TITAN PLATE T TIMBER

PLATE FOR SHEAR LOADS

DESIGN REGISTERED

UK CA EN 14545

CE EN 14545

TIMBER-TO-TIMBER

Four models, ideal for shear connections between CLT panels, solid timber or glulam.

CONTINUOUS CONNECTION

The 1.2 m long TTP1200 version is designed for creating long connections in panel floors and replaces the classic spline joint connection. Option of fastening with 7 mm LBS screws in the case of high stresses.

ROLL VERSION

The 25 metre long LBB1280 version is optimised for creating shear connections between CLT floors with 4 mm LBA nails, with an unbeatable cost-performance ratio.

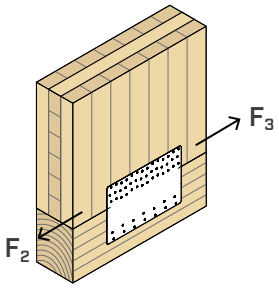
SERVICE CLASS	SC1	SC2

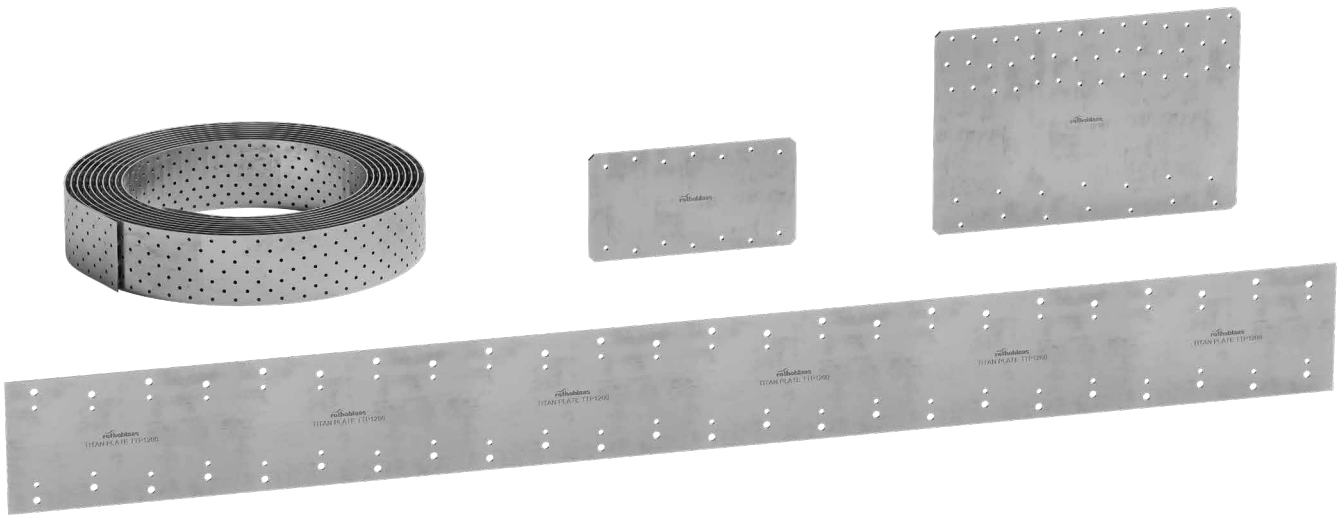
MATERIAL

DX51D Z275 — **TITAN PLATE T**: DX51D + Z275 carbon steel

S450 Z275 — **LBB1280**: S450GD + Z275 carbon steel

EXTERNAL LOADS







FIELDS OF USE

Shear joints for timber walls and floors.
Timber-to-timber configuration.

Can be applied to:

