

CONCEALED HOOK TIMBER-TO-TIMBER CONNECTOR

COMPLETE RANGE

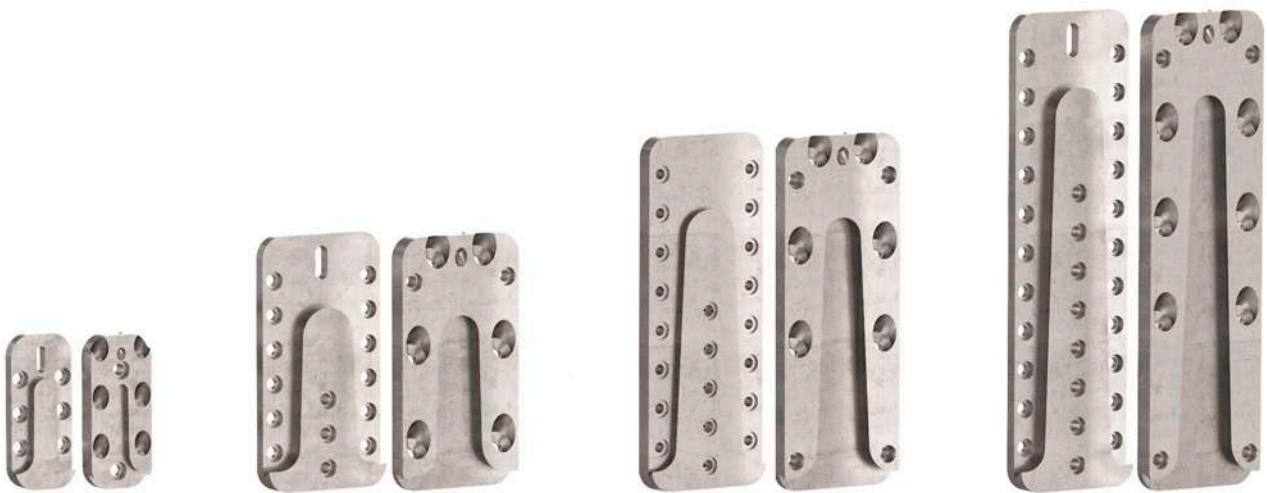
Available in five versions, to adapt to the secondary beam and the applied load. Strength over 60 kN.

DISASSEMBLED

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

WIND AND EARTHQUAKE

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

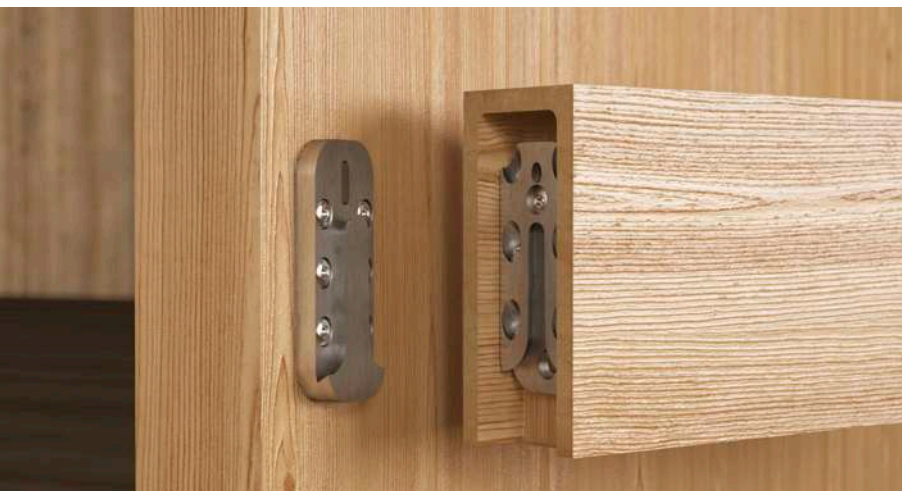


CHARACTERISTICS

FOCUS	joints that can be disassembled
TIMBER SECTIONS	from 45 x 100 mm to 240 x 520 mm
STRENGTH	$R_{v,k}$ up to 63 kN
FASTENERS	LBS, HBS, VGS

VIDEO

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



MATERIAL

Aluminium alloy three dimensional perforated plate.

