

PERFORATED PLATE

WIDE RANGE

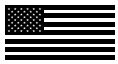
Several versions are available, designed to face all timber construction needs. The LBV plates can create simple beam and joist joints through to the most important inter-story connections.

READY FOR USE

An "off the shelf solution" that meets the most common requirements and minimises installation times. It offers an excellent cost to performance ratio.

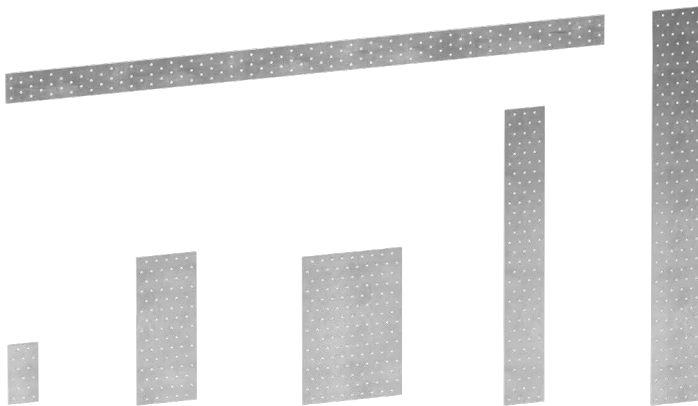
EFFICIENCY

The new LBA nails according to ETA-22/0002 achieve excellent strengths with a reduced number of fasteners.



USA DESIGN VALUES

CANADA, EU and more design values available online.



SERVICE CONDITION



MATERIAL

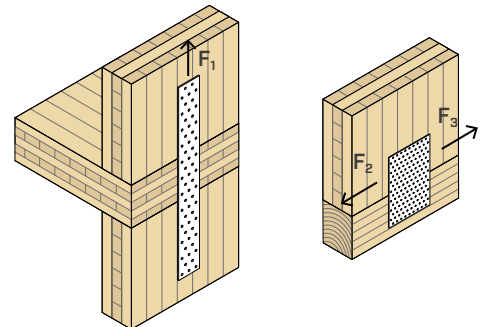


S250GD + Z275 carbon steel

THICKNESS [mm] [in]

1,5 mm (0.06 in) | 2,0 mm (0.8 in)

EXTERNAL LOADS



FIELD OF USE

Tension joints with small to medium stresses through a simple and cost-effective solution. Timber-to-timber configuration. To be used in dry condition.

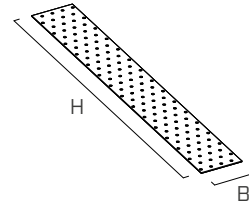
Can be applied to:

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

CODES AND DIMENSIONS

LBV 1,5 mm

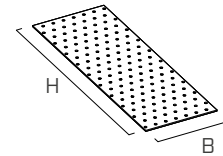
CODE	B	H	s	B	H	s	n Ø5 n Ø0.20 [pcs]		pcs
	[mm]	[mm]	[mm]	[in]	[in]	[in]			
LBV60600	60	600	1,5	2 3/8	23 5/8	0.06	75	●	10
LBV60800	60	800	1,5	2 3/8	31 1/2	0.06	100	●	10
LBV80600	80	600	1,5	3 1/8	23 5/8	0.06	105	●	10
LBV80800	80	800	1,5	3 1/8	31 1/2	0.06	140	●	10
LBV100800	100	800	1,5	4	31 1/2	0.06	180	●	10