- solid timber and glulam
- timber frame
- CLT and LVL panels





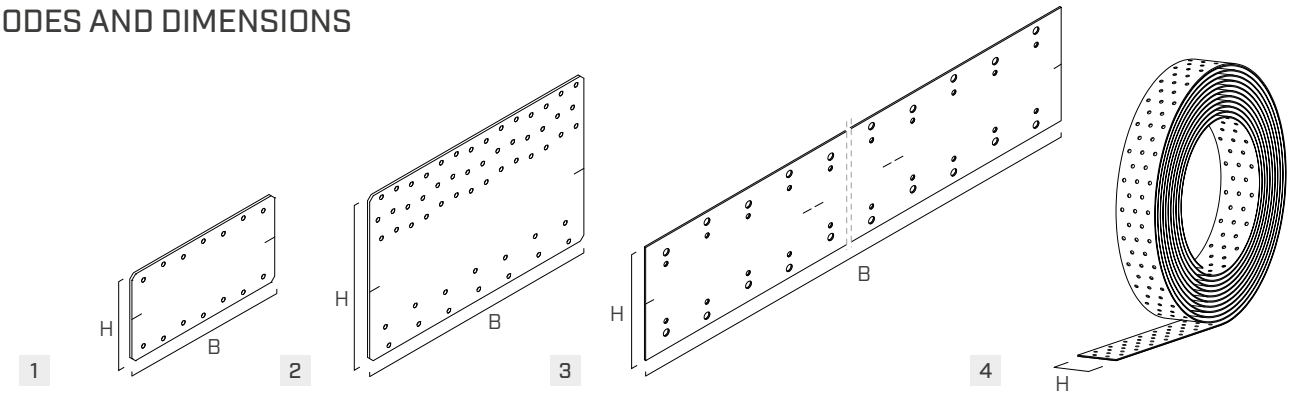
SPLINE STRAP

The new TTP1200 and LBB1280 models are ideal for the construction of floors with diaphragm behaviour, restoring shear continuity between panels that make up the floor.

FASTENING PATTERNS

The 300 mm version, with asymmetrical nailing, can be fastened to both beams and CLT, with patterns designed for both applications.

CODES AND DIMENSIONS



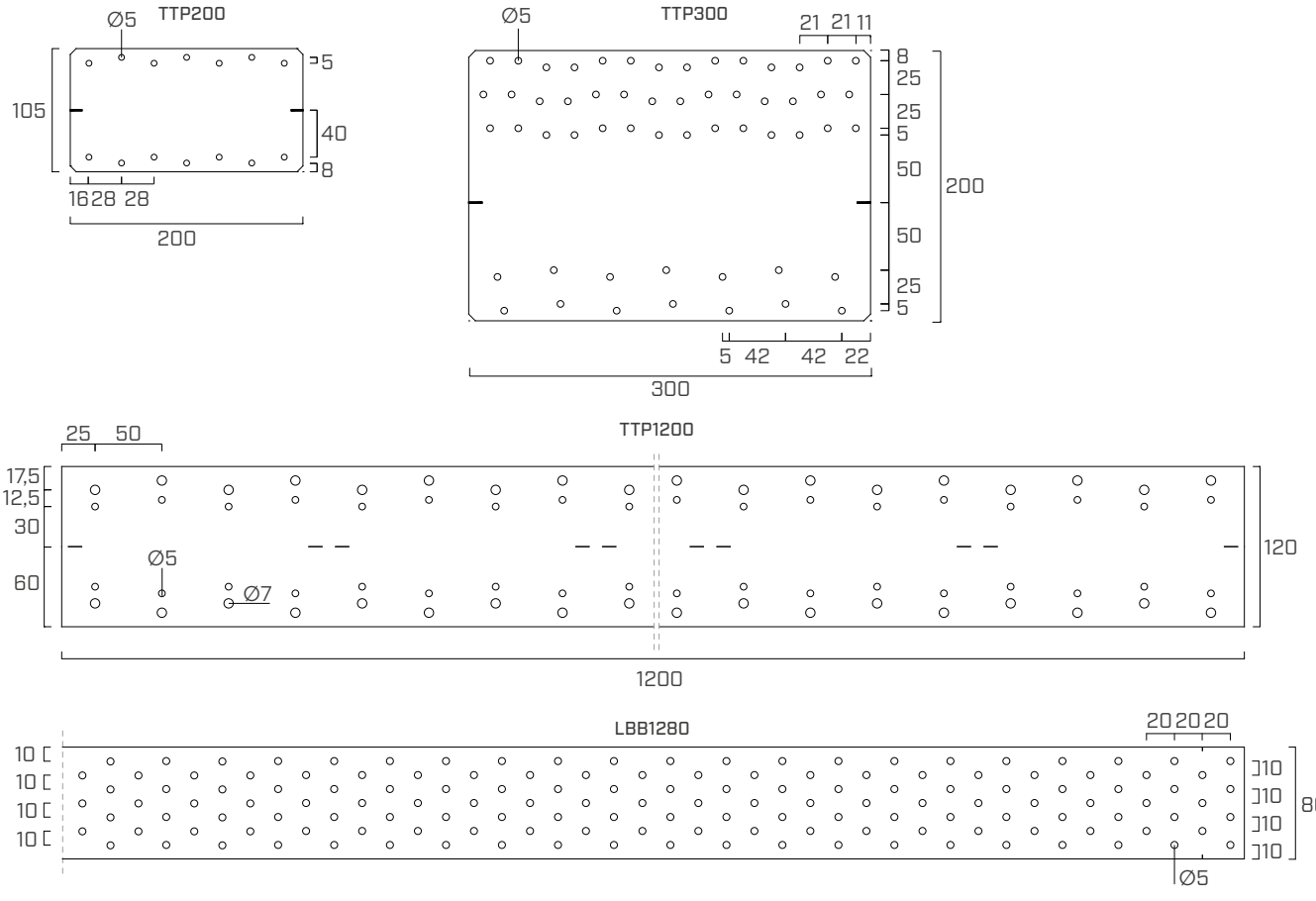
	CODE	B [mm]	B [in]	H [mm]	H [in]	L [m]	L [ft]	n_{V1} Ø5 n_{V1} Ø0.20 [pcs]	n_{V2} Ø5 n_{V2} Ø0.20 [pcs]	n_{V1} Ø7 n_{V1} Ø0.28 [pcs]	n_{V2} Ø7 n_{V2} Ø0.28 [pcs]	s [mm]	s [in]		pcs
1	**TTP200**	200	*8*	105	*4 1/8*	-	-	7	7	-	-	2,5	*0.10*	●	10
2	**TTP300**	300	*11 3/4*	200	*8*	-	-	42	14	-	-	3	*0.12*	●	5
3	**TTP1200**(*)	1200	*47 1/4*	120	*4 3/4*	-	-	48	48	48	48	1,5	*0.06*	●	5
4	**LBB1280**	-	-	80	*3 1/8*	25	*82*	176/m	-	-	-	1,2	*0.05*	●	1

