

LOCK T MIDI

CONCEALED TIMBER-TO-TIMBER CONNECTOR

POST AND BEAM

Ideal for carports, pergolas, canopies or post-and-beam structures. It can also be used concealed with wooden elements having small cross-section.

OUTDOOR

For outdoor use (Service class 3). The correct choice of screw enables all fastening requirements to be met, even in aggressive environments.

WIND AND EARTHQUAKE

Certified strengths in all load directions, for safe fastening even under lateral, axial and lifting forces.



USA, Canada and more design values available online.



VIDEO



CALCULATION
TOOL



DESIGN
REGISTERED



ETA-19/0831

SERVICE CLASS

SC1

SC2

SC3

For information on the application areas of with reference to environment service class, atmospheric corrosivity class and timber corrosion class, refer to the website www.rothoblaas.com.

MATERIAL

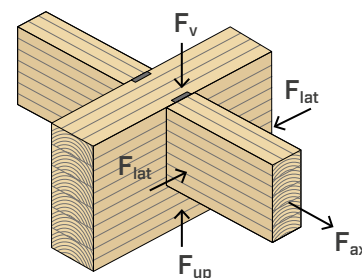


EN AW-6005A aluminium alloy



EVO version with special paint in graphite black colour

EXTERNAL LOADS



VIDEO

Scan the QR Code and watch the video on our YouTube channel

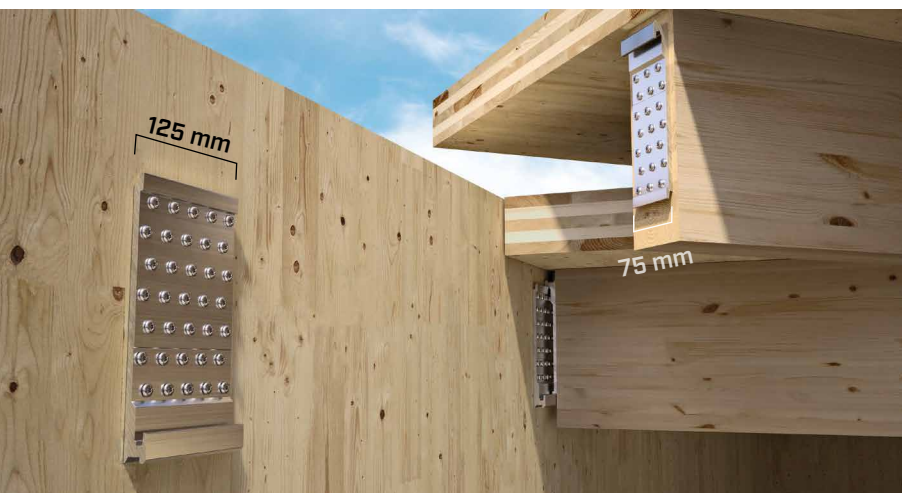


FIELDS OF USE

Concealed beam joint in timber-to-timber configuration, suitable for medium-sized structures, floors and roofs. Resistant outdoors, with the coated EVO version also in aggressive environments.

Can be applied to:

- solid timber softwood and hardwood
- glulam, LVL



INCLINED BEAMS

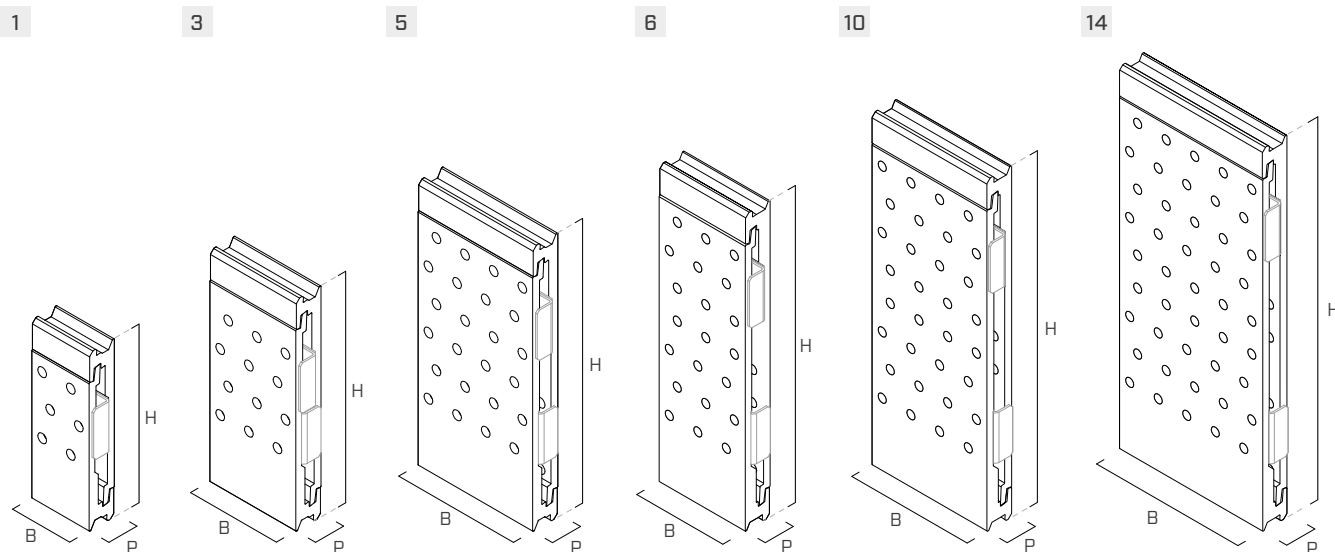
Also suitable for installation on inclined beams, with both horizontal and vertical inclination. The post-and-beam connector can be pre-assembled on the beam without adding screws at the construction site.

TOLERANCE

By using two connectors of different widths, an exceptional lateral tolerance value can be achieved, e.g. in the case of ribbed floors where the ribs are constrained to the panel.

CODES AND DIMENSIONS

LOCK T MIDI-LOCK T MIDI EVO



CODE		B	H	P	B	H	P	n _{screw} x Ø ⁽¹⁾	n _{LOCKSTOP} x type ⁽²⁾		pcs. ⁽³⁾
LOCK T MIDI	LOCK T MIDI EVO	[mm]	[mm]	[mm]	[in]	[in]	[in]	[pcs]			
1	LOCKT50135 LOCKTEVO50135	50	135	22	1 15/16	5 5/16	0.87	12 x Ø7 0.28	2 x LOCKSTOP7 1 x LOCKSTOP50	●	25
2	LOCKT50175 LOCKTEVO50175	50	175	22	1 15/16	6 7/8	0.87	16 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP50	●	18
3	LOCKT75175 LOCKTEVO75175	75	175	22	2 15/16	6 7/8	0.87	24 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP75	●	12
4	LOCKT75215 LOCKTEVO75215	75	215	22	2 15/16	8 7/16	0.87	36 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP75	●	12
5	LOCKT100215 LOCKTEV100215	100	215	22	4	8 7/16	0.87	48 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP100	●	8
6	LOCKT75240 LOCKTEV75240	75	240	22	2 15/16	9 1/2	0.87	42 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP75	●	20
7	LOCKT100240 LOCKTEV100240	100	240	22	4	9 1/2	0.87	56 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP100	●	10
8	LOCKT125240 LOCKTEV125240	125	240	22	4 15/16	9 1/2	0.87	70 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP125	●	10
9	LOCKT75265 LOCKTEV75265	75	265	22	2 15/16	10 7/16	0.87	48 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP75	●	20
10	LOCKT100265 LOCKTEV100265	100	265	22	4	10 7/16	0.87	64 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP100	●	10
11	LOCKT125265 LOCKTEV125265	125	265	22	4 15/16	10 7/16	0.87	80 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP125	●	10
12	LOCKT75290 LOCKTEV75290	75	290	22	2 15/16	11 7/16	0.87	54 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP75	●	20
13	LOCKT100290 LOCKTEV100290	100	290	22	4	11 7/16	0.87	72 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP100	●	10
14	LOCKT125290 LOCKTEV125290	125	290	22	4 15/16	11 7/16	0.87	90 x Ø7 0.28	4 x LOCKSTOP7 2 x LOCKSTOP125	●	10

