

ALUMEGA

PINNED CONNECTION FOR POST AND BEAM

NEW!



POST AND BEAM

ALUMEGA standardizes beam-to-beam and beam-to-column connections for post and beam systems, including long-span beams. Modular connection components can be installed side-by-side with different fastening possibilities to solve all types of connections to timber, concrete and steel.

TOLERANCE AND INSTALLATION

ALUMEGA can accommodate adjustments of up to 8 mm (± 4 mm) | $5/16$ in ($\pm 3/16$ in) along the joist axis to suit erection tolerances. An upper locator slot in the connector facilitates alignment during installation. The connector can be pre-installed in a controlled factory environment and assembled on site with standard bolts.

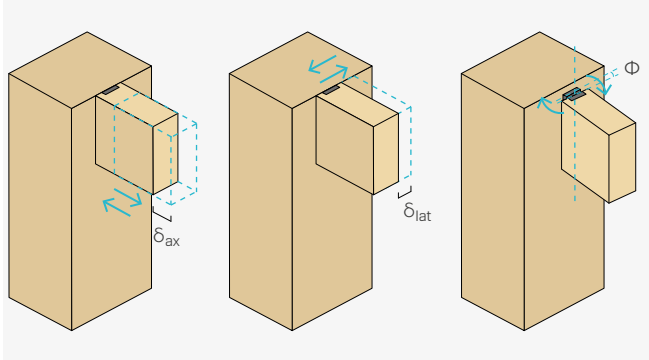
ROTATIONAL COMPATIBILITY

Slotted holes allow connector rotation and ensure a pinned-pinned structural model by preventing the transfer of bending moments from a beam to a supporting element. Connector rotation is compatible with inter-story drift under seismic or wind loads, reduces moment transfer and structural damages.



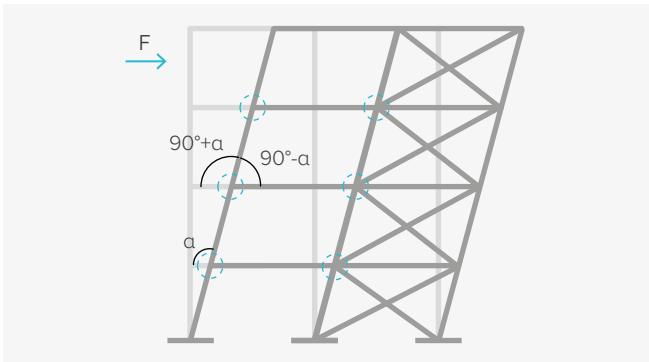
KEY FEATURES

ERECTION TOLERANCE



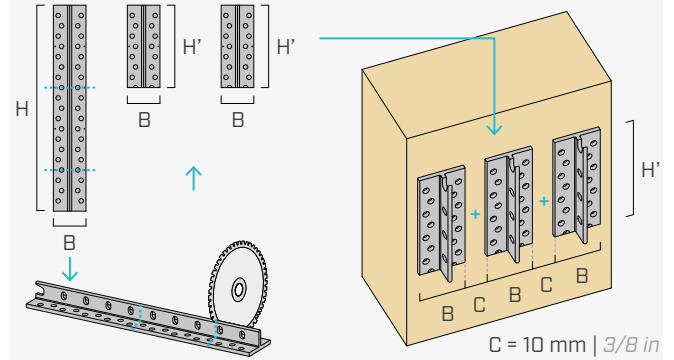
Provides the largest installation tolerance of any high capacity, off-the-shelf mass timber connector on the market: $\delta_{ax} = 8 \text{ mm } (\pm 4 \text{ mm}) \mid 5/16 \text{ in } (\pm 3/16 \text{ in})$, $\delta_{lat} = 3 \text{ mm } (\pm 1,5 \text{ mm}) \mid 1/8 \text{ in } (\pm 1/16 \text{ in})$ and $\Phi = \pm 6^\circ$.

