

TIMBER-TO-TIMBER DOVETAIL CONNECTOR

COMPLETE RANGE

Available in five versions, to adapt to the secondary beam and the applied load. Strength over 60 kN.

REMOVABLE

The hanging system is quick to install and can be easily removed; ideal for the construction of temporary structures.

PRECISE

The dovetail geometry allows for a precise and aesthetically pleasing connection.



SERVICE CLASS

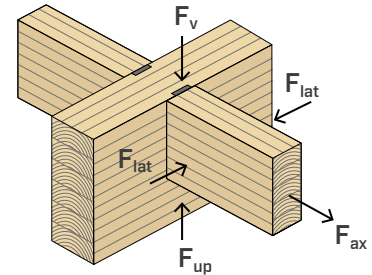
SC1 SC2

MATERIAL

alu
6082

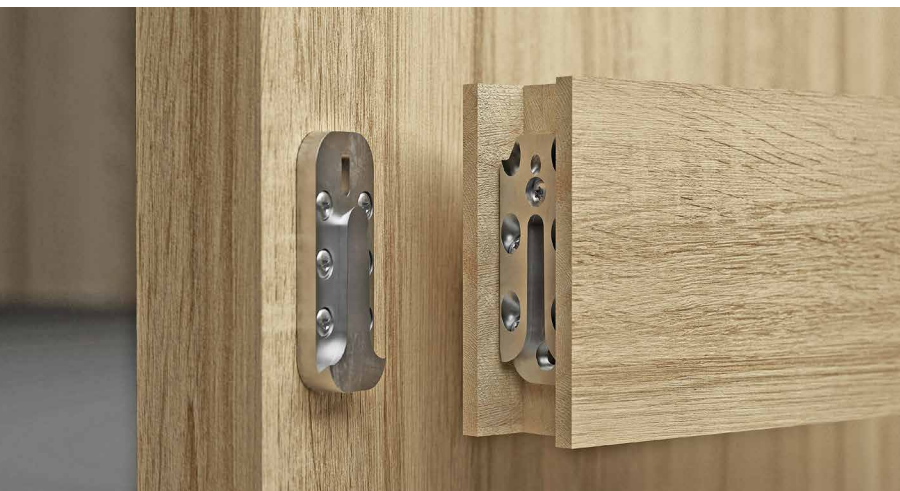
EN AW-6082 aluminium alloy

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 gazebos, floors or roofs.

Can be applied to:

- solid timber softwood and hardwood
- glulam, LVL



ALL DIRECTIONS

The inclined screws fixed in the secondary beam guarantee strength in all directions: vertical, horizontal and axial. The joint is safe even in the presence of wind and earthquake forces.

FAST ASSEMBLY

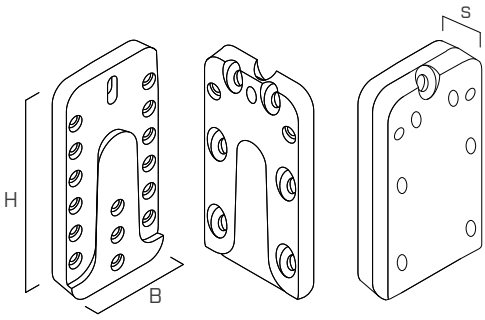
The installation is intuitive, simple and fast. The locking screw prevents pull-out, guaranteeing also strength in the direction opposite to insertion.

CODES AND DIMENSIONS

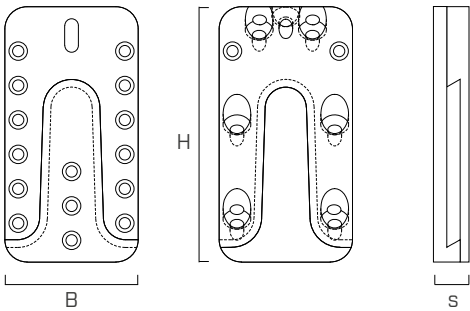
UV T

CODE	B [mm]	H [mm]	s [mm]	B [in]	H [in]	s [in]	Ø _{90°} [mm]	Ø _{45°} [mm]	pcs
UVT3070	30	70	16	1 3/16	2 3/4	0.63	5	4	25
UVT4085	40	85	16	1 9/16	3 3/8	0.63	5	6	25
UVT60115	60	115	16	2 3/8	4 1/2	0.63	5	6	25
UVT60160	60	160	16	2 3/8	6 1/4	0.63	5	6	10
UVT60215	60	215	16	2 3/8	8 7/16	0.63	5	6	10

Screws not included in the box.