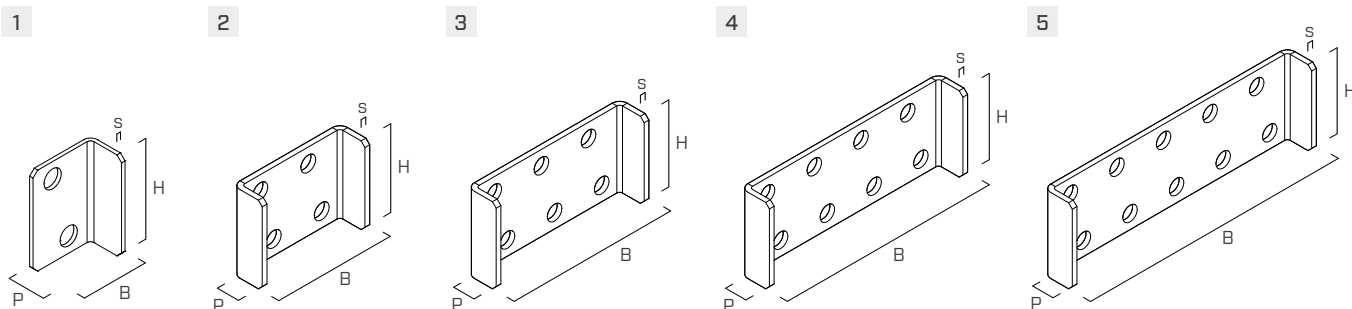
Screws and LOCK STOP are not included in the package.

(1) Number of screws for connector pairs.

(2) The LOCK STOP installation options are indicated on page 34.

(3) Number of connector pairs.

LOCK STOP | LOCKING DEVICE FOR F_{lat}



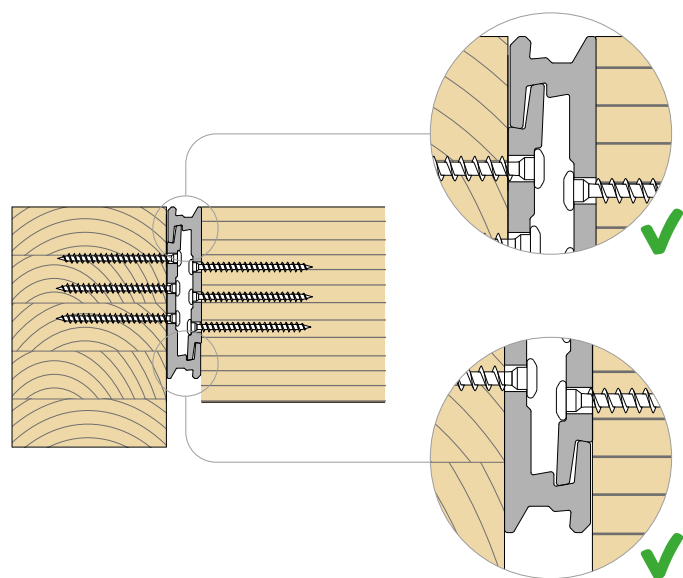
CODE	description	B [mm]	H [mm]	P [mm]	s [mm]	B [in]	H [in]	P [in]	s [in]	pcs
1 LOCKSTOP7(*)	carbon steel DX51D+Z275	26,5	38	15,0	1,5	1 1/16	1 1/2	9/16	0.06	50
2 LOCKSTOP50	stainless steel A2 AISI 304	56	40	15,5	2,5	2 3/16	1 9/16	5/8	0.10	40
3 LOCKSTOP75	stainless steel A2 AISI 304	81	40	15,5	2,5	3 3/16	1 9/16	5/8	0.10	20
4 LOCKSTOP100	stainless steel A2 AISI 304	106	40	15,5	2,5	4 3/16	1 9/16	5/8	0.10	20
5 LOCKSTOP125	stainless steel A2 AISI 304	131	40	15,5	2,5	5 3/16	1 9/16	5/8	0.10	20

(*) Not holding CE marking.

INSTALLATION METHODS

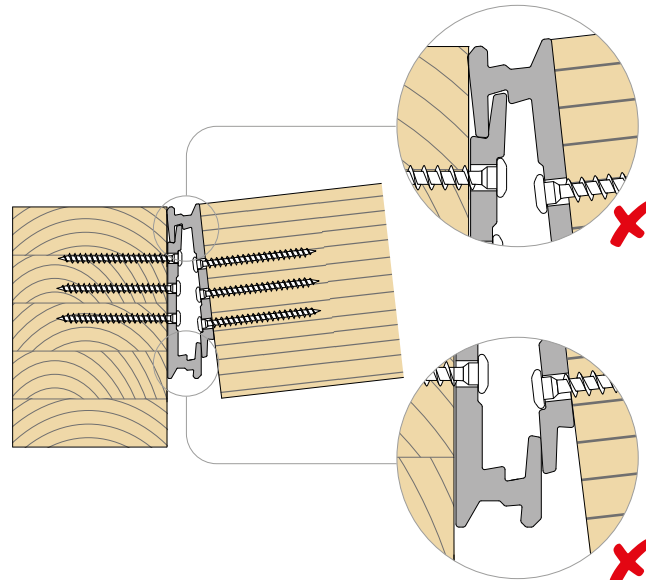
CORRECT INSTALLATION

Install the beam by lowering it from the top, without tilting it. Ensure proper seating and coupling of the connector at both the top and bottom, as shown in the figure.



INCORRECT INSTALLATION

Partial and incorrect coupling of the connector. Ensure that both flanges of the connector are properly seated in their respective seats.

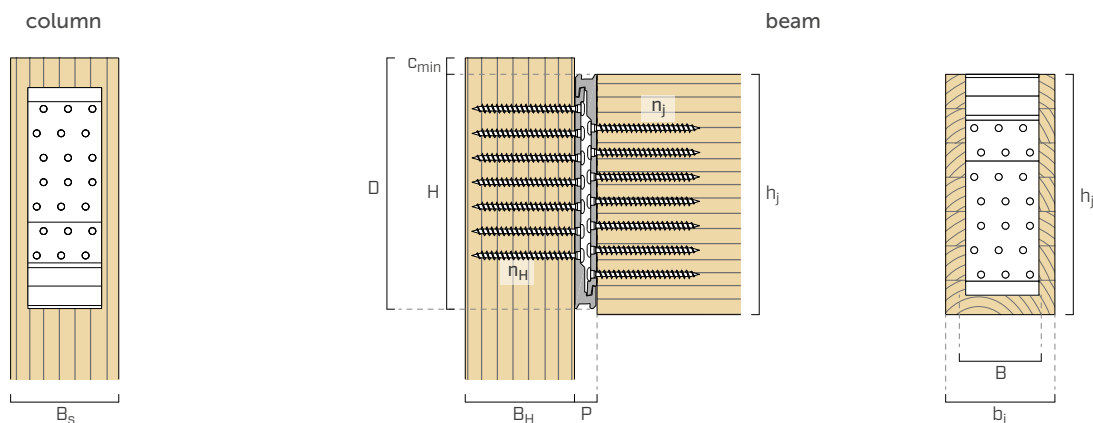


FASTENERS

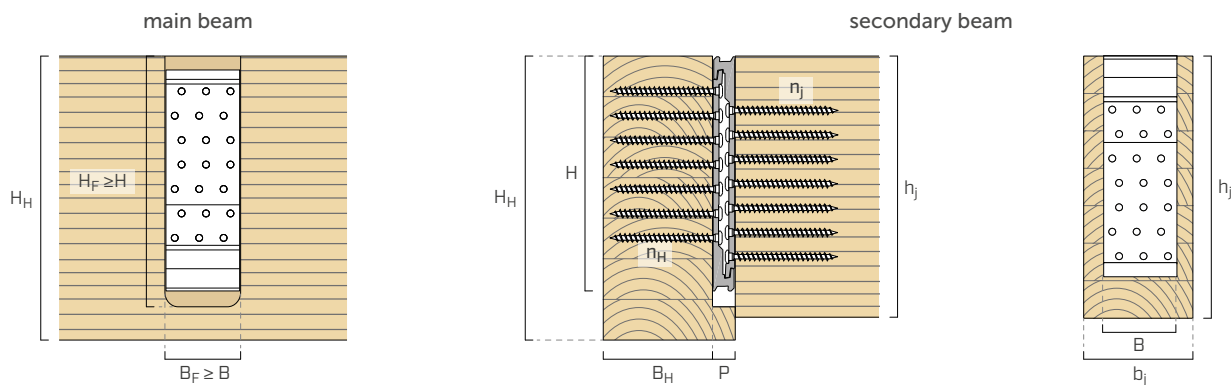
type	description		d [mm]	support	page
LBS	round head screw		7		571
LBS EVO	C4 EVO round head screw		7		571
LBS HARDWOOD EVO	C4 EVO round head screw on hardwoods		7		572
HBS PLATE EVO	C4 EVO pan head screw		6		573
KKF AISI410	pan head screw		6		574

■ INSTALLATION | LOCK T MIDI-LOCK T MIDI EVO

EXPOSED INSTALLATION ON COLUMN



CONCEALED INSTALLATION ON BEAM



The H_F dimension refers to the minimum height of the routing at constant width. The radius of the milling tool must be taken into account when cutting the routing.