(*) Not holding UKCA marking.

FASTENERS

type	description		d [mm]	support
LBA	high bond nail		4	
LBS	round head screw		5 - 7	
LBS HARDWOOD EVO	C4 EVO round head screw on hardwoods		7	

GEOMETRY

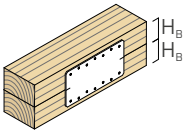
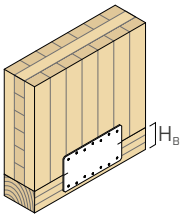
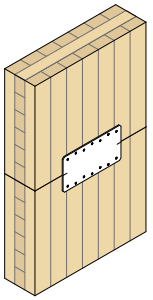
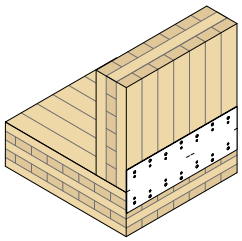
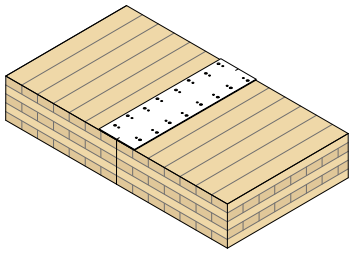


rothoblaas

INSTALLATION

TITAN PLATE T plates can be used on both CLT and solid timber/glulam elements and must be positioned with the assembly notches at the timber-to-timber interface.

