

DISC

Concealed wood connector

Bright zinc plated carbon steel three-dimensional perforated plate



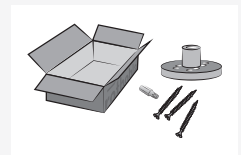
FIELD OF USE

Timber-to-timber shear joints along all directions of the secondary beam

- solid timber
- glulam (Glued Laminated Timber)
- XLAM (Cross Laminated Timber)
- LVL (Laminated Veneer Lumber)
- wood-based panels

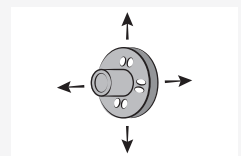
PACKAGING

Assembling screws and TX insert included in the box



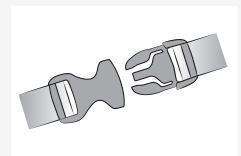
COMBINED LOADS

Combined shear-tensile load bearing capacity due to tightening provided by the pass-through rod



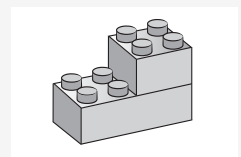
EASE OF HANDLING

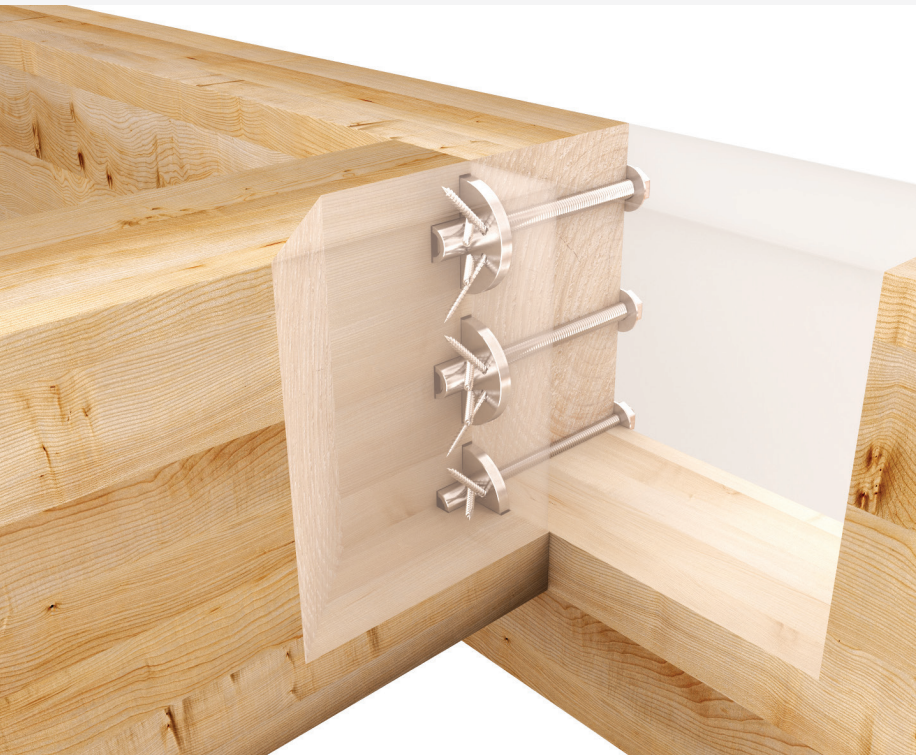
Simple to install thanks to the possibility of being tightened after the assembly



REMOVABLE

Usable for temporary structures, it can be easily removed thanks to the pass-through rod





AESTHETICS

Completely hidden joint to ensure a pleasant aesthetic appearance



VERSATILITY

Usable in various applications, allowing to realize shear and tensile joints among the timber elements

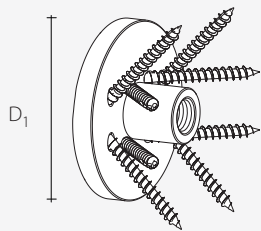


LOAD TRANSFER

Thanks to the threaded rod, the load can be transferred from one timber element to the other. The increase in load bearing capacity is potentially unlimited if more fasteners are used in series.

CODES AND DIMENSIONS

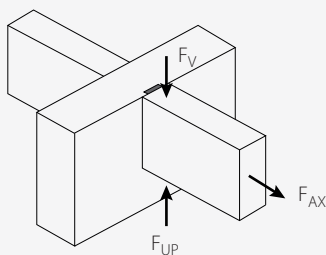
DISC



code	type	D ₁ [mm]	bar	pcs/box
DISC55	DISC55	55	M12	1
DISC80	DISC80	80	M16	1
DISC120	DISC120	120	M20	1

Screws included in the box

EXTERNAL LOADS



MATERIAL AND DURABILITY

DISC: S235 bright zinc plated carbon steel.
To be used in Service class 1 and 2 (EN 1995:2008).