CONNECTOR POSITIONING

CODE	c_{min} [mm]	D [mm]
LOCKT50135 LOCKTEVO50135	15	150
LOCKT50175 LOCKTEVO50175	5	180
LOCKT75175 LOCKTEVO75175	5	180
LOCKT75215 LOCKTEVO75215	15	230
LOCKT100215 LOCKTEV100215	15	230
LOCKT75240 LOCKTEV75240	15	255
LOCKT100240 LOCKTEV100240	15	255
LOCKT125240 LOCKTEV125240	15	255
LOCKT75265 LOCKTEV75265	15	280
LOCKT100265 LOCKTEV100265	15	280
LOCKT125265 LOCKTEV125265	15	280
LOCKT75290 LOCKTEV75290	15	305
LOCKT100290 LOCKTEV100290	15	305
LOCKT125290 LOCKTEV125290	15	305

The connector on column must be lowered by an amount c_{min} from the top of the beam to meet the minimum distance of the screws from the unloaded end of the column. It is recommended to use dimension "D" for positioning the connector on column. Alignment between the top of column and beam can be achieved by lowering the connector by an amount c_{min} relative to the top of beam (minimum beam height $h_j + c_{min}$).

■ INSTALLATION | LOCK T MIDI-LOCK T MIDI EVO

connector	B x H	fasteners LBS LBS EVO n _H + n _j - Ø x L	main element		secondary beam	
			column ⁽¹⁾	beam	b _j x h _j	
			B _S x B _H	B _H x H _H	with pre-drilling hole [mm]	without pre-drilled hole [mm]
LOCKT50135 LOCKTEVO50135	50 x 135	6 + 6 - Ø7 x 80	74 x 80	80 x 155	74 x 135	80 x 140 ⁽²⁾
LOCKT50175 LOCKTEVO50175	50 x 175	8 + 8 - Ø7 x 80	74 x 80	80 x 190	74 x 175	80 x 175
LOCKT75175 LOCKTEVO75175	75 x 175	12 + 12 - Ø7 x 80	99 x 80	80 x 190	99 x 175	105 x 175
LOCKT75215 LOCKTEVO75215	75 x 215	18 + 18 - Ø7 x 80	99 x 80	80 x 230	99 x 215	105 x 215
LOCKT100215 LOCKTEV100215	100 x 215	24 + 24 - Ø7 x 80	124 x 80	80 x 230	124 x 215	130 x 215
LOCKT75240 LOCKTEV75240	75 x 240	21 + 21 - Ø7 x 80	99 x 80	80 x 255	99 x 240	105 x 240
LOCKT100240 LOCKTEV100240	100 x 240	28 + 28 - Ø7 x 80	124 x 80	80 x 255	124 x 240	130 x 240
LOCKT125240 LOCKTEV125240	125 x 240	35 + 35 - Ø7 x 80	149 x 80	80 x 255	149 x 240	155 x 240
LOCKT75265 LOCKTEV75265	75 x 265	24 + 24 - Ø7 x 80	99 x 80	80 x 280	99 x 265	105 x 265
LOCKT100265 LOCKTEV100265	100 x 265	32 + 32 - Ø7 x 80	124 x 80	80 x 280	124 x 265	130 x 265
LOCKT125265 LOCKTEV125265	125 x 265	40 + 40 - Ø7 x 80	149 x 80	80 x 280	149 x 265	155 x 265
LOCKT75290 LOCKTEV75290	75 x 290	27 + 27 - Ø7 x 80	99 x 80	80 x 305	99 x 290	105 x 290
LOCKT100290 LOCKTEV100290	100 x 290	36 + 36 - Ø7 x 80	124 x 80	80 x 305	124 x 290	130 x 290
LOCKT125290 LOCKTEV125290	125 x 290	45 + 45 - Ø7 x 80	149 x 80	80 x 305	149 x 290	155 x 290
2 x LOCKT50135 2 x LOCKTEVO50135	100 x 135 ⁽³⁾	12 + 12 - Ø7 x 80	124 x 80	80 x 155	124 x 135	130 x 140 ⁽²⁾
2 x LOCKT50175 2 x LOCKTEVO50175	100 x 175 ⁽³⁾	16 + 16 - Ø7 x 80	124 x 80	80 x 190	124 x 175	130 x 175
1 x LOCKT75175 + 1 x LOCKT50175	125 x 175 ⁽³⁾	20 + 20 - Ø7 x 80	149 x 80	80 x 190	149 x 175	155 x 175
1 x LOCKTEVO75175 + 1 x LOCKTEVO50175	125 x 175 ⁽³⁾	20 + 20 - Ø7 x 80	149 x 80	80 x 190	149 x 175	155 x 175
2 x LOCKT75215 2 x LOCKTEVO75215	150 x 215 ⁽³⁾	36 + 36 - Ø7 x 80	174 x 80	80 x 230	174 x 215	180 x 215
1 x LOCKT100215 + 1 x LOCKT75215	175 x 215 ⁽³⁾	42 + 42 - Ø7 x 80	199 x 80	80 x 230	199 x 215	205 x 215
1 x LOCKTEV100215 + 1 x LOCKTEVO75215	175 x 215 ⁽³⁾	42 + 42 - Ø7 x 80	199 x 80	80 x 230	199 x 215	205 x 215

⁽¹⁾ The screws must be installed in the column with pre-drilled holes.

⁽²⁾ In case of installation without pre-drilled holes, the connector must be installed 5 mm lower than the top of secondary beam, in order to respect the minimum distances of the screws.

⁽³⁾ Measurement obtained by coupling two connectors with the same height H. For example, LOCK T 100 x 135 mm is obtained by placing two LOCK T 50 x 135 mm connectors side by side.

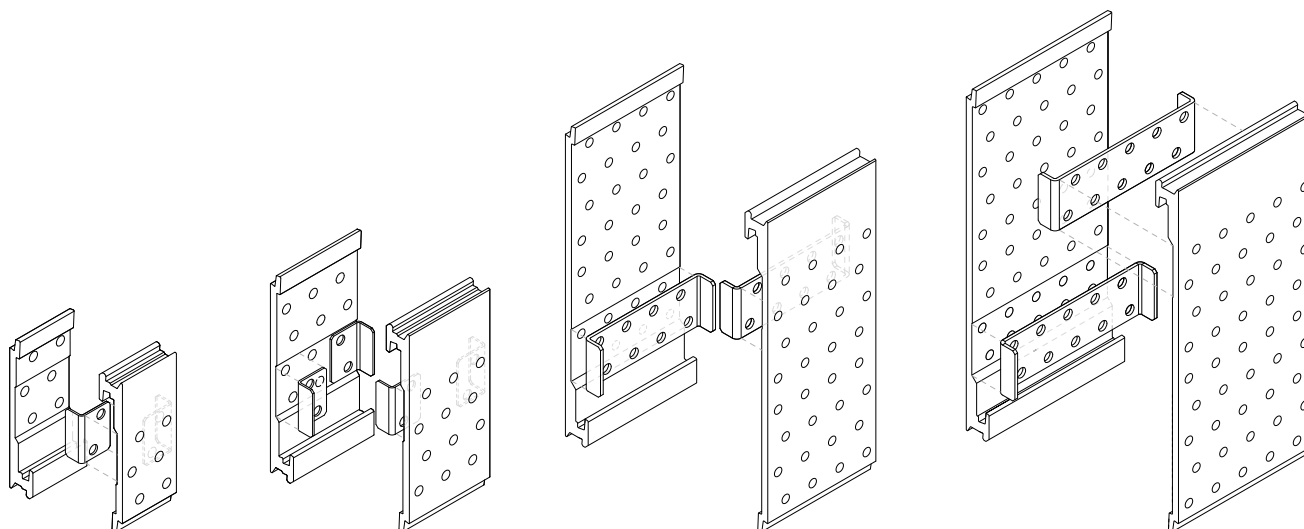
■ INSTALLATION | LOCK STOP ON LOCK T MIDI

