5,91$	$n_M \cdot 240$
n_M is the number of basic modules, see product drawings			

The slip modulus per LOCK connector may be assumed as:

$$K_{23,ser} = \frac{n \cdot \rho_m^{1,5} \cdot d^{0,8}}{30} \text{ kN/mm for LOCK connectors with laterally loaded joist screws}$$

Where:

d Outer thread diameter of joist screws in mm,

ρ_m Mean density of the secondary timber member (joist) in kg/m³

n Number of screws in the joist connection;

Installation:

Table B.3: Required screw hole predrilling for combinations of timber materials and LOCK connectors

Timber, glulam, CLT or LVL member	LOCK T80 to T215 LOCK C120 to C215	LOCK T120 FLOOR LOCK C120 FLOOR	LOCK T135 FLOOR LOCK C135 FLOOR
Joist or header, $\rho_k \leq 420 \text{ kg/m}^3$	No predrilling	No predrilling	No predrilling
Joist or header, $420 > \rho_k > 500 \text{ kg/m}^3$	Predrilling	No predrilling	No predrilling
Column, $\rho_k \leq 420 \text{ kg/m}^3$	Predrilling	No predrilling	No predrilling
Column, $420 > \rho_k > 500 \text{ kg/m}^3$	Predrilling	No predrilling	Predrilling

The required end and edge distances are given in EN 1995-1-1 Table 8.2. For timber joists with screws oriented parallel to grain, the edge distances in both directions should fulfil the required minimum values for $a_{4,t}$ or $a_{4,c}$, respectively.

For LOCK T connectors in joists from softwood with $\rho_k \leq 420 \text{ kg/m}^3$, the minimum edge distances for screws arranged parallel to grain without pre-drilling may be reduced to:

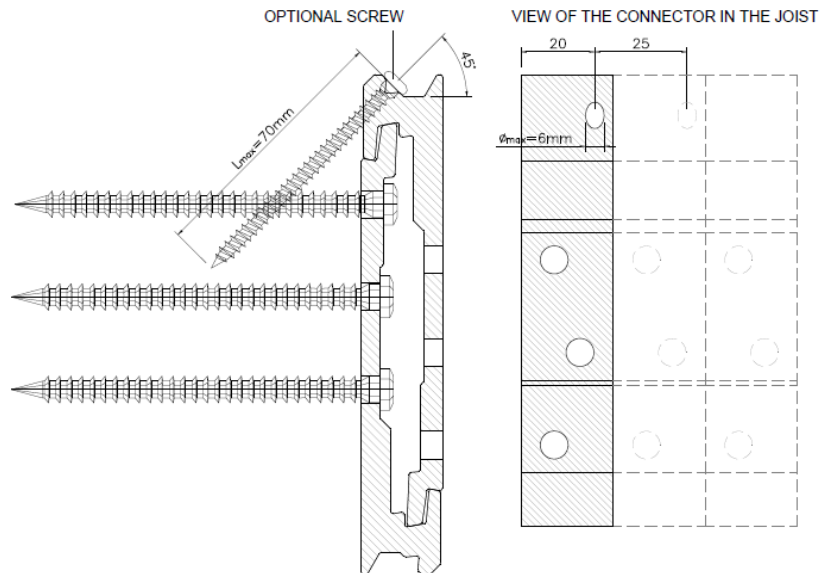
LOCK T 80, LOCK T 100, LOCK T 120: $a_{4,t} = 35 \text{ mm}$ $a_{4,c} = 19 \text{ mm}$
 LOCK T 135, LOCK T 175, LOCK T 215: $a_{4,t} = 55 \text{ mm}$ $a_{4,c} = 24 \text{ mm}$

Optional inclined screws

The holes for the inclined screws of the optional locking system can be pre-positioned on the LOCK connectors or can be drilled on site according to the configuration shown.