FIELDS OF USE

Timber to timber shear joints and applications requiring strength in all directions

- solid timber and glulam
- CLT, 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.

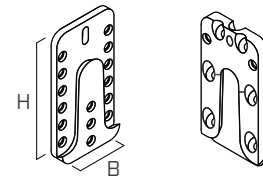
FAST ASSEMBLY

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

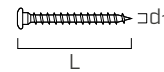
CODE	B [mm]	H [mm]	s [mm]	\varnothing_{90° [mm]	\varnothing_{45° [mm]	pcs
UVT3070	30	70	16	5	4	25
UVT4085	40	85	16	5	6	25
UVT60115	60	115	16	5	6	25
UVT60160	60	160	16	5	6	10
UVT60215	60	215	5	6	10	



Screws not included in the box.

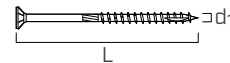
LBS: 90° screw

CODE	d ₁ [mm]	L [mm]	b [mm]	TX	pcs
LBS550	5	50	46	TX20	200
LBS560	5	60	56	TX20	200
LBS570	5	70	66	TX20	200



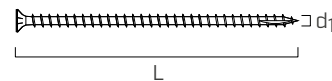
HBS: 45° screw for UVT3070

CODE	d ₁ [mm]	L [mm]	b [mm]	TX	pcs
HBS450	4	50	30	TX20	400
HBS470	4	70	40	TX20	200



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

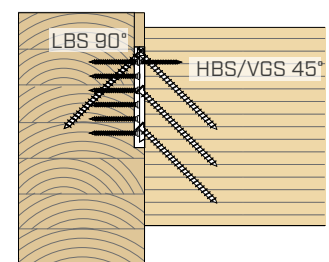
CODE	d ₁ [mm]	L [mm]	b [mm]	TX	pcs
VGS6100	6	100	88	TX30	100
VGS6160	6	160	148	TX30	100



FASTENERS

MAXIMUM NUMBER OF FASTENERS FOR EACH CONNECTOR (full nailing)

CODE	MAXIMUM NUMBER OF FASTENERS FOR EACH CONNECTOR (full nailing)	
	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



MATERIAL AND DURABILITY

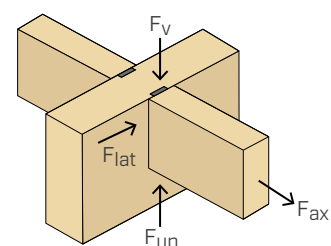
UV: aluminium alloy

To be used in service classes 1 and 2 (EN 1995-1-1).

FIELDS OF USE

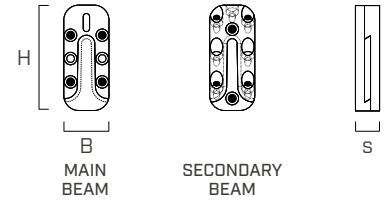
- Timber-to-timber joints
- Secondary beam on main beam or on column