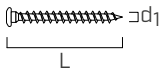
GEOMETRY



FASTENERS

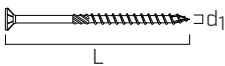
LBS: 90° screw

CODE	d ₁ [mm]	L [mm]	b [mm]	TX	pcs
LBS550	5	50	46	TX 20	200
LBS560	5	60	56	TX 20	200
LBS570	5	70	66	TX 20	200



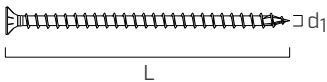
HBS: 45° screw for UVT3070

CODE	d ₁ [mm]	L [mm]	b [mm]	TX	pcs
HBS450	4	50	30	TX 20	400
HBS470	4	70	40	TX 20	200

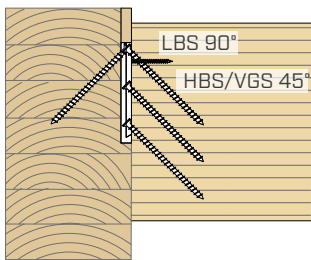


VGS: 45° screw for UVT4085 / UVT60115 / UVT60160 / UVT60215

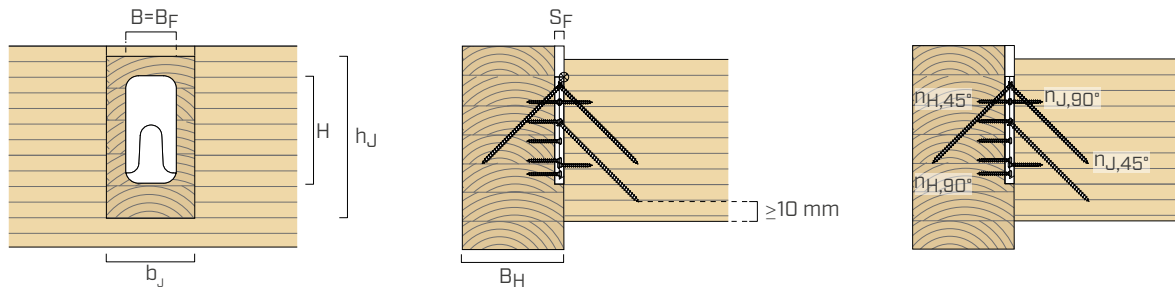
CODE	d ₁ [mm]	L [mm]	b [mm]	TX	pcs
VGS6100	6	100	88	TX 30	100
VGS6160	6	160	148	TX 30	100



CODE	MAXIMUM NUMBER OF FASTENERS FOR EACH CONNECTOR [full fastening]	
	n _{90°} [pcs - Ø]	n _{45°} [pcs - Ø]
UVT3070	8 - LBS Ø5	6 (+1) - HBS Ø4
UVT4085	11 - LBS Ø5	4 (+1) - VGS Ø6
UVT60115	17 - LBS Ø5	6 (+1) - VGS Ø6
UVT60160	25 - LBS Ø5	6 (+1) - VGS Ø6
UVT60215	34 - LBS Ø5	8 (+1) - VGS Ø6