FIELD OF USE

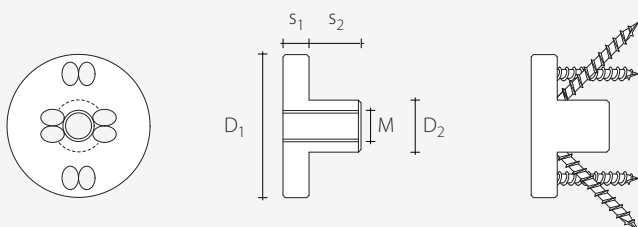
Timber to timber joints



ADDITIONAL PRODUCTS - FASTENERS

type	description		d x L [mm]	drill bit	support	p.
screw DISC55	screw for timber		5 x 50	TX20		included
screw DISC80	screw for timber		6 x 60	TX25		included
screw DISC120	screw for timber		6 x 90	TX25		included
KOS	bolt		M12 - M16 - M20	-		54
ULS	washer DIN 1052		M12 - M16 - M20	-		62

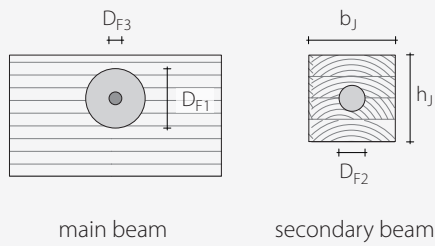
GEOMETRY



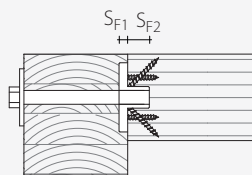
type	D ₁ [mm]	D ₂ [mm]	s ₁ [mm]	s ₂ [mm]	M [mm]	fixing screws DISC (included)	
						d x L [mm]	[pcs]
DISC55	55	20	10	20	M12	5 x 50	8
DISC80	80	25	10	25	M16	6 x 60	8
DISC120	120	30	10	30	M20	6 x 90	16

INSTALLATION

GROOVING TIPS FOR MAIN BEAM - SECONDARY BEAM JOINTS



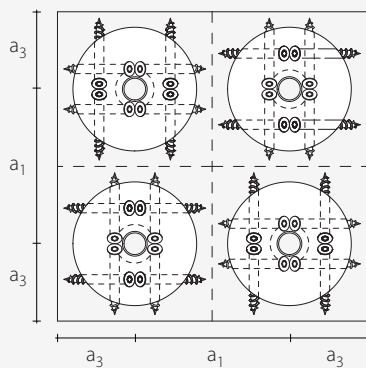
		SECONDARY BEAM			
		MINIMUM DIMENSIONS		GROOVING 2	
type	D_1 [mm]	b_J [mm]	h_J [mm]	D_{F2} [mm]	S_{F2} [mm]
DISC55	55	80	80	20	20
DISC80	80	100	100	25	25
DISC120	120	140	140	30	30



		MAIN BEAM		
		GROOVING 1	GROOVING 3	
type	D_1 [mm]	D_{F1} [mm]	S_{F1} [mm]	D_{F3}^* [mm]
DISC55	55	56	11	13
DISC80	80	81	11	17
DISC120	120	121	11	21