EXTERNAL LOADS



UVT3070

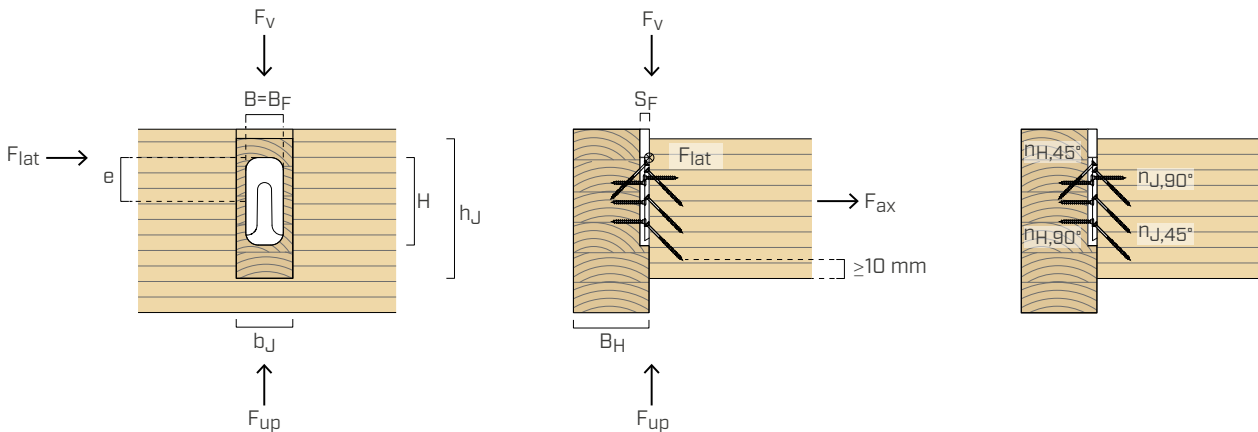
TIMBER ELEMENTS MINIMUM DIMENSIONS



UV CONNECTOR		45° SCREWS TYPE		MAIN BEAM		SECONDARY BEAM ⁽¹⁾	
type	B x H x s [mm]	Ø x L [mm]	B _{H,min} [mm]	grooving		b _{J,min} [mm]	h _{J,min} [mm]
				B _F [mm]	S _F [mm]		
UVT3070	30 x 70 x 16	HBS Ø4 x 50	45	30	16	45	100
		HBS Ø4 x 70	60			45	115

FASTENERS

			MAIN BEAM		SECONDARY BEAM	
type	nailling		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

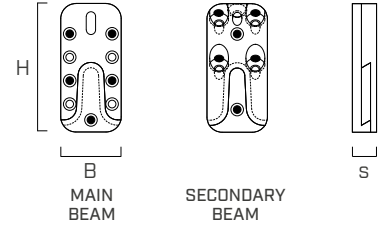


STATIC CHARACTERISTIC VALUES | TIMBER-TO-TIMBER JOINT

			FULL NAILING •+•		PARTIAL NAILING •	
			45° screws type		45° screws type	
			HBS Ø4 x 50 [kN]	HBS Ø4 x 70 [kN]	HBS Ø4 x 50 [kN]	HBS Ø4 x 70 [kN]
90° screws type	LBS Ø5 x 50	R _{ax,k}	1,45	1,45	1,45	1,45
		R _{v,k}	6,77	9,03	4,51	6,02
		R _{up,k}	1,13	1,50	1,13	1,50
		R _{lat,k}	1,72	1,81	1,49	1,57
	LBS Ø5 x 60	R _{ax,k}	1,76	1,76	1,76	1,76
		R _{v,k}	6,77	9,03	4,51	6,02
		R _{up,k}	1,13	1,50	1,13	1,50
		R _{lat,k}	1,72	1,81	1,49	1,57
	LBS Ø5 x 70	R _{ax,k}	2,08	2,08	2,08	2,08
		R _{v,k}	6,77	9,03	4,51	6,02
		R _{up,k}	1,13	1,50	1,13	1,50
		R _{lat,k}	1,72	1,81	1,49	1,57