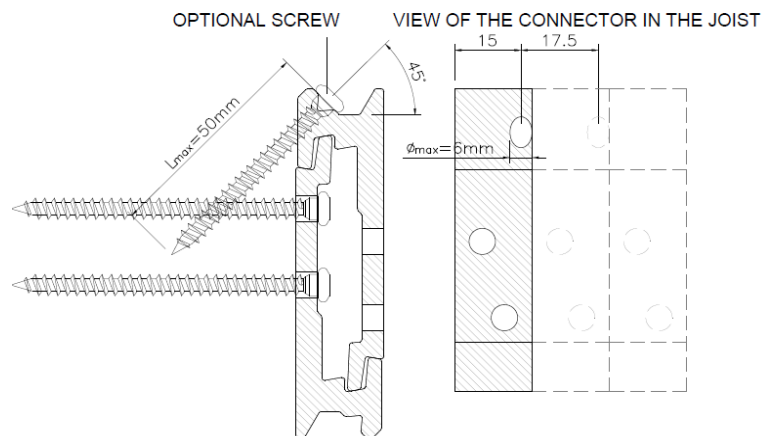
LOCK T 135, LOCK T 175, LOCK T 215

OPTIONAL INCLINED SCREW



LOCK T 80, LOCK T 100, LOCK T 120

OPTIONAL INCLINED SCREW



Lateral locking system

The lateral locking system LOCKSTOP can be obtained using one “U-shaped” plate (LOCKSTOP5U) for LOCK connectors made of one basic module, while two “L-shaped” plates (LOCKSTOP5 and LOCKSTOP7) can be used for LOCK connectors made of multiples basic modules.

The lateral locking system LOCKSTOP can be only used on the timber side for LOCK C connectors.

The lateral locking system LOCKSTOP can be used on both timber members, joist and header, for LOCK T 120, LOCK T 175 and LOCK T 215. The lateral locking system LOCKSTOP can be only used on one timber member, joist or header, for LOCK T 80, LOCK T 100 and LOCK T 135.