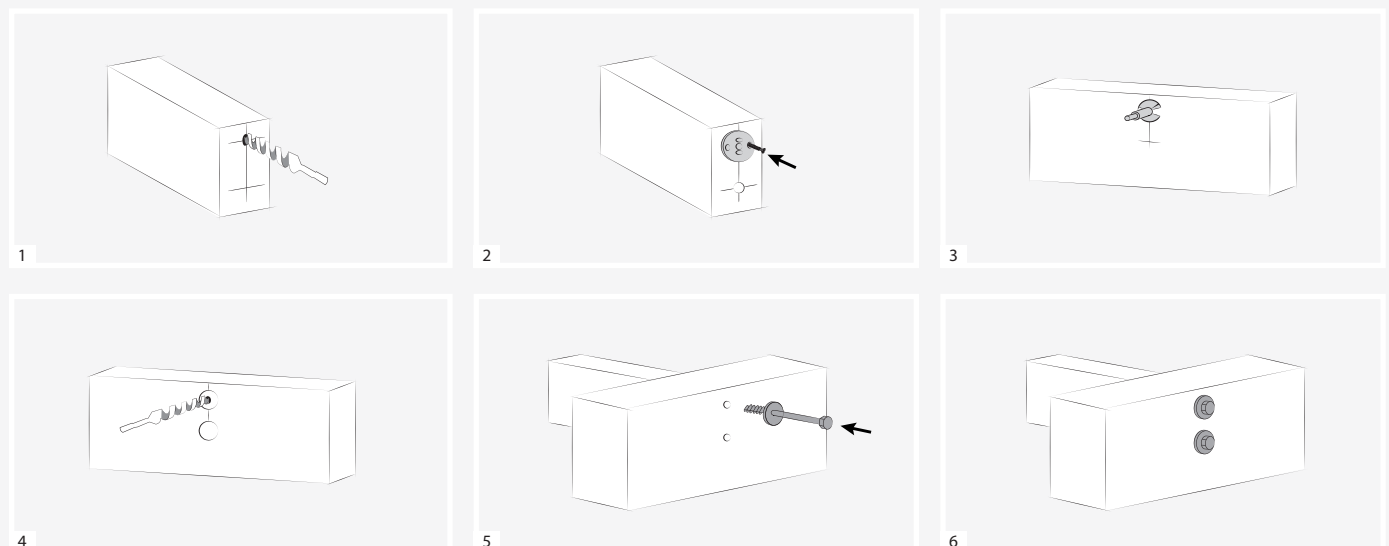
* The hole must be passing through to allow the introduction of the KOS bolt

MINIMUM DISTANCES



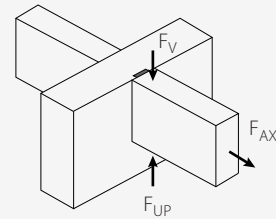
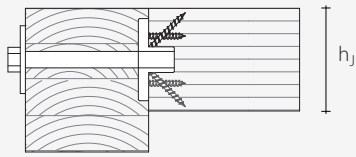
type	D_1 [mm]	$a_{1,min}$ [mm]	$a_{3,min}$ [mm]
DISC55	55	80	40
DISC80	80	100	50
DISC120	120	140	70

ASSEMBLY



STATIC VALUES - TIMBER-TO-TIMBER JOINT- RIGHT ANGLE

DISC



VERTICAL SHEAR CAPACITY R_v

	secondary beam		CHARACTERISTIC VALUES	ADMISSIBLE VALUES
type	$b_{j,min}$ [mm]	$h_{j,min}$ [mm]	$R_{v,k} \downarrow$ [kN]	$V_{adm} \downarrow$ [kg]
DISC55	80	120	9,4	461
DISC80	100	160	12,7	606
DISC120	140	180	24,9	1183

VERTICAL SHEAR CAPACITY R_{up}

	secondary beam		CHARACTERISTIC VALUES	ADMISSIBLE VALUES
type	$b_{j,min}$ [mm]	$h_{j,min}$ [mm]	$R_{up,k} \uparrow$ [kN]	$V_{adm} \uparrow$ [kg]
DISC55	80	120	9,4	461
DISC80	100	160	12,7	606
DISC120	140	180	24,9	1183

TENSILE STRENGTH $R_{ax}^{(1)}$

	secondary beam		CHARACTERISTIC VALUES	ADMISSIBLE VALUES
type	$b_{j,min}$ [mm]	$h_{j,min}$ [mm]	$R_{ax,k} \rightarrow$ [kN]	$N_{adm} \rightarrow$ [kg]
DISC55	80	80	13,5	642
DISC80	100	100	18,4	763
DISC120	140	140	62,4	2444

GENERAL PRINCIPLES

- Characteristic values are according to EN 1995:2008 and in accordance with test certificate Nr. 1554/2008 (Holz Forschung Austria).
- Design values can be obtained from characteristic values as follows:

$$R_d = \frac{R_k \cdot k_{mod}}{\gamma_m}$$

Coefficients γ_m and k_{mod} must be taken according to the current Standard adopted for the design.

- For the calculation process a timber density $\rho_k = 380 \text{ kg/m}^3$ has been considered.
- Dimensioning and verification of the timber elements must be carried out separately.

- In case of combine loading the following expression shall be satisfied:

$$\frac{F_{v,d}}{R_{v,d}} + \frac{F_{ax,d}}{R_{ax,d}} \leq 1$$

- Admissible values are obtained according to DIN 1052:1988.

NOTES

⁽¹⁾ Strength values are referred to a joint with centered load with respect to the secondary beam. The global check must account also for the contribution of nut and washer to the tensile strength.