INTER-STORY DRIFT FOR HORIZONTAL LOADS



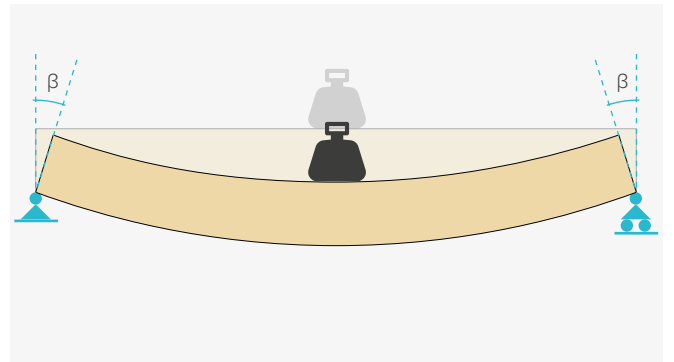
Connector rotation is compatible with inter-story drift under seismic or wind loads, reduces moment transfer and structural damages.

MODULARITY



Available in 6 standard sizes (heights); the connector height H can be modified due to the modular nature of the design. In addition, the components can be installed side-by-side to meet geometric constraints or load requirements.

ROTATION UNDER GRAVITY LOADS



The connector acts as a pinned connection under gravity loads ensuring free rotation at the beam ends.

CUSTOMIZED FASTENING OPTIONS FOR HEADER

ALUMEGA HP	type description	support
	HBS PLATE screw	
	KOS class 8.8 bolt	
	HYB-FIX chemical anchors + INA threaded rods	
	M12 bolt	

The circular holes in the header connector allow different fastening options to timber columns and beams, concrete and steel supports.

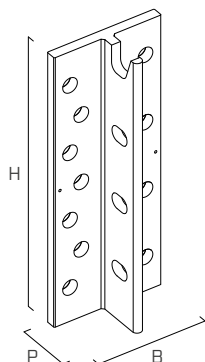
CUSTOMIZED FASTENING OPTIONS FOR JOIST

ALUMEGA JV ALUMEGA JS	type description	support
	VGS screw	
	VGU washer	
	SBD self-drilling dowel	
	STA smooth dowel	

Two connector types are available for installation on or off-site. The fastener options provide design flexibility in terms of beam size and load capacity.

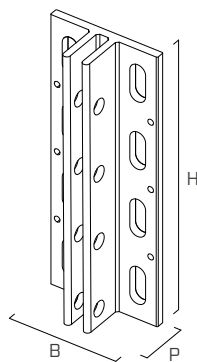
CODES AND DIMENSIONS

HP - HEADER CONNECTOR



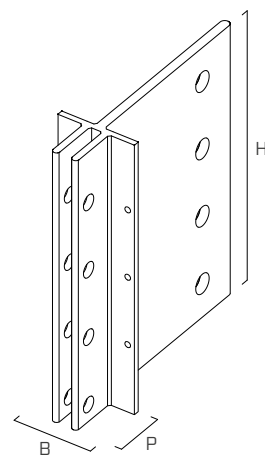
$B \times H \times P$ [mm]	$B \times H \times P$ [in]
from	
95 x 240 x 50	3 3/4 x 9 1/2 x 1 15/16
to	
95 x 840 x 50	3 3/4 x 33 1/16 x 1 15/16

JV - JOIST CONNECTOR WITH SCREWS



$B \times H \times P$ [mm]	$B \times H \times P$ [in]
from	
95 x 240 x 49	3 3/4 x 9 1/2 x 1 15/16
to	
95 x 840 x 49	3 3/4 x 33 1/16 x 1 15/16

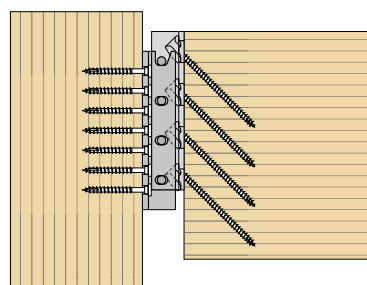
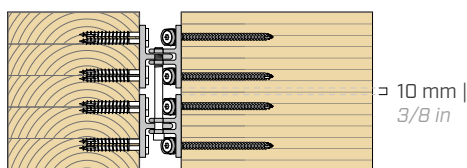
JS - JOIST CONNECTOR WITH DOWELS