UVT4085

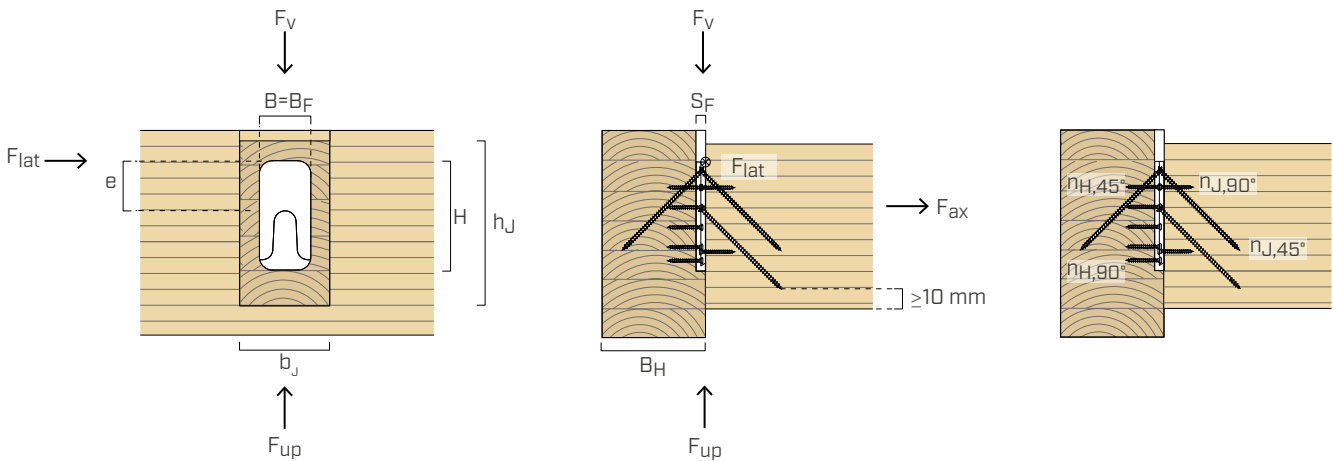
TIMBER ELEMENTS MINIMUM DIMENSIONS



UV CONNECTOR		45° SCREWS TYPE	MAIN BEAM			SECONDARY BEAM ⁽¹⁾	
type	B x H x s [mm]	Ø x L [mm]	B _{H,min} [mm]	grooving		b _{J,min} [mm]	h _{J,min} [mm]
				B _F [mm]	S _F [mm]		
UVT4085	40 x 85 x 16	VGS Ø6 x 100	80	40	16	70	120
		VGS Ø6 x 160	120			70	160

FASTENERS

FASTENERS			MAIN BEAM		SECONDARY BEAM	
type	nailling		n _{H,90°} [pcs - Ø]	n _{H,45°} ⁽³⁾ [pcs - Ø]	n _{J,90°} [pcs - Ø]	n _{J,45°} [pcs - Ø]
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

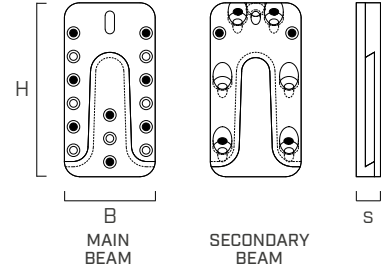


STATIC CHARACTERISTIC VALUES | TIMBER-TO-TIMBER JOINT

			FULL NAILING •+◦		PARTIAL NAILING •	
			45° screws type			
			VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]	VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]
90° screws type	LBS Ø5 x 50	R _{ax,k}	1,45	1,45	1,45	1,45
		R _{v,k}	18,67	19,22	10,68	10,68
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	1,50	1,50	1,50	1,50
	LBS Ø5 x 60	R _{ax,k}	1,76	1,76	1,76	1,76
		R _{v,k}	18,67	20,40	11,33	11,33
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	1,57	1,57	1,57	1,57
	LBS Ø5 x 70	R _{ax,k}	2,08	2,08	2,08	2,08
		R _{v,k}	18,67	21,58	11,99	11,99
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	1,64	1,64	1,64	1,57