S250
2275

LBV 2,0 mm

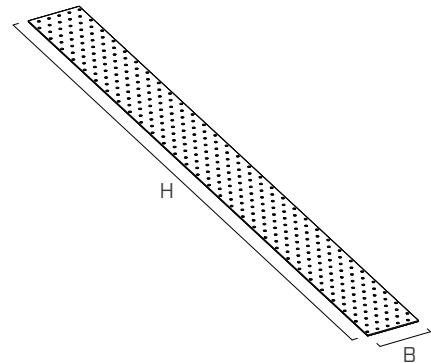
CODE	B	H	s	B	H	s	n Ø5 n Ø0.20 [pcs]		pcs
	[mm]	[mm]	[mm]	[in]	[in]	[in]			
LBV40120	40	120	2,0	1 9/16	4 3/4	0.08	9	●	200
LBV40160	40	160	2,0	1 9/16	6 1/4	0.08	12	●	50
LBV60140	60	140	2,0	2 3/8	5 1/2	0.08	18	●	50
LBV60200	60	200	2,0	2 3/8	8	0.08	25	●	100
LBV60240	60	240	2,0	2 3/8	9 1/2	0.08	30	●	100
LBV80200	80	200	2,0	3 1/8	8	0.08	35	●	50
LBV80240	80	240	2,0	3 1/8	9 1/2	0.08	42	●	50
LBV80300	80	300	2,0	3 1/8	11 3/4	0.08	53	●	50
LBV100140	100	140	2,0	4	5 1/2	0.08	32	●	50
LBV100200	100	200	2,0	4	8	0.08	45	●	50
LBV100240	100	240	2,0	4	9 1/2	0.08	54	●	50
LBV100300	100	300	2,0	4	11 3/4	0.08	68	●	50
LBV100400	100	400	2,0	4	15 3/4	0.08	90	●	20
LBV100500	100	500	2,0	4	19 3/4	0.08	112	●	20
LBV120200	120	200	2,0	4 3/4	8	0.08	55	●	50
LBV120240	120	240	2,0	4 3/4	9 1/2	0.08	66	●	50
LBV120300	120	300	2,0	4 3/4	11 3/4	0.08	83	●	50
LBV140400	140	400	2,0	5 1/2	15 3/4	0.08	130	●	15
LBV160400	160	400	2,0	6 1/4	15 3/4	0.08	150	●	15
LBV200300	200	300	2,0	8	11 3/4	0.08	142	●	15



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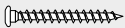
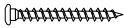
LBV 2,0 x 1200 mm

CODE	B	H	s	B	H	s	n Ø5 n Ø0.20 [pcs]		pcs
	[mm]	[mm]	[mm]	[in]	[in]	[in]			
LBV401200	40	1200	2,0	1 9/16	47 1/4	0.08	90	●	20
LBV601200	60	1200	2,0	2 3/8	47 1/4	0.08	150	●	20
LBV801200	80	1200	2,0	3 1/8	47 1/4	0.08	210	●	20
LBV1001200	100	1200	2,0	4	47 1/4	0.08	270	●	10
LBV1201200	120	1200	2,0	4 3/4	47 1/4	0.08	330	●	10
LBV1401200	140	1200	2,0	5 1/2	47 1/4	0.08	390	●	10
LBV1601200	160	1200	2,0	6 1/4	47 1/4	0.08	450	●	10
LBV1801200	180	1200	2,0	7 1/8	47 1/4	0.08	510	●	10
LBV2001200	200	1200	2,0	8	47 1/4	0.08	570	●	5
LBV2201200	220	1200	2,0	8 5/8	47 1/4	0.08	630	●	5
LBV2401200	240	1200	2,0	9 1/2	47 1/4	0.08	690	●	5
LBV2601200	260	1200	2,0	10 1/4	47 1/4	0.08	750	●	5
LBV2801200	280	1200	2,0	11	47 1/4	0.08	810	●	5
LBV3001200	300	1200	2,0	11 3/4	47 1/4	0.08	870	●	5
LBV4001200	400	1200	2,0	15 3/4	47 1/4	0.08	1170	●	5

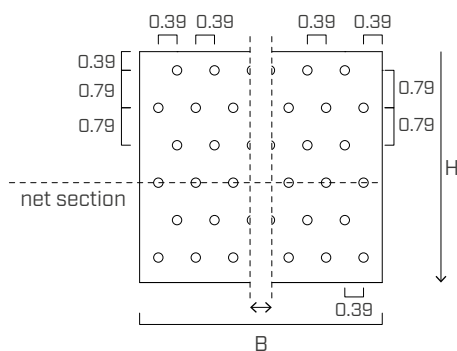


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FASTENERS

type	description		d		support
			[mm]	[in]	
LBA	high bond nail		4	0.157	
LBS	round head screw		5	0.197	
LBS EVO	C4 EVO round head screw		5	0.197	