Available fastening configurations:

configuration		fasteners	TTP200	TTP300	TTP1200	LBB1280
	**timber-to-timber**	LBA Ø4	●	●	-	-
		LBS Ø5	-	●	-	-
	**CLT - timber**	LBA Ø4	●	●	-	-
		LBS Ø5	-	●	-	-
	**CLT - CLT** lateral face - lateral face	LBA Ø4	●	●	-	●
		LBS Ø5	●	●	●	●
		LBS Ø7 LBSH EVO Ø7	-	-	●	-
	**CLT - CLT** lateral face - narrow face	LBA Ø4	-	-	-	-
		LBS Ø5	-	-	-	-
		LBS Ø7 LBSH EVO Ø7	-	-	●	-
	**CLT - CLT** lateral face - lateral face	LBA Ø4	●	●	●	●
		LBS Ø5	●	●	●	●
		LBS Ø7 LBSH EVO Ø7	-	-	●	-

MINIMUM HEIGHT OF THE ELEMENTS H_B

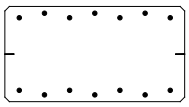
In the case of fastening on beam/platform beam, the minimum H_B height of the elements is shown in the table with reference to the installation diagrams.

configuration	fasteners	$H_{B\,min}$ [mm]		
		TTP200	TTP300	
		total	partial	total
timber-to-timber	LBA Ø4	75	110	-
	LBS Ø5	-	130	-
CLT - timber	LBA Ø4	75	110	100
	LBS Ø5	-	130	105

The H_B height is determined taking into account the minimum distances for solid timber or glulam according to EN 1995:2014 and a timber density $\rho_k \leq 420$ kg/m^3.