UVT60115

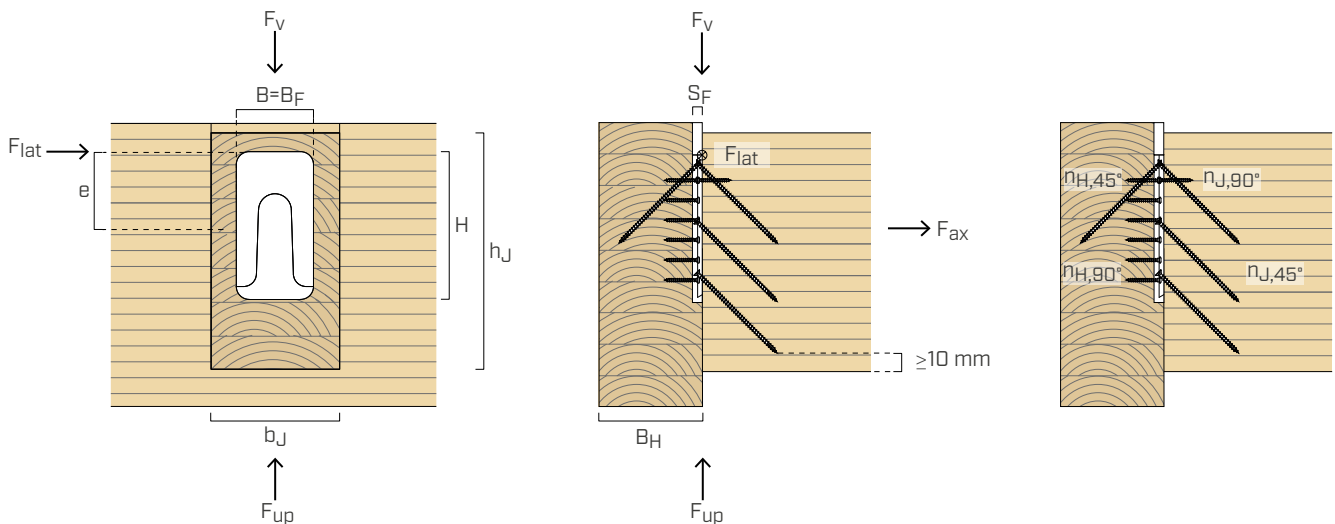
TIMBER ELEMENTS MINIMUM DIMENSIONS



UV CONNECTOR		45° SCREWS TYPE	MAIN BEAM			SECONDARY BEAM ⁽¹⁾	
type	B x H x s [mm]	Ø x L [mm]	B _{H,min} [mm]	grooving		b _{J,min} [mm]	h _{J,min} [mm]
				B _F [mm]	S _F [mm]		
UVT60115	60 x 115 x 16	VGS Ø6 x 100	80	60	16	80	180
		VGS Ø6 x 160	120			80	220

FASTENERS

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]
UVT60115	total	•+o	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

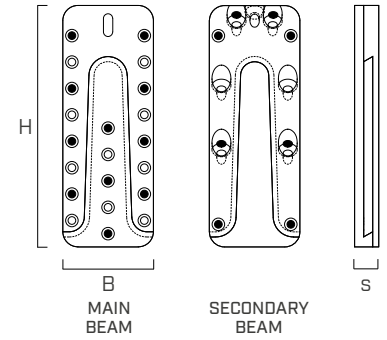


STATIC CHARACTERISTIC VALUES | TIMBER-TO-TIMBER JOINT

			FULL NAILING •+o		PARTIAL NAILING •	
			45° screws type		45° screws type	
			VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]	VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]
90° screws type	LBS Ø5 x 50	R _{ax,k}	1,45	1,45	1,45	1,45
		R _{v,k}	28,00	32,03	17,08	17,08
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	2,59	2,59	2,18	2,18
	LBS Ø5 x 60	R _{ax,k}	1,76	1,76	1,76	1,76
		R _{v,k}	28,00	34,00	18,13	18,13
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	2,70	2,70	2,28	2,28
	LBS Ø5 x 70	R _{ax,k}	2,08	2,08	2,08	2,08
		R _{v,k}	28,00	35,97	18,67	19,18
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	2,82	2,82	2,38	2,38