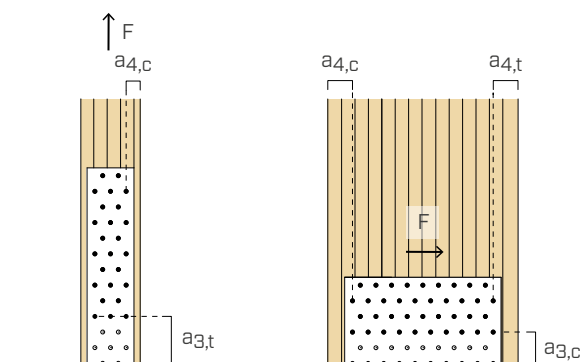
GEOMETRY



B		net area holes	B		net area holes	B		net area holes
[mm]	[in]	pcs	[mm]	[in]	[pcs]	[mm]	[in]	[pcs]
40	1 9/16	2	140	5 1/2	7	240	9 1/2	12
60	2 3/8	3	160	6 1/4	8	260	10 1/4	13
80	3 1/8	4	180	7 1/8	9	280	11	14
100	4	5	200	8	10	300	11 3/4	15
120	4 3/4	6	220	8 5/8	11	400	15 3/4	20

INSTALLATION

MINIMUM DISTANCES



load-to-grain angle $\alpha = 0^\circ$		nail LBA Ø4	screw LBS Ø5
lateral connector - unloaded edge	$a_{4,c}$ [mm] [in]	≥ 20 ≥ 0.39	≥ 25 ≥ 0.49
connector - loaded end	$a_{3,t}$ [mm] [in]	≥ 60 ≥ 1.57	≥ 75 ≥ 1.97
load-to-grain angle $\alpha = 90^\circ$		nail LBA Ø4	screw LBS Ø5
lateral connector - loaded edge	$a_{4,t}$ [mm] [in]	≥ 28 ≥ 0.63	≥ 50 ≥ 0.79
lateral connector - unloaded edge	$a_{4,c}$ [mm] [in]	≥ 20 ≥ 0.24	≥ 25 ≥ 0.3
connector - unloaded end	$a_{3,c}$ [mm] [in]	≥ 40 ≥ 0.63	≥ 50 ≥ 0.79

■ STRUCTURAL VALUES | TIMBER-TO-TIMBER | F₁

STRENGTH OF THE SYSTEM

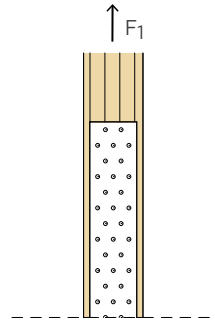
The tensile strength of the F₁ system is the minimum between the F_{ax} plate side tensile strength and the shear resistance of the connectors used for fastening ntot F_v.

If the connectors are placed in several consecutive rows and the load direction is parallel to the grain, the following sizing criteria must be applied.

$$F_1 = \min \left\{ \begin{array}{l} F_{ax} \\ \sum m_i \cdot n_i^k \cdot F_v \end{array} \right.$$

ntot

~~$k = \begin{cases} 0,85 & \text{LBA } \varnothing = 4 \\ 0,75 & \text{LBS } \varnothing = 5 \end{cases}$~~



~~Where m_i is the number of rows of connectors parallel to the grain and n_i is the number of connectors arranged in the same row.~~

PLATE - TENSILE STRENGTH

type	B		s		net area holes	F _{ax}
	[mm]	[in]	[mm]	[in]	[pcs]	[lbf]
LBV 1,5 mm	60	2 3/8	1,5	0.06	3	2390
	80	3 1/8	1,5	0.06	4	3186
	100	4	1,5	0.06	5	3983
LBV 2,0 mm	40	1 9/16	2,0	0.08	2	2124
	60	2 3/8	2,0	0.08	3	3186
	80	3 1/8	2,0	0.08	4	4249
	100	4	2,0	0.08	5	5311
	120	4 3/4	2,0	0.08	6	6373
	140	5 1/2	2,0	0.08	7	7435
	160	6 1/4	2,0	0.08	8	8498
	180	7 1/8	2,0	0.08	9	9650
	200	8	2,0	0.08	10	10622
	220	8 5/8	2,0	0.08	11	1168
	240	9 1/2	2,0	0.08	12	12746
	260	10 1/4	2,0	0.08	13	13809
	280	11	2,0	0.08	14	14871
	300	11 3/4	2,0	0.08	15	15933
	400	15 3/4	2,0	0.08	20	21244

■ ~~CALCULATION EXAMPLE | TIMBER-TO-TIMBER JOINT~~

~~An example of joint type calculation is shown in the figure on page 339, using also a perforated strap LBB in comparison.~~

GENERAL PRINCIPLES

- Dimensioning and verification of the timber elements must be carried out separately.
- It is recommended to place the connectors symmetrically with respect to the load direction.