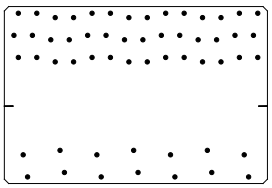
FASTENING PATTERNS

TTP200

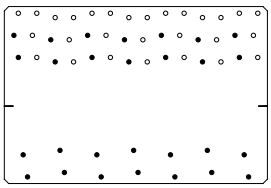


total fastening

TTP300

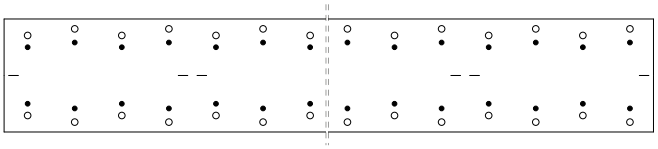


total fastening

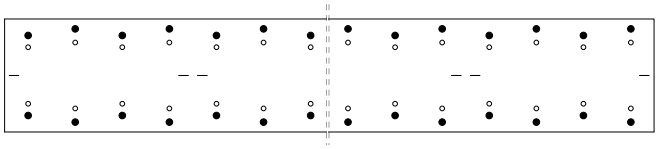


partial fastening

TTP1200



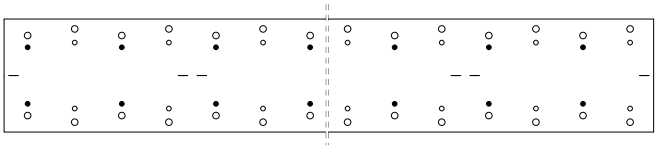
LBA Ø4 - LBS Ø5



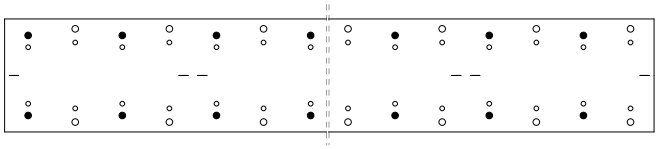
LBS Ø7 - LBSH EVO Ø7

total fastening

24 + 24 fasteners - spacing 50 mm



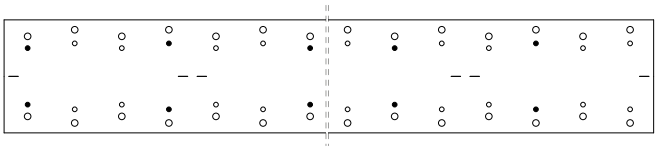
LBA Ø4 - LBS Ø5



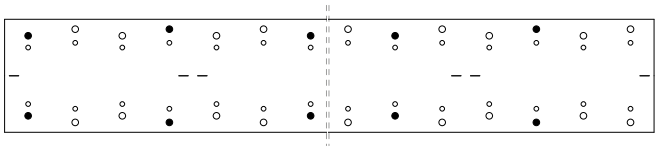
LBS Ø7 - LBSH EVO Ø7

partial fastening

12 + 12 fasteners - spacing 100 mm



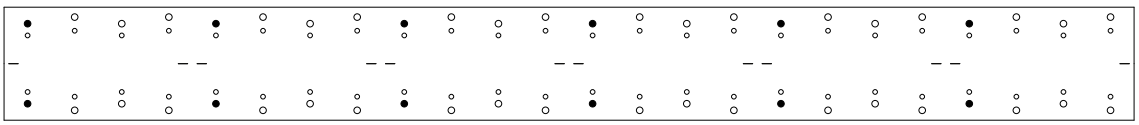
LBA Ø4 - LBS Ø5



LBS Ø7 - LBSH EVO Ø7

partial fastening

8 + 8 fasteners - spacing 150 mm

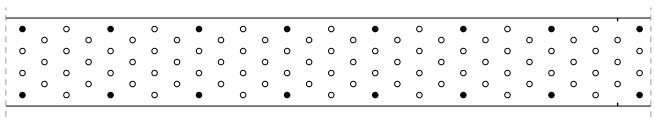


LBS Ø7 - LBSH EVO Ø7

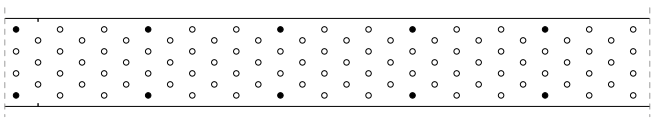
partial fastening

6 + 6 fasteners - spacing 200 mm

LBB1280

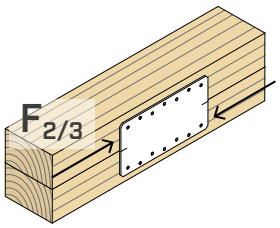


LBA Ø4 - LBS Ø5
spacing 80 mm



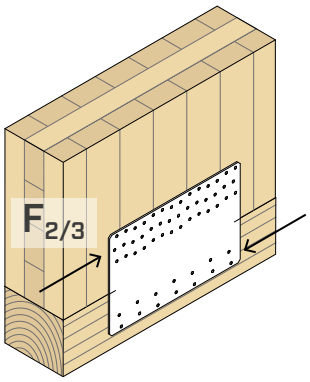
LBA Ø4 - LBS Ø5
spacing 120 mm

STRUCTURAL VALUES | **TTP200** | $F_{2/3}$



configuration	fastening holes Ø5				$R_{2/3,k\ timber}$ (1)
	type	Ø x L [mm]	n_{V1} [pcs]	n_{V2} [pcs]	[kN]
total fastening	LBA	Ø4 x 60	7	7	**8,8**

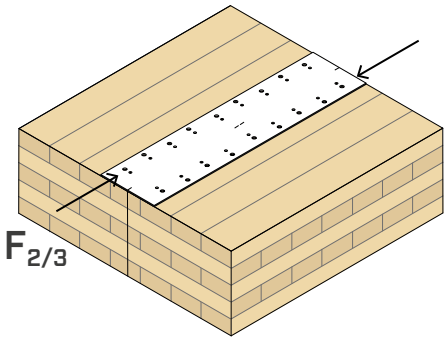
STRUCTURAL VALUES | **TTP300** | $F_{2/3}$



configuration	fastening holes Ø5				$R_{2/3,k\ timber}$ (1)
	type	Ø x L [mm]	n_{V1} [pcs]	n_{V2} [pcs]	[kN]
total fastening	LBA	Ø4 x 60	42	14	**31,7**
	LBS	Ø5 x 60	42	14	**27,7**
partial fastening	LBA	Ø4 x 60	14	14	**17,2**
	LBS	Ø5 x 60	14	14	**15,0**

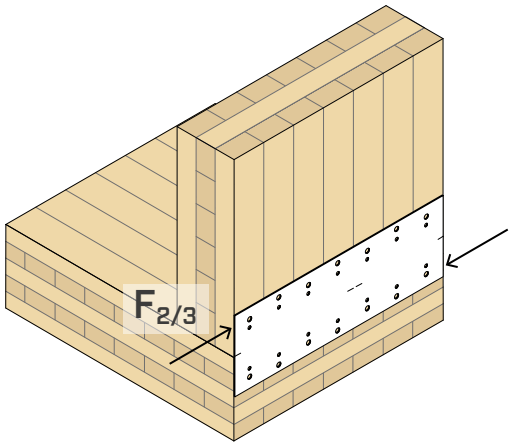
STRUCTURAL VALUES | **TTP1200** | $F_{2/3}$