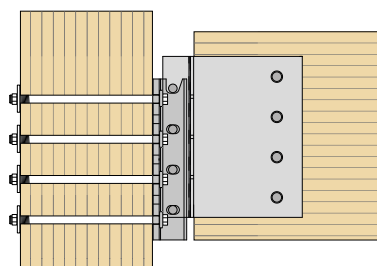
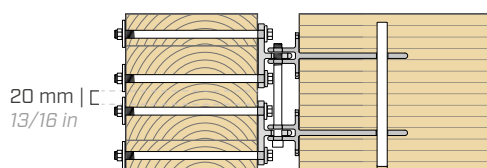
$B \times H \times P$ [mm]	$B \times H \times P$ [in]
from	
68 x 240 x 49	2 11/16 x 9 1/2 x 1 15/16
to	
68 x 840 x 49	2 11/16 x 33 1/16 x 1 15/16

(*) Other sizes are available in 120 mm | 4 3/4 in increments of the starting depth H = 240 mm | 9 1/2 in.

ASSEMBLY EXAMPLES - DOUBLE CONNECTOR



ALUMEGA HP header connector with HBS PLATE screws + ALUMEGA JV joist connector with VGU washer and VGS screws.



ALUMEGA HP header connector with through KOS bolts + ALUMEGA JS joist connector with STA dowels.

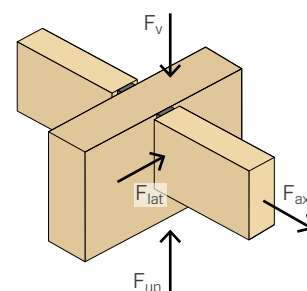
MATERIAL AND DURABILITY

ALUMEGA: EN AW 6082 aluminium alloy.
To be used in service classes 1 and 2 (EN 1995-1-1).

FIELD OF USE

- Timber-to-timber, timber-to-concrete and timber-to-steel connections between solid timber, glulam and LVL structural elements.