LOCKT50135 +
2 x LOCKSTOP7

LOCKT75175 +
4 x LOCKSTOP7

LOCKT100265 +
2 x LOCKSTOP100

LOCKT125290 +
2 x LOCKSTOP125



LOCK STOP| assembly

connector ⁽¹⁾	B x H [mm]	assembly configurations				
		LOCKSTOP7 [pcs]	LOCKSTOP50 [pcs]	LOCKSTOP75 [pcs]	LOCKSTOP100 [pcs]	LOCKSTOP125 [pcs]
LOCKT50135	50 x 135	x 2	x 1	-	-	-
LOCKT50175	50 x 175	x 4	x 2	-	-	-
LOCKT75175	75 x 175	x 4	-	x 2	-	-
LOCKT75215	75 x 215	x 4	-	x 2	-	-
LOCKT75240	75 x 240	x 4	-	x 2	-	-
LOCKT75265	75 x 265	x 4	-	x 2	-	-
LOCKT75290	75 x 290	x 4	-	x 2	-	-
LOCKT100215	100 x 215	x 4	-	-	x 2	-
LOCKT100240	100 x 240	x 4	-	-	x 2	-
LOCKT100265	100 x 265	x 4	-	-	x 2	-
LOCKT100290	100 x 290	x 4	-	-	x 2	-
LOCKT125240	125 x 240	x 4	-	-	-	x 2
LOCKT125265	125 x 265	x 4	-	-	-	x 2
LOCKT125290	125 x 290	x 4	-	-	-	x 2

■ INSTALLATION | LOCK STOP ON LOCK T MIDI COUPLED

LOCK STOP| assembly

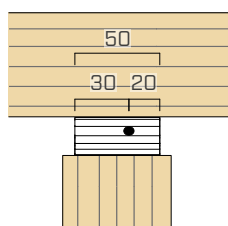
connector ⁽¹⁾	B x H [mm]	assembly configurations		
		LOCKSTOP7 [pcs]	LOCKSTOP100 [pcs]	LOCKSTOP125 [pcs]
LOCKT100135 (LOCKT50135 + LOCKT50135)	100 x 135	2	1	-
LOCKT100175 (LOCKT50175 + LOCKT50175)	100 x 175	4	2	-
LOCKT125175 (LOCKT50175 + LOCKT75175)	125 x 175	4	-	2
LOCKT150215 (LOCKT75215 + LOCKT75215)	150 x 215	4	-	-
LOCKT175215 (LOCKT75215 + LOCKT100215)	175 x 215	4	-	-

NOTES

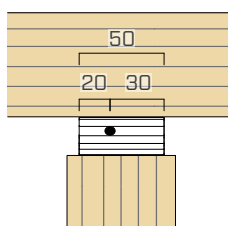
⁽¹⁾ Configurations are valid for LOCK T MIDI EVO connectors.

OPTIONAL INCLINED SCREW

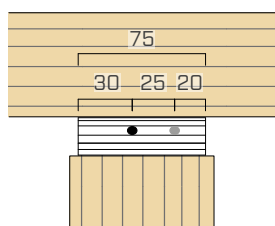
45° inclined holes must be drilled on site using a 5 mm diameter and metal drill bit. The image shows the positions for the optional inclined holes.



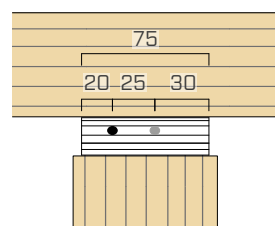
LOCKT50135 |
LOCKTEV050135



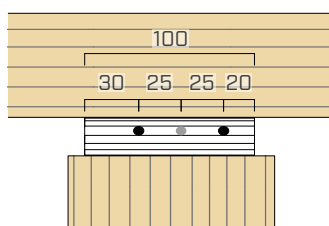
LOCKT50175 |
LOCKTEV050175



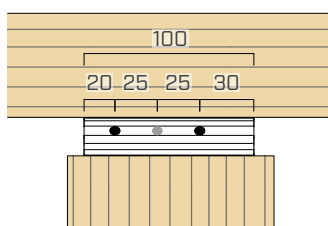
LOCKT75240 | LOCKTEV075240
LOCKT75290 | LOCKTEV075290



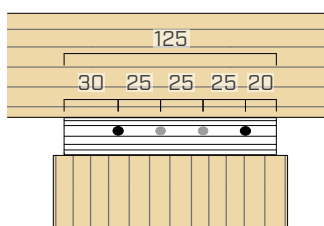
LOCKT75175 | LOCKTEV075175
LOCKT75215 | LOCKTEV075215
LOCKT75265 | LOCKTEV75265



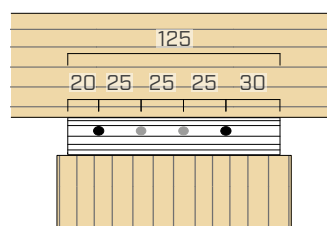
LOCKT100240 | LOCKTEV100240
LOCKT100290 | LOCKTEV100290



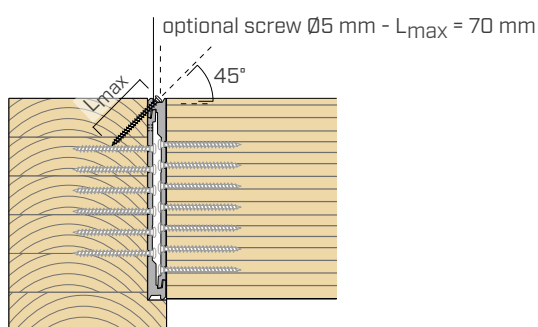
LOCKT100215 | LOCKTEV100215
LOCKT100265 | LOCKTEV100265



LOCKT125240 | LOCKTEV125240
LOCKT125290 | LOCKTEV125290



LOCKT125265 | LOCKTEV125265



- inclined screws for F_{lat} strength
- + ● inclined screws for F_{up} strength

MY PROJECT
calculation software

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MyProject is the practical and reliable software created for professionals who design timber structures: it allows for the design of a broad range of connections, carry out thermo-hygrometric analysis of opaque components and designing the most appropriate acoustic solution. The program provides detailed instructions and explanatory illustrations for the products installation.