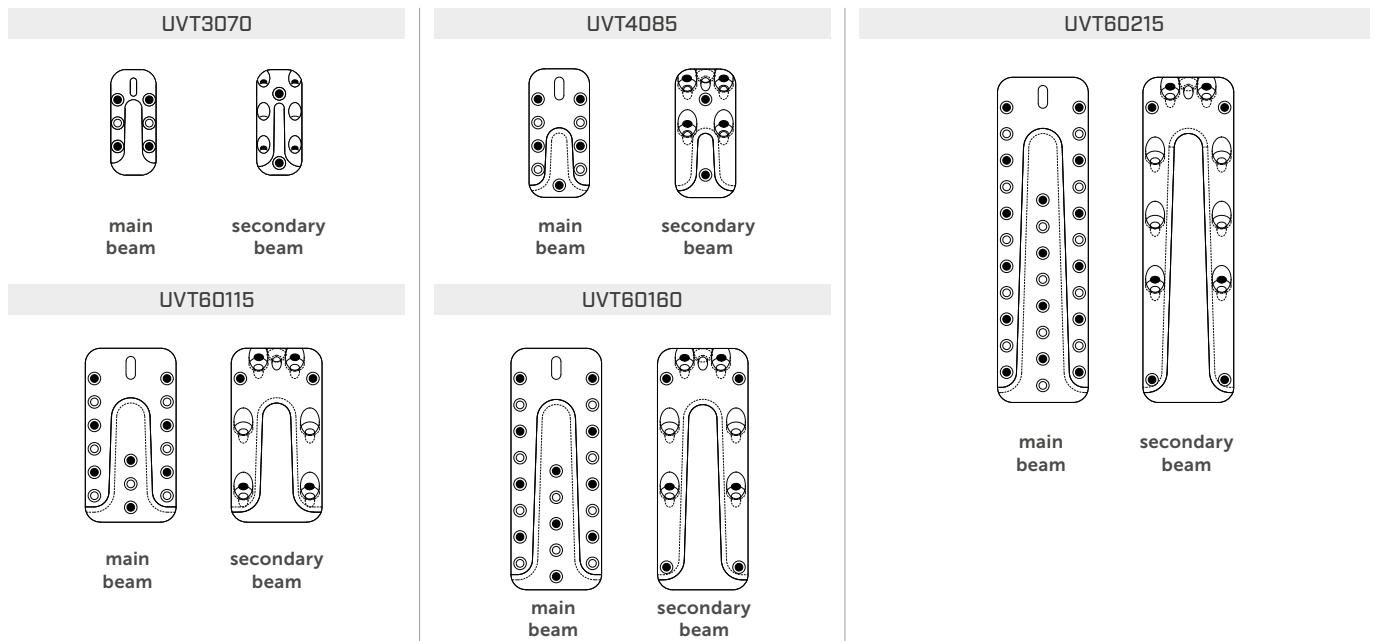


WOODEN ELEMENTS MINIMUM DIMENSIONS

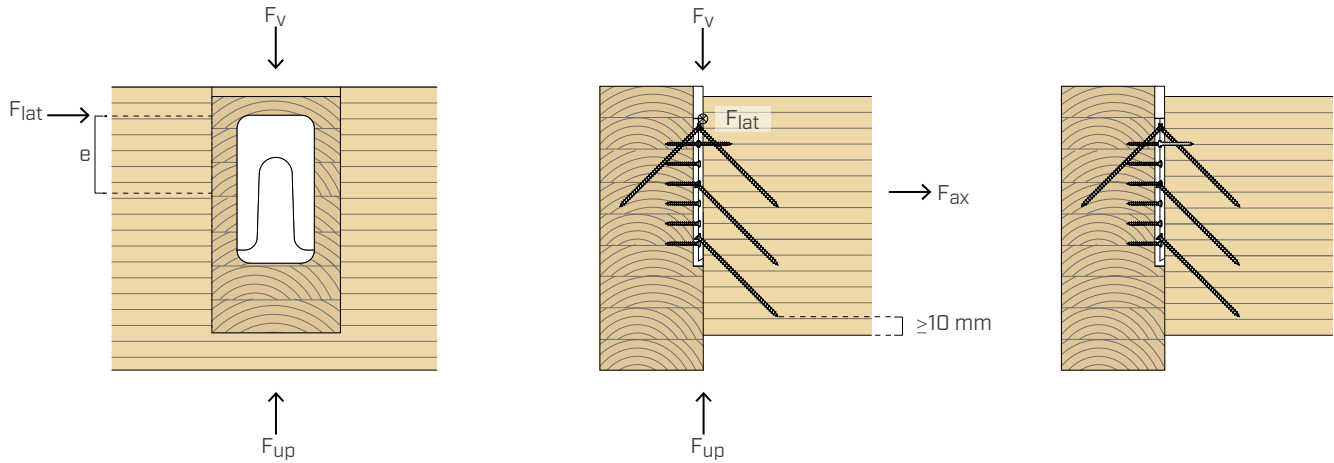


UV connector		45° screws	main beam			secondary beam ⁽¹⁾	
type	B x H x s [mm]	Ø x L [mm]	B _H [mm]	routing		b _{j,min} [mm]	h _{j,min} [mm]
UVT3070	30 x 70 x 16	HBS Ø4 x 50	45	30	16	45	100
		HBS Ø4 x 70	60			45	115
UVT4085	40 x 85 x 16	VGS Ø6 x 100	80	40	16	70	120
		VGS Ø6 x 160	120			70	160
UVT60115	60 x 115 x 16	VGS Ø6 x 100	80	60	16	80	180
		VGS Ø6 x 160	120			80	220
UVT60160	60 x 160 x 16	VGS Ø6 x 100	80	60	16	100	180
		VGS Ø6 x 160	120			100	220
UVT60215	60 x 215 x 16	VGS Ø6 x 100	80	60	16	100	220
		VGS Ø6 x 160	120			100	260