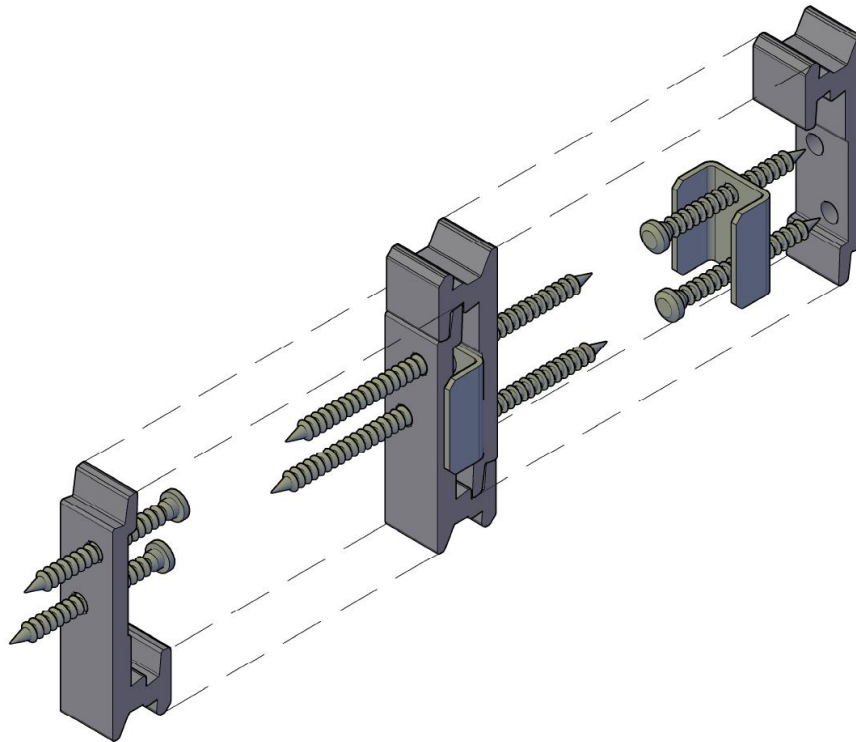


Figure 1: 1 module LOCK T connector

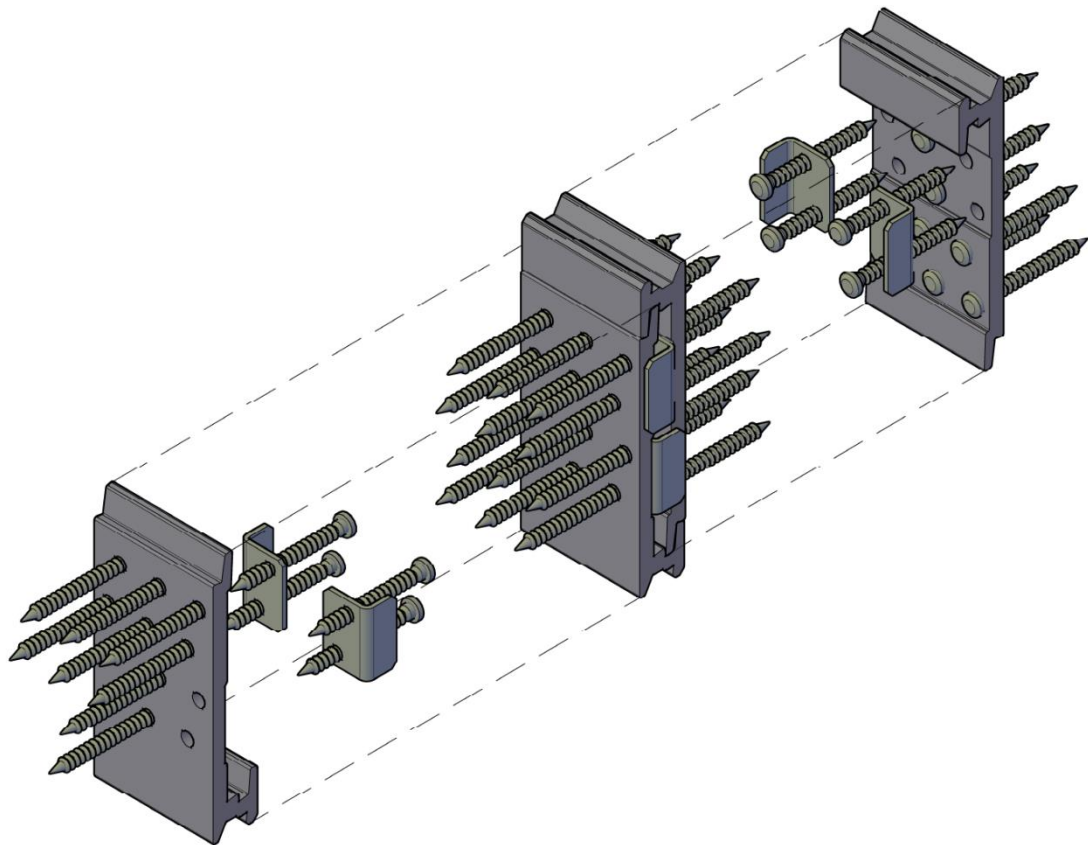


Figure 2 LOCK T connector with lateral locking system on both sides

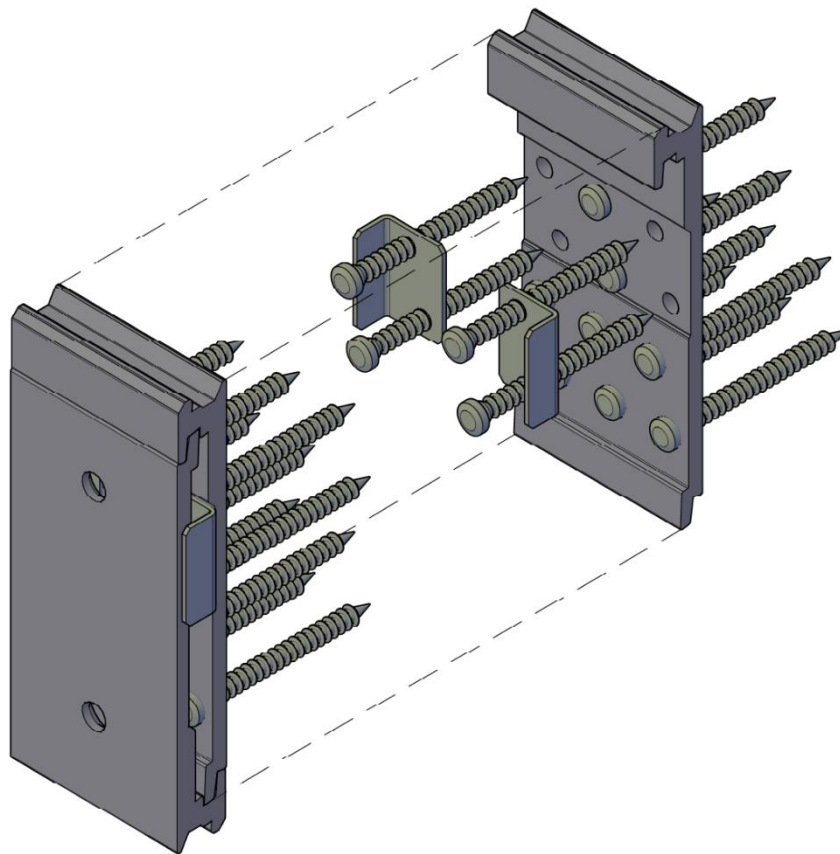


Figure 3 LOCK C connector with lateral locking system