UVT60160

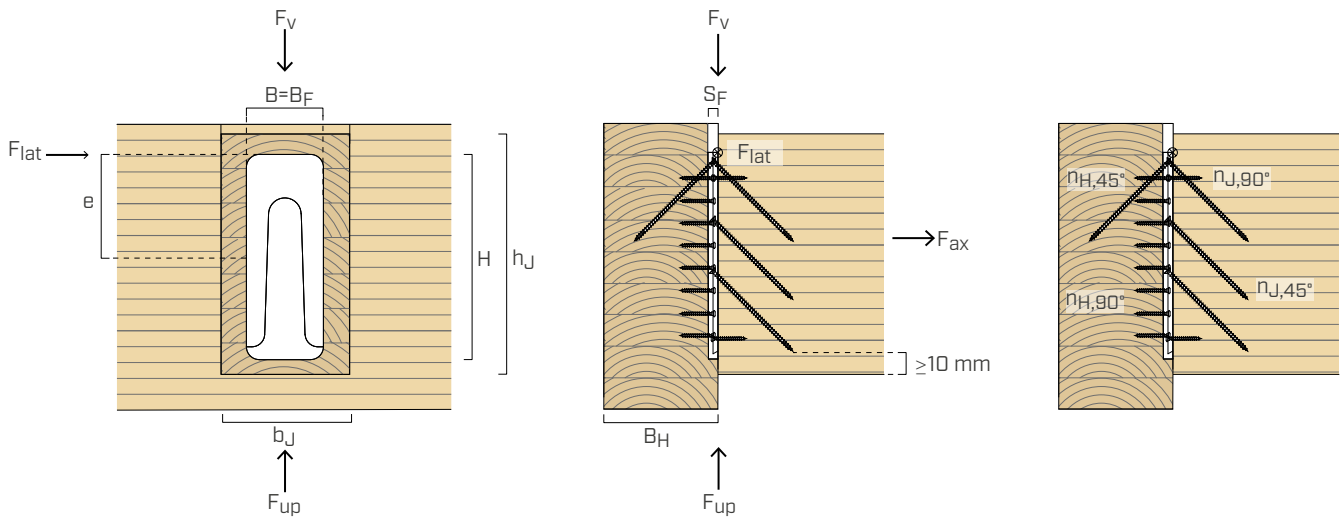
TIMBER ELEMENTS MINIMUM DIMENSIONS



UV CONNECTOR		45° SCREWS TYPE	MAIN BEAM			SECONDARY BEAM ^[1]	
type	B x H x s [mm]	Ø x L [mm]	B _{H,min} [mm]	grooving		b _{J,min} [mm]	h _{J,min} [mm]
				B _F [mm]	S _F [mm]		
UVT60160	60 x 160 x 16	VGS Ø6 x 100	80	60	16	100	180
		VGS Ø6 x 160	120			100	220

FASTENERS

FASTENERS			MAIN BEAM		SECONDARY BEAM	
type	nailing		n _{H,90°} [pcs - Ø]	n _{H,45°} ⁽³⁾ [pcs - Ø]	n _{J,90°} [pcs - Ø]	n _{J,45°} [pcs - Ø]
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

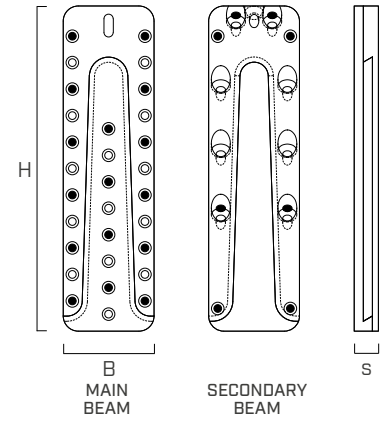


STATIC CHARACTERISTIC VALUES | TIMBER-TO-TIMBER JOINT

			FULL NAILING •+○		PARTIAL NAILING •	
			45° screws type			
			VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]	VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]
90° screws type	LBS Ø5 x 50	R _{ax,k}	2,90	2,90	2,90	2,90
		R _{v,k}	28,00	44,85	18,67	23,49
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	3,01	3,01	2,71	2,71
	LBS Ø5 x 60	R _{ax,k}	3,53	3,53	3,53	3,53
		R _{v,k}	28,00	47,09	18,67	24,93
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	3,15	3,15	2,83	2,83
	LBS Ø5 x 70	R _{ax,k}	4,16	4,16	4,16	4,16
		R _{v,k}	28,00	47,09	18,67	26,38
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	3,28	3,28	2,95	2,95