FASTENING PATTERNS



type	nailing		main beam		secondary beam	
			n _{H,90°} [pcs - Ø]	n _{H,45°} ⁽³⁾ [pcs - Ø]	n _{J,90°} [pcs - Ø]	n _{J,45°} [pcs - Ø]
UVT3070	total	•+○	6 - LBS Ø5	1 - HBS Ø4	2 - LBS Ø5	6 - HBS Ø4
	partial ⁽²⁾	•	4 - LBS Ø5	1 - HBS Ø4	2 - LBS Ø5	4 - HBS Ø4
UVT4085	total	•+○	9 - LBS Ø5	1 - VGS Ø6	2 - LBS Ø5	4 - VGS Ø6
	partial ⁽²⁾	•	5 - LBS Ø5	1 - VGS Ø6	2 - LBS Ø5	4 - VGS Ø6
UVT60115	total	•+○	15 - LBS Ø5	1 - VGS Ø6	2 - LBS Ø5	6 - VGS Ø6
	partial ⁽²⁾	•	8 - LBS Ø5	1 - VGS Ø6	2 - LBS Ø5	4 - VGS Ø6
UVT60160	total	•+○	21 - LBS Ø5	1 - VGS Ø6	4 - LBS Ø5	6 - VGS Ø6
	partial ⁽²⁾	•	11 - LBS Ø5	1 - VGS Ø6	4 - LBS Ø5	4 - VGS Ø6
UVT60215	total	•+○	30 - LBS Ø5	1 - VGS Ø6	4 - LBS Ø5	8 - VGS Ø6
	partial ⁽²⁾	•	16 - LBS Ø5	1 - VGS Ø6	4 - LBS Ø5	4 - VGS Ø6



			UVT3070				UVT4085			
			total fastening • + ◦		partial fastening •		total fastening • + ◦		partial fastening •	
			45° screws		45° screws		45° screws		45° screws	
			HBS Ø4 x 50	HBS Ø4 x 70	HBS Ø4 x 50	HBS Ø4 x 70	VGS Ø6 x 100	VGS Ø6 x 160	VGS Ø6 x 100	VGS Ø6 x 160
			[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
90° screws	LBS Ø5 x 50	$R_{ax,k}$	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		$R_{v,k}$	6,8	9,0	4,5	6,0	18,7	19,2	10,7	10,7
		$R_{up,k}$	1,1	1,5	1,1	1,5	4,7	7,9	4,7	7,9
		$R_{lat,k}$	1,7	1,8	1,5	1,6	1,5	1,5	1,5	1,5
	LBS Ø5 x 60	$R_{ax,k}$	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8
		$R_{v,k}$	6,8	9,0	4,5	6,0	18,7	20,4	11,3	11,3
		$R_{up,k}$	1,1	1,5	1,1	1,5	4,7	7,9	4,7	7,9
		$R_{lat,k}$	1,7	1,8	1,5	1,6	1,6	1,6	1,6	1,6
	LBS Ø5 x 70	$R_{ax,k}$	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1
		$R_{v,k}$	6,8	9,0	4,5	6,0	18,7	21,6	12,0	12,0
		$R_{up,k}$	1,1	1,5	1,1	1,5	4,7	7,9	4,7	7,9
		$R_{lat,k}$	1,7	1,8	1,5	1,6	1,6	1,6	1,6	1,6