EXTERNAL LOADS



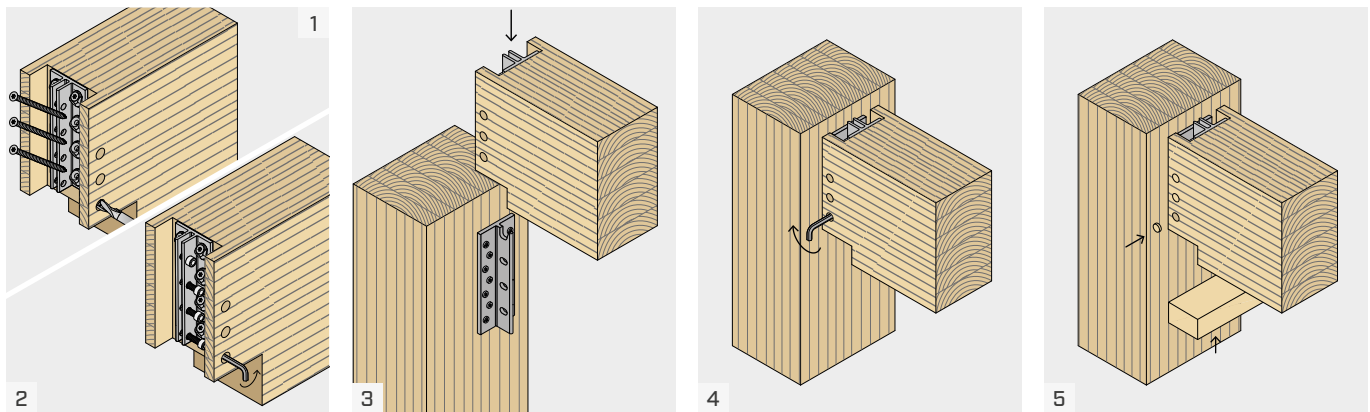
PRELIMINARY STRUCTURAL VALUES | F_v

TYPE		single connector		double connector		triple connector	
H		ULS - $F_{v,Rk}$	ASD - F_v	ULS - $F_{v,Rk}$	ASD - F_v	ULS - $F_{v,Rk}$	ASD - F_v
[mm]	[in]	[kN]	[lbs]	[kN]	[lbs]	[kN]	[lbs]
240	9 1/2	90 - 140	5,500 - 9,000	180 - 280	11,000 - 18,000	270 - 420	16,500 - 27,000
360	14 1/4	140 - 210	8,500 - 13,500	280 - 420	17,000 - 27,000	420 - 630	25,500 - 40,500
480	19	180 - 280	11,500 - 18,500	360 - 560	23,000 - 37,000	540 - 840	34,500 - 55,500
600	23 5/8	230 - 350	14,500 - 23,000	460 - 700	29,000 - 46,000	690 - 1050	43,500 - 69,000
720	28 3/8	280 - 420	17,500 - 27,500	560 - 840	35,000 - 55,000	840 - 1260	52,500 - 82,500
840	33 1/16	330 - 490	20,500 - 32,000	660 - 980	41,000 - 64,000	990 - 1470	61,500 - 96,000

- Tabulated values are preliminary resistances obtained through a combination of testing and calculations. Range of resistances depends on the connector types and fastening options. Final and certified design values will be available soon.
- ULS characteristic values are according to EN 1995-1-1 and ETA-11/0030 for GL24h with $p_k = 385 \text{ kg/m}^3$. Design values are to be calculated according to EN 1995-1-1.
- ASD resistance values are according to the NDS (2018) and ESR-4645 for timber with $G = 0.42$, and assume a Load Duration Factor, $C_D = 1.0$.

INSTALLATION

FULLY-CONCEALED INSTALLATION



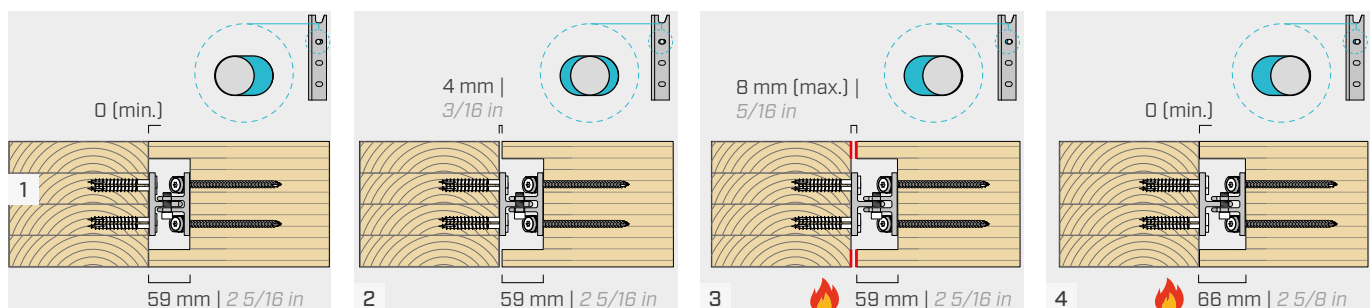
(1) Mill a housing in the joist and drill circular holes for bolts. Place the VGU washers on the ALUMEGA JV connector and install VGS screws at 45°. (2) Thread the top bolt through both plates; thread the other bolts through one plate to facilitate installation on-site.

Install the ALUMEGA HP connector to the column with HBS PLATE screws. Lift and place the joist into position using the upper locator slot in the column connector.

Fully install the field bolts with a 10 mm hex key.

Place timber plugs in the circular holes and blocking at the bottom of the joist to conceal the connection for fire-resistance requirements.

INSTALLATION TOLERANCES



(2) is the typical configuration to be considered for the fabrication of structural elements.

(1) and (3) are the minimum and maximum configurations that may occur based on fabrication and on-site tolerances. The maximum gap is 8 mm | 5/16 in. Fire Stripe Graphite can be applied for fire resistance requirements. The designer has the possibility to choose the milling depth based on aesthetics and fire resistance requirements, as in (4) where the milling depth is increased.