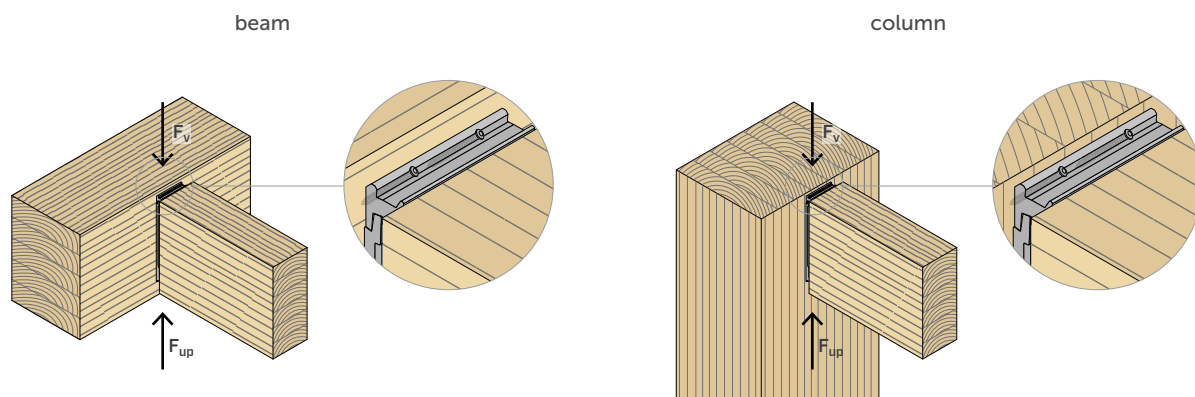
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connector	B x H [mm]	fasteners screw LBS LBS EVO $n_H + n_j - \varnothing \times L$ [mm]	$R_{v,k}$ timber			$R_{v,k}$ alu	fasteners 45° screws LBS LBS EVO $n_H + n_j - \varnothing \times L$ [mm]	$R_{up,k}$ timber
			GL24h [kN]	C50 [kN]	LVL [kN]			
LOCKT50135 LOCKTEVO50135	50 x 135	6 + 6 - $\varnothing 7 \times 80$	16,2	19,9	15,8	30	1 - $\varnothing 5 \times 70$	3,2
LOCKT50175 LOCKTEVO50175	50 x 175	8 + 8 - $\varnothing 7 \times 80$	21,6	26,6	21,0	40	1 - $\varnothing 5 \times 70$	3,2
LOCKT75175 LOCKTEVO75175	75 x 175	12 + 12 - $\varnothing 7 \times 80$	32,4	39,9	31,6	60	2 - $\varnothing 5 \times 70$	6,0
LOCKT75215 LOCKTEVO75215	75 x 215	18 + 18 - $\varnothing 7 \times 80$	48,3	59,5	47,1	60	2 - $\varnothing 5 \times 70$	6,0
LOCKT100215 LOCKTEV100215	100 x 215	24 + 24 - $\varnothing 7 \times 80$	64,5	79,3	62,8	80	3 - $\varnothing 5 \times 70$	8,7
LOCKT75240 LOCKTEV75240	75 x 240	21 + 21 - $\varnothing 7 \times 80$	56,4	69,4	55,0	72	2 - $\varnothing 5 \times 70$	6,0
LOCKT100240 LOCKTEV100240	100 x 240	28 + 28 - $\varnothing 7 \times 80$	75,2	92,5	73,3	96	3 - $\varnothing 5 \times 70$	8,7
LOCKT125240 LOCKTEVO125240	125 x 240	35 + 35 - $\varnothing 7 \times 80$	94,0	115,6	91,6	120	4 - $\varnothing 5 \times 70$	11,7
LOCKT75265 LOCKTEV75265	75 x 265	24 + 24 - $\varnothing 7 \times 80$	64,5	79,3	62,8	72	2 - $\varnothing 5 \times 70$	6,0
LOCKT100265 LOCKTEVO100265	100 x 265	32 + 32 - $\varnothing 7 \times 80$	85,9	105,7	83,7	96	3 - $\varnothing 5 \times 70$	8,7
LOCKT125265 LOCKT125265	125 x 265	40 + 40 - $\varnothing 7 \times 80$	107,4	132,2	104,7	120	4 - $\varnothing 5 \times 70$	11,7
LOCKT75290 LOCKTEV75290	75 x 290	27 + 27 - $\varnothing 7 \times 80$	72,5	89,2	70,7	72	2 - $\varnothing 5 \times 70$	6,0
LOCKT100290 LOCKTEV100290	100 x 290	36 + 36 - $\varnothing 7 \times 80$	96,7	118,9	94,2	96	3 - $\varnothing 5 \times 70$	8,7
LOCKT125290 LOCKTEV125290	125 x 290	45 + 45 - $\varnothing 7 \times 80$	120,8	148,7	117,8	120	4 - $\varnothing 5 \times 70$	11,7

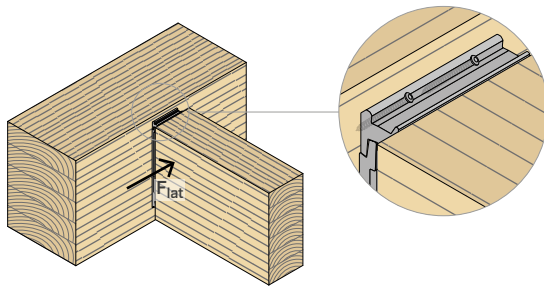
NOTES

The structural values given in the table are valid for fastening on the main beam and column. The screws must be installed in the column with pre-drilled holes.

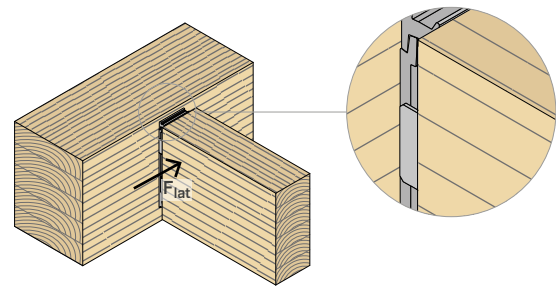
GENERAL PRINCIPLES

For the GENERAL PRINCIPLES of calculation, see page 41.

inclined screw



LOCK STOP



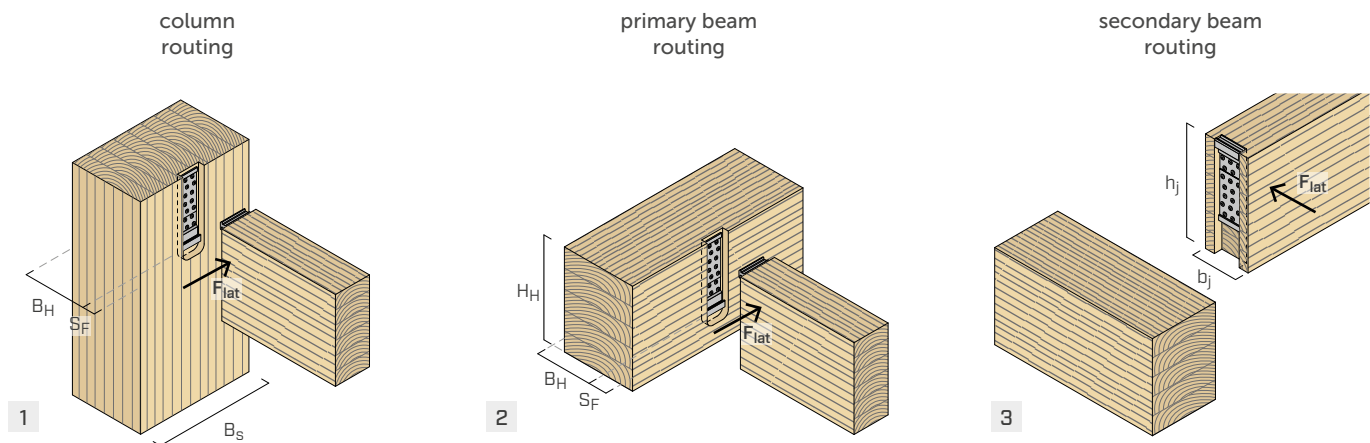
connector	B x H [mm]	fasteners screw LBS LBS EVO $n_H + n_j - \varnothing \times L$ [mm]	inclined screw			LOCK STOP	
			fasteners 45° screws LBS LBS EVO $n_H + n_j - \varnothing \times L$ [mm]	$R_{lat,k}$ timber main beam GL24h [kN]	$R_{lat,k}$ timber column GL24h [kN]	fasteners $n_{LOCKSTOP}$ - type [mm]	$R_{lat,k}$ steel [kN]
LOCKT50135 LOCKTEVO50135	50 x 135	6 + 6 - $\varnothing 7 \times 80$	1 - $\varnothing 5 \times 70$	2,6	2,2	2 x LOCKSTOP7 1 x LOCKSTOP50	0,3 0,8
LOCKT50175 LOCKTEVO50175	50 x 175	8 + 8 - $\varnothing 7 \times 80$	1 - $\varnothing 5 \times 70$	2,6	2,2	4 x LOCKSTOP7 2 x LOCKSTOP50	0,6 1,6
LOCKT75175 LOCKTEVO75175	75 x 175	12 + 12 - $\varnothing 7 \times 80$	1 - $\varnothing 5 \times 70$	2,6	2,2	4 x LOCKSTOP7 2 x LOCKSTOP75	0,6 1,6
LOCKT75215 LOCKTEVO75215	75 x 215	18 + 18 - $\varnothing 7 \times 80$	1 - $\varnothing 5 \times 70$	2,6	2,2	4 x LOCKSTOP7 2 x LOCKSTOP75	0,6 1,6
LOCKT100215 LOCKTEV100215	100 x 215	24 + 24 - $\varnothing 7 \times 80$	2 - $\varnothing 5 \times 70$	4,7	4,4	4 x LOCKSTOP7 2 x LOCKSTOP100	0,6 1,6
LOCKT75240 LOCKTEV75240	75 x 240	21 + 21 - $\varnothing 7 \times 80$	1 - $\varnothing 5 \times 70$	2,6	2,2	4 x LOCKSTOP7 2 x LOCKSTOP75	0,6 1,6
LOCKT100240 LOCKTEV100240	100 x 240	28 + 28 - $\varnothing 7 \times 80$	2 - $\varnothing 5 \times 70$	4,7	4,4	4 x LOCKSTOP7 2 x LOCKSTOP100	0,6 1,6
LOCKT125240 LOCKTEVO125240	125 x 240	35 + 35 - $\varnothing 7 \times 80$	2 - $\varnothing 5 \times 70$	5,2	4,4	4 x LOCKSTOP7 2 x LOCKSTOP125	0,6 1,6
LOCKT75265 LOCKTEV75265	75 x 265	24 + 24 - $\varnothing 7 \times 80$	1 - $\varnothing 5 \times 70$	2,6	2,2	4 x LOCKSTOP7 2 x LOCKSTOP75	0,6 1,6
LOCKT100265 LOCKTEVO100265	100 x 265	32 + 32 - $\varnothing 7 \times 80$	2 - $\varnothing 5 \times 70$	4,7	4,4	4 x LOCKSTOP7 2 x LOCKSTOP100	0,6 1,6
LOCKT125265 LOCKT125265	125 x 265	40 + 40 - $\varnothing 7 \times 80$	2 - $\varnothing 5 \times 70$	5,2	4,4	4 x LOCKSTOP7 2 x LOCKSTOP125	0,6 1,6
LOCKT75290 LOCKTEV75290	75 x 290	27 + 27 - $\varnothing 7 \times 80$	1 - $\varnothing 5 \times 70$	2,6	2,2	4 x LOCKSTOP7 2 x LOCKSTOP75	0,6 1,6
LOCKT100290 LOCKTEV100290	100 x 290	36 + 36 - $\varnothing 7 \times 80$	2 - $\varnothing 5 \times 70$	4,7	4,4	4 x LOCKSTOP7 2 x LOCKSTOP100	0,6 1,6
LOCKT125290 LOCKTEV125290	125 x 290	45 + 45 - $\varnothing 7 \times 80$	2 - $\varnothing 5 \times 70$	5,2	4,4	4 x LOCKSTOP7 2 x LOCKSTOP125	0,6 1,6