UVT60215

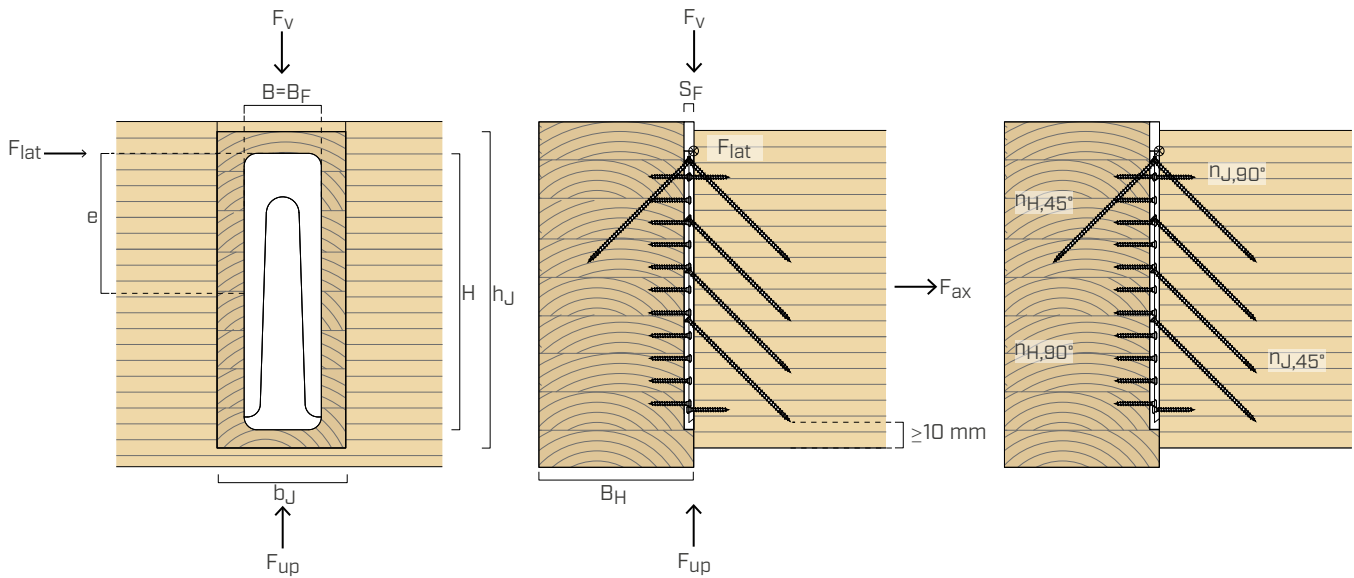
TIMBER ELEMENTS MINIMUM DIMENSIONS



UV CONNECTOR		45° SCREWS TYPE	MAIN BEAM			SECONDARY BEAM ^[1]	
type	B x H x s [mm]	Ø x L [mm]	B _{H,min} [mm]	grooving		b _{J,min} [mm]	h _{J,min} [mm]
				B _F [mm]	S _F [mm]		
UVT60215	60 x 215 x 16	VGS Ø6 x 100	80	60	16	100	220
		VGS Ø6 x 160	120			100	260

FASTENERS

FASTENERS			MAIN BEAM		SECONDARY BEAM	
type	nailing		n _{H,90°} [pcs - Ø]	n _{H,45°} ⁽³⁾ [pcs - Ø]	n _{J,90°} [pcs - Ø]	n _{J,45°} [pcs - Ø]
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



STATIC CHARACTERISTIC VALUES | TIMBER-TO-TIMBER JOINT

			FULL NAILING •+°		PARTIAL NAILING •	
			45° screws type			
			VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]	VGS Ø6 x 100 [kN]	VGS Ø6 x 160 [kN]
90° screws type	LBS Ø5 x 50	R _{ax,k}	2,90	2,90	2,90	2,90
		R _{v,k}	37,34	62,79	18,67	31,40
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	3,37	3,37	2,78	2,78
	LBS Ø5 x 60	R _{ax,k}	3,53	3,53	3,53	3,53
		R _{v,k}	37,34	62,79	18,67	31,40
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	3,53	3,53	2,90	2,90
	LBS Ø5 x 70	R _{ax,k}	4,16	4,16	4,16	4,16
		R _{v,k}	37,34	62,79	18,67	31,40
		R _{up,k}	4,67	7,85	4,67	7,85
		R _{lat,k}	3,68	3,68	3,03	3,03

NOTES:

- ⁽¹⁾ The minimum dimensions of the wooden elements vary when the stress direction varies and must be checked from time to time. 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 nailing 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 1995-1-1 and in accordance with the product ETA.

The design values are obtained from the 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 regulations.

- For the calculation process a timber density $\rho_k = 350 \text{ kg/m}^3$ has been considered.
- Dimensioning and verification of the timber elements must be carried out separately.
- In case of combined loading the following verification shall be satisfied:

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

- Fastening nailing for beam applications or partial nailing 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 UV connector is installed on only one side of the beam, it must be considered a moment 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 $> 20\%$.