CLT - CLT
lateral face - lateral face



configuration	fastening holes Ø5 type	Ø x L [mm]	n_{V1} [pcs]	n_{V2} [pcs]	$R_{2/3,k\ timber}$ [kN]
total fastening 24 + 24 fasteners spacing 50 mm	LBA	Ø4 x 60	24	24	**55,3**
	LBS	Ø5 x 60	24	24	**48,3**
	LBS	Ø7 x 100	24	24	**74,8**
	LBSH EVO	Ø7 x 120	24	24	**91,3**
partial fastening 12 + 12 fasteners spacing 100 mm	LBA	Ø4 x 60	12	12	**28,1**
	LBS	Ø5 x 60	12	12	**24,5**
	LBS	Ø7 x 100	12	12	**38,1**
	LBSH EVO	Ø7 x 120	12	12	**46,6**
partial fastening 8 + 8 fasteners spacing 150 mm	LBA	Ø4 x 60	8	8	**18,6**
	LBS	Ø5 x 60	8	8	**16,3**
	LBS	Ø7 x 100	8	8	**25,3**
	LBSH EVO	Ø7 x 120	8	8	**30,8**
partial fastening 6 + 6 fasteners spacing 200 mm	LBS	Ø7 x 100	6	6	**19,3**
	LBSH EVO	Ø7 x 120	6	6	**23,6**

CLT - CLT
lateral face - narrow face

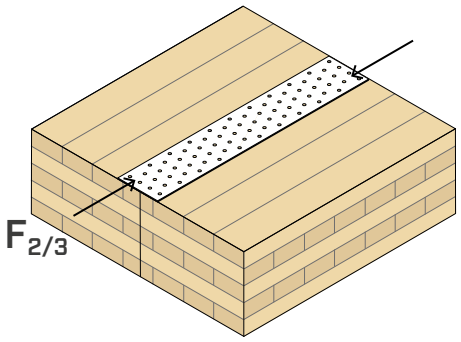


configuration	fastening holes Ø5 type	Ø x L [mm]	n_{V1} [pcs]	n_{V2} [pcs]	$R_{2/3,k\ timber}$ [kN]
total fastening 24 + 24 fasteners spacing 50 mm	LBS	Ø7 x 100	24	24	**49,2**
	LBSH EVO	Ø7 x 120	24	24	**59,2**
partial fastening 12 + 12 fasteners spacing 100 mm	LBS	Ø7 x 100	12	12	**25,1**
	LBSH EVO	Ø7 x 120	12	12	**30,2**

(1) It is possible to cut the plate into modules of 600 mm. The strength in kN/m remains unchanged.

STRUCTURAL VALUES | **LBB1280** | $F_{2/3}$

CLT - CLT
lateral face - lateral face



configuration	fastening holes Ø5				$R_{2/3,k\ timber}$
	type	Ø x L [mm]	n_{V1} [pcs]	n_{V2} [pcs]	[kN/m]
partial fastening spacing 80 mm	LBA	Ø4 x 60	13/m	13/m	**33,0**
	LBS	Ø5 x 60	13/m	13/m	**28,2**
partial fastening spacing 120 mm	LBA	Ø4 x 60	9/m	9/m	**22,0**
	LBS	Ø5 x 60	9/m	9/m	**19,3**

The values in the table have been determined considering a reference band length of 1.2 m. The same values can be considered valid for longer band lengths.

NOTES

(1) Strength values are valid for all full/partial configurations indicated in the INSTALLATION section.

INTELLECTUAL PROPERTY

- TITAN PLATE T plates are protected by the following Registered Community Designs:
  - RCD 008254353-0015;
  - RCD 008254353-0016;
  - RCD 015051914-0006.

GENERAL PRINCIPLES

- Characteristic values according to EN 1995:2014.
- Design values can be obtained from characteristic values as follows:

$$R_d = \frac{R_{k\ timber} \cdot k_{mod}}{\gamma_M}$$

The coefficients k_{mod}, γ_M should be taken according to the current regulations used for the calculation.

- For the calculation process a timber density ρ_k = 350 kg/m^3 has been considered.
- Dimensioning and verification of the timber elements must be carried out separately.