NOTES

The structural values given in the table are valid for fastening on the main beam and column. Screws on a column must be inserted with pre-drilling holes, with the exception of the inclined screw.

GENERAL PRINCIPLES

For the GENERAL PRINCIPLES of calculation, see page 41.



connector	B x H [mm]	fasteners screw LBS LBS EVO $n_H + n_j - \varnothing \times L$ [mm]	$R_{lat,k}$ timber column routing ⁽¹⁾		$R_{lat,k}$ timber primary beam routing		$R_{lat,k}$ timber secondary beam routing ⁽²⁾	
			$B_S \times B_H$ [mm]	1 [kN]	$B_H \times H_H$ [mm]	2 [kN]	$b_j \times h_j$ [mm]	3 [kN]
LOCKT50135 LOCKTEVO50135	50 x 135	6 + 6 - $\varnothing 7 \times 80$	100 x 80	2,3	80 x 155	7,0	100 x 140	4,6
LOCKT50175 LOCKTEVO50175	50 x 175	8 + 8 - $\varnothing 7 \times 80$	100 x 80	2,9	80 x 190	10,4	100 x 175	5,9
LOCKT75175 LOCKTEVO75175	75 x 175	12 + 12 - $\varnothing 7 \times 80$	120 x 80	2,9	80 x 190	17,2	120 x 175	5,9
LOCKT75215 LOCKTEVO75215	75 x 215	18 + 18 - $\varnothing 7 \times 80$	120 x 80	3,5	80 x 230	25,4	120 x 215	7,1
LOCKT100215 LOCKTEV100215	100 x 215	24 + 24 - $\varnothing 7 \times 80$	140 x 80	3,5	80 x 230	33,9	140 x 215	7,1
LOCKT75240 LOCKTEV75240	75 x 240	21 + 21 - $\varnothing 7 \times 80$	120 x 80	4,1	80 x 255	29,4	120 x 240	8,2
LOCKT100240 LOCKTEV100240	100 x 240	28 + 28 - $\varnothing 7 \times 80$	140 x 80	4,1	80 x 255	39,5	140 x 240	8,2
LOCKT125240 LOCKTEVO125240	125 x 240	35 + 35 - $\varnothing 7 \times 80$	160 x 80	4,1	80 x 255	39,5	160 x 240	8,2
LOCKT75265 LOCKTEV75265	75 x 265	24 + 24 - $\varnothing 7 \times 80$	120 x 80	4,5	80 x 280	34,7	120 x 265	9,0
LOCKT100265 LOCKTEVO100265	100 x 265	32 + 32 - $\varnothing 7 \times 80$	140 x 80	4,5	80 x 280	43,1	140 x 265	9,0
LOCKT125265 LOCKT125265	125 x 265	40 + 40 - $\varnothing 7 \times 80$	160 x 80	4,5	80 x 280	43,1	160 x 265	9,0
LOCKT75290 LOCKTEV75290	75 x 290	27 + 27 - $\varnothing 7 \times 80$	120 x 80	4,9	80 x 305	40,5	120 x 290	9,7
LOCKT100290 LOCKTEV100290	100 x 290	36 + 36 - $\varnothing 7 \times 80$	140 x 80	4,9	80 x 305	46,7	140 x 290	9,7
LOCKT125290 LOCKTEV125290	125 x 290	45 + 45 - $\varnothing 7 \times 80$	160 x 80	4,9	80 x 305	46,7	160 x 290	9,7

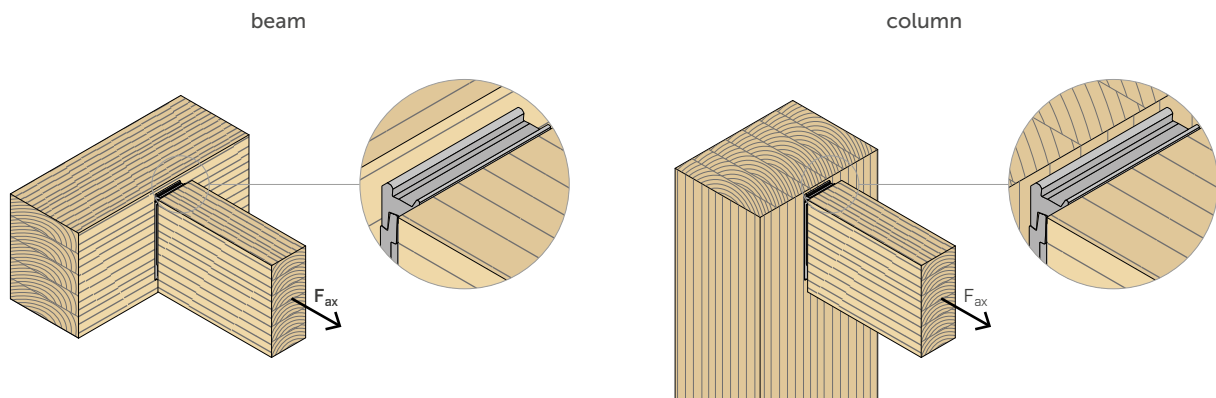
NOTES

⁽¹⁾ The screws must be installed in the column with pre-drilled holes.

⁽²⁾ Strength values can be accepted as valid, for higher safety standards, for fastening on column.

GENERAL PRINCIPLES

For the GENERAL PRINCIPLES of calculation, see page 41.