			UVT60115				UVT60160			
			total fastening • + ◦		partial fastening •		total fastening • + ◦		partial fastening •	
			45° screws		45° screws		45° screws		45° screws	
			VGS Ø6 x 100	VGS Ø6 x 160	VGS Ø6 x 100	VGS Ø6 x 160	VGS Ø6 x 100	VGS Ø6 x 160	VGS Ø6 x 100	VGS Ø6 x 160
			[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
90° screws	LBS Ø5 x 50	$R_{ax,k}$	1,5	1,5	1,5	1,5	2,9	2,9	2,9	2,9
		$R_{v,k}$	28,0	32,0	17,1	17,1	28,0	44,9	18,7	23,5
		$R_{up,k}$	4,7	7,9	4,7	7,9	4,7	7,9	4,7	7,9
		$R_{lat,k}$	2,6	2,6	2,2	2,2	3,0	3,0	2,7	2,7
	LBS Ø5 x 60	$R_{ax,k}$	1,8	1,8	1,8	1,8	3,5	3,5	3,5	3,5
		$R_{v,k}$	28,0	34,0	18,1	18,1	28,0	47,1	18,7	24,9
		$R_{up,k}$	4,7	7,9	4,7	7,9	4,7	7,9	4,7	7,9
		$R_{lat,k}$	2,7	2,7	2,3	2,3	3,2	3,2	2,8	2,8
	LBS Ø5 x 70	$R_{ax,k}$	2,1	2,1	2,1	2,1	4,2	4,2	4,2	4,2
		$R_{v,k}$	28,0	36,0	18,7	19,2	28,0	47,1	18,7	26,4
		$R_{up,k}$	4,7	7,9	4,7	7,9	4,7	7,9	4,7	7,9
		$R_{lat,k}$	2,8	2,8	2,4	2,4	3,3	3,3	3,0	3,0

			UVT60215			
			total fastening • + ◦		partial fastening •	
			45° screws		45° screws	
			VGS Ø6 x 100	VGS Ø6 x 160	VGS Ø6 x 100	VGS Ø6 x 160
			[kN]	[kN]	[kN]	[kN]
90° screws	LBS Ø5 x 50	$R_{ax,k}$	2,9	2,9	2,9	2,9
		$R_{v,k}$	37,3	62,8	18,7	31,4
		$R_{up,k}$	4,7	7,9	4,7	7,9
		$R_{lat,k}$	3,4	3,4	2,8	2,8
	LBS Ø5 x 60	$R_{ax,k}$	3,5	3,5	3,5	3,5
		$R_{v,k}$	37,3	62,8	18,7	31,4
		$R_{up,k}$	4,7	7,9	4,7	7,9
		$R_{lat,k}$	3,5	3,5	2,9	2,9
	LBS Ø5 x 70	$R_{ax,k}$	4,2	4,2	4,2	4,2
		$R_{v,k}$	37,3	62,8	18,7	31,4
		$R_{up,k}$	4,7	7,9	4,7	7,9
		$R_{lat,k}$	3,7	3,7	3,0	3,0

NOTES

- (1) The minimum dimensions of the wooden elements vary when the stress direction varies and must be checked on a time-by-time basis. The table shows the minimum dimensions in order to guide the designer in the choice of the connector. Dimensioning and verification of the timber elements must be carried out separately.
- (2) Partial fastening must be carried out according to the installation diagrams shown in the figure and in accordance with ETA.
- (3) In case of F_v or F_{up} stress, an additional inclined screw is required in the main beam to be inserted after installing the connector.

GENERAL PRINCIPLES

- Characteristic values are consistent with EN 1995:2014 and in accordance with the product ETA.
- Design values can be obtained from characteristic values as follows:

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

The coefficients k_{mod} and γ_M should be taken according to the current regulations.

- A timber density of $\rho_k = 350 \text{ kg/m}^3$ was considered for the calculation process.
- Dimensioning and verification of the timber elements must be carried out separately.
- The following verification shall be satisfied for combined loading:

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

- Full fastening for beam applications or partial fastening for column applications is possible. On the secondary beam side, inclined screws must always be inserted in the upper two holes and the two lower holes.
- Lateral stress F_{lat} is assumed to act at a distance $e = H/2$ from the center of the connector. For different values of "e" it is possible to calculate the strength values according to ETA.
- It is assumed that the main beam is prevented from rotating. If the UVT connector is installed on only one side of the beam, the main beam must be checked for a torque caused by eccentricity $M_v = F_d \cdot (B_H / 2 \cdot 14 \text{ mm})$. This applies in the case of connection on both sides of the main beam when the difference between the acting stresses is $> 20\%$.