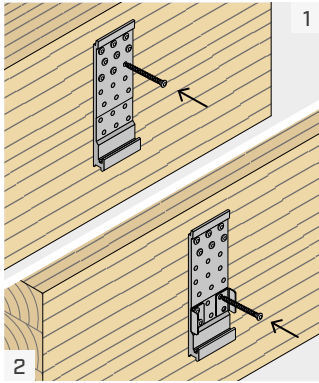


connector	B x H [mm]	fasteners screw LBS LBS EVO $n_H + n_j - \varnothing \times L$ [mm]	$R_{ax,k}$ timber			$R_{ax,k}$ alu [kN]
			GL24h [kN]	C50 [kN]	LVL [kN]	
LOCKT50135 LOCKTEVO50135	50 x 135	6 + 6 - $\varnothing 7 \times 80$	5,9	6,4	7,5	5,4
LOCKT50175 LOCKTEVO50175	50 x 175	8 + 8 - $\varnothing 7 \times 80$	6,7	7,3	8,6	5,4
LOCKT75175 LOCKTEVO75175	75 x 175	12 + 12 - $\varnothing 7 \times 80$	10,0	11,0	12,8	8,1
LOCKT75215 LOCKTEVO75215	75 x 215	18 + 18 - $\varnothing 7 \times 80$	9,9	10,8	12,6	6,9
LOCKT100215 LOCKTEV100215	100 x 215	24 + 24 - $\varnothing 7 \times 80$	13,2	14,4	16,8	9,2
LOCKT75240 LOCKTEV75240	75 x 240	21 + 21 - $\varnothing 7 \times 80$	10,0	11,0	12,8	8,4
LOCKT100240 LOCKTEV100240	100 x 240	28 + 28 - $\varnothing 7 \times 80$	13,4	14,6	17,1	11,2
LOCKT125240 LOCKTEVO125240	125 x 240	35 + 35 - $\varnothing 7 \times 80$	16,7	18,3	21,4	14,0
LOCKT75265 LOCKTEV75265	75 x 265	24 + 24 - $\varnothing 7 \times 80$	10,2	11,2	13,1	8,4
LOCKT100265 LOCKTEVO100265	100 x 265	32 + 32 - $\varnothing 7 \times 80$	13,6	14,9	17,4	11,2
LOCKT125265 LOCKT125265	125 x 265	40 + 40 - $\varnothing 7 \times 80$	17,0	18,6	21,8	14,0
LOCKT75290 LOCKTEV75290	75 x 290	27 + 27 - $\varnothing 7 \times 80$	10,4	11,4	13,3	8,4
LOCKT100290 LOCKTEV100290	100 x 290	36 + 36 - $\varnothing 7 \times 80$	13,9	15,2	17,7	11,2
LOCKT125290 LOCKTEV125290	125 x 290	45 + 45 - $\varnothing 7 \times 80$	17,4	19,0	22,2	14,0

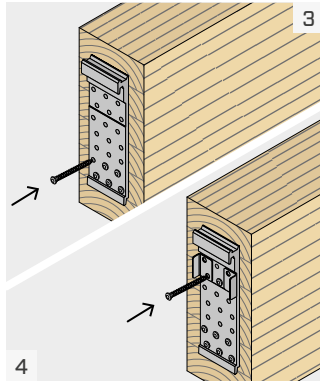
GENERAL PRINCIPLES

For the GENERAL PRINCIPLES of calculation, see page 41.

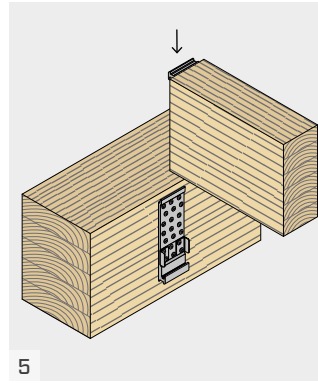
EXPOSED INSTALLATION WITH LOCK STOP



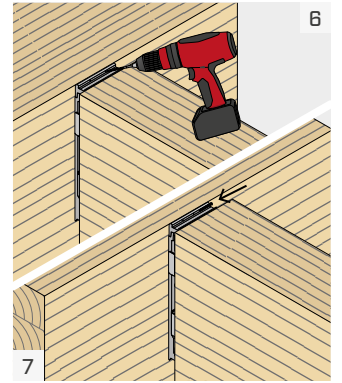
Place the connector on the main element and fasten the upper screws. When using LOCK STOP, position LOCK STOP and fasten the remaining screws.



Place the connector on the secondary beam and fasten the lower screws. When using LOCK STOP, position LOCK STOP and fasten the remaining screws.

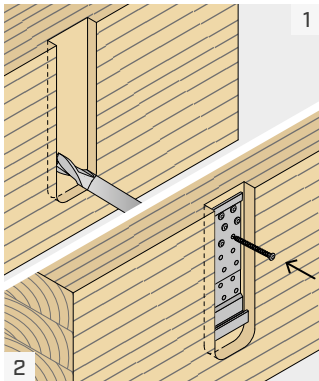


Hang the secondary beam from the main member by lowering it into place. Make sure that the two LOCK connectors are parallel to each other and avoid subjecting them to excessive strain during installation.

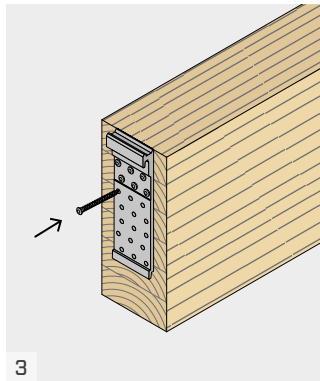


It is possible to install an uplift screw for F_{up} by drilling one hole $\varnothing 5$ inclined at 45° in the upper part of the connector. A $\varnothing 5$ screw must be installed in the hole.

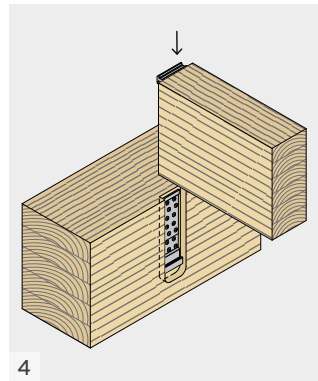
CONCEALED INSTALLATION



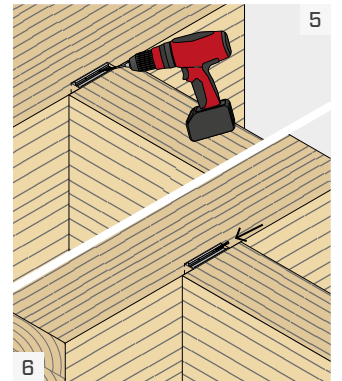
Carry out the routing on the main element. Place the connector on the main element and fasten all screws.



Place the connector on the secondary beam and fasten all screws.

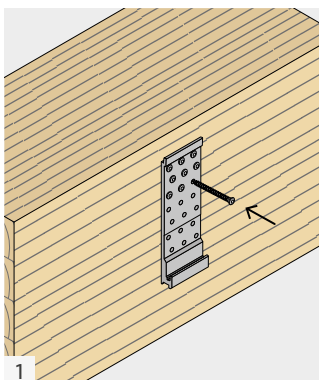


Hang the secondary beam from the main member by lowering it into place. Make sure that the two LOCK connectors are parallel to each other and avoid subjecting them to excessive strain during installation.

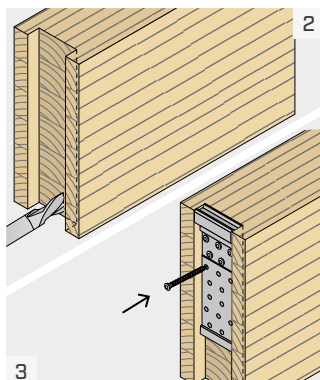


It is possible to install an uplift screw for F_{up} by drilling one hole $\varnothing 5$ inclined at 45° in the upper part of the connector. A $\varnothing 5$ screw must be installed in the hole.

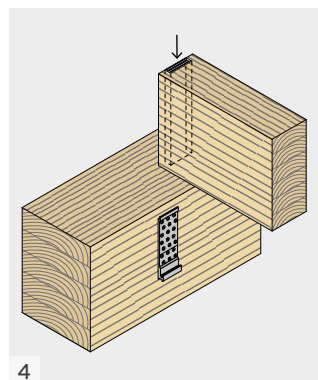
SEMI-CONCEALED INSTALLATION - CONNECTOR VISIBLE FROM BELOW



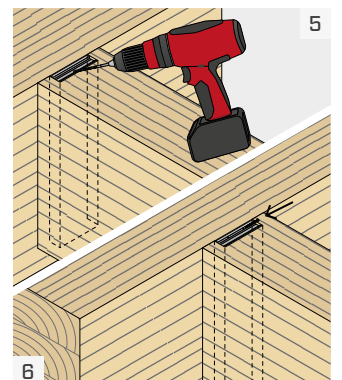
Place the connector on the main element and fasten all screws.



Cut a full depth routing on the secondary beam. Position the connector and fasten all screws.

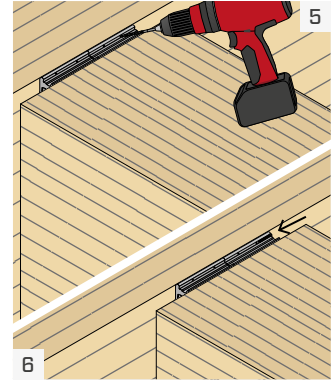
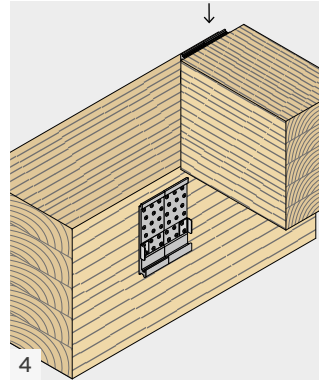
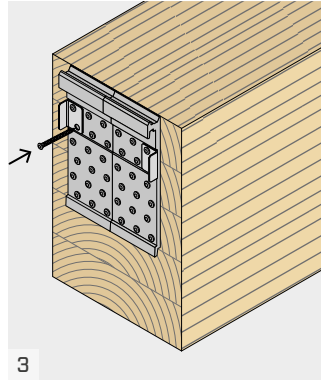
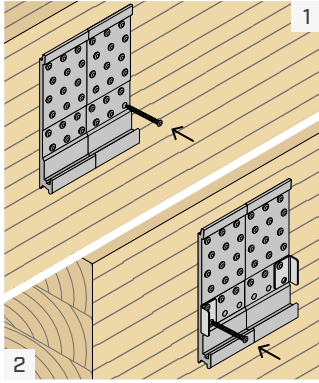


Hang the secondary beam from the main member by lowering it into place. Make sure that the two LOCK connectors are parallel to each other and avoid subjecting them to excessive strain during installation.



It is possible to install an uplift screw for F_{up} by drilling one hole $\varnothing 5$ inclined at 45° in the upper part of the connector. A $\varnothing 5$ screw must be installed in the hole.

COUPLED LOCK T MIDI INSTALLATION



Place the connectors on the main element and fasten the top screws, making sure the connectors are aligned with each other. When using LOCK STOP, position LOCK STOP and fasten the remaining screws.

Place the connectors on the secondary beam and fasten the lower screws, making sure the connectors are aligned with each other. When using LOCK STOP, position LOCK STOP and fasten the remaining screws.

Hang the secondary beam from the main member by lowering it into place. Make sure that the LOCK T MIDI connectors are parallel to each other and avoid subjecting them to excessive strain during installation.

It is possible to install an uplift screw for F_{up} by drilling one hole Ø5 inclined at 45° in the upper part of the connector. A Ø5 screw must be installed in the hole.

GENERAL PRINCIPLES

- Dimensioning and verification of the timber elements must be carried out separately. In particular, for loads perpendicular to the beam axis, it is recommended to perform a splitting check in both wooden elements.
- If coupled connectors are used, special care must be taken in alignment during installation to avoid different stresses in the two connectors.
- The connector must always be fully fastened using all the holes.
- Fastening with partial nailing. Screws with the same length must be used for each connector half.
- Screws must always be inserted with pre-drilling holes in the column.
- Screws must be inserted with pre-drilling hole on main or secondary beam with density $\rho_k > 420 \text{ kg/m}^3$.
- Structural values are calculated assuming a constant thickness of the metal element, including the thickness of the LOCK STOP.
- The coefficients k_{mod} and γ_M should be taken according to the current regulations used for the calculation.
- The following verification shall be satisfied for combined loading:

$$\left(\frac{F_{ax,d}}{R_{ax,d}} \right)^2 + \left(\frac{F_{v,d}}{R_{v,d}} \right)^2 + \left(\frac{F_{up,d}}{R_{up,d}} \right)^2 + \left(\frac{F_{lat,d}}{R_{lat,d}} \right)^2 \leq 1$$

$F_{v,d}$ and $F_{up,d}$ are forces acting in opposite directions. Therefore only one of the forces $F_{v,d}$ and $F_{up,d}$ can act in combination with the forces $F_{ax,d}$ or $F_{lat,d}$.

STRUCTURAL VALUES | F_{lat}

- Characteristic values calculated according to EN 1995:2014 and ETA-19/0831 for screws without pre-drilling hole and GL24h timber elements with density of $\rho_k = 385 \text{ kg/m}^3$.
- Special care must be taken in the execution of cutting the routing in the main element or secondary beam to limit the lateral sliding of the connection.
- The configurations for F_{lat} strength (column routing, primary beam routing, secondary beam routing, LOCK STOP and inclined screw) have different stiffness levels. Therefore, combining two or more configurations in order to increase the strength is not allowed.
- Design values can be obtained from characteristic values as follows:

$$R_{lat,d} = \frac{R_{lat,k \text{ timber}} \cdot k_{mod}}{\gamma_M}$$

LOCK STOP

$$R_{lat,d} = \frac{R_{lat,k \text{ steel}}}{\gamma_{M2}}$$

where:

- γ_{M2} is the partial safety coefficient of steel material according to EN 1993.
- The strength F_{lat} with inclined screw and fastening on main beam was calculated considering the effective number for shear-stressed screws according to ETA-11/0030 and EN 1995:2014.

STRUCTURAL VALUES | F_v | F_{up} | F_{ax}

- GL24h: Characteristic values calculated according to EN 1995:2014 and ETA-19/0831 for screws without pre-drilling hole on secondary beam and screws with pre-drilling hole on column. $\rho_k = 385 \text{ kg/m}^3$ has been taken in consideration in the calculation.
- C50 and LVL: characteristic values calculated according to EN 1995:2014 and ETA-19/0831 for screws with pre-drilling hole. $\rho_k = 430 \text{ kg/m}^3$ per C50 and $\rho_k = 480 \text{ kg/m}^3$ for LVL have been considered for calculations.
- Design values can be obtained from characteristic values as follows:

$$R_{v,d} = \min \left\{ \frac{R_{v,k \text{ timber}} \cdot k_{mod}}{\gamma_M}, \frac{R_{v,k \text{ alu}}}{\gamma_{M2}} \right\}$$

$$R_{up,d} = \frac{R_{up,k \text{ timber}} \cdot k_{mod}}{\gamma_M}$$

$$R_{ax,d} = \min \left\{ \frac{R_{ax,k \text{ timber}} \cdot k_{mod}}{\gamma_M}, \frac{R_{ax,k \text{ alu}}}{\gamma_{M2}} \right\}$$

where:

- γ_{M2} is the partial safety coefficient of the aluminium material subject to tensile stress, to be taken according to the national standards used for calculation. If there are no other provisions, it is suggested to use the value provided by EN 1999-1-1, equal to $\gamma_{M2} = 1.25$.
- For configurations for which only the timber-side strength is reported, the aluminium-side overstrength can be assumed.
- The F_{up} strength was calculated considering the effective number for axially loaded screws according to ETA-11/0030.

CONNECTION STIFFNESS | F_v

- Connection stiffness can be calculated according to ETA-19/0831, with the following equation:

$$K_{v,ser} = \frac{n \cdot \rho_m^{1.5} \cdot d^{0.8}}{30} \text{ N/mm}$$

where:

- d is the nominal diameter of the screw in the secondary beam, in mm;
- ρ_m is the average density of the secondary beam, in kg/m^3 ;
- n is the number of screws in the secondary beam.

INTELLECTUAL PROPERTY

- Some models of LOCK T MIDI are protected by the following Registered Community Designs: RCD 008254353-0007 | RCD 008254353-0008 | RCD 008254353-0009 | RCD 008254353-00010 | RCD 015032190-0010.