ALUMEGA

PINNED CONNECTION FOR POST AND BEAM

VIDEO | CALCULATION TOOL | DESIGN REGISTERED | ICC ES ESR-5207 | CE ETA-23/0824

POST AND BEAM CONSTRUCTIONS

It standardizes the beam-to-beam and beam-to-column connections for post-and-beam systems, even with large spans. Modular components and various fastening possibilities solve all types of connections on timber, concrete or steel.

TOLERANCE AND ASSEMBLY

Axial tolerance up to 5/16" (± 5/32") to accommodate installation inaccuracies. The upper notch allows using a bolt as a positioning aid. The connection can be pre-assembled in the factory and completed on site with bolts.

ROTATIONAL COMPATIBILITY

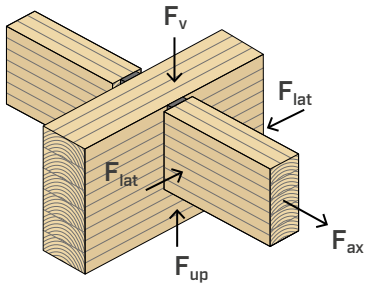
Slotted holes allow rotation of the connector and ensure hinged structural behaviour. The rotation of the connector is compatible with the inter-story drift caused by earthquake and wind actions, reducing momentum transfer and structural damage.

EXPOSURE CONDITION DRY

MATERIAL

alu 6082 EN AW-6082 aluminium alloy

EXTERNAL LOADS



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


HP


HVG


JVG


JS

FIELDS OF USE

Concealed hanger in timber-to-timber, timber-to-concrete or timber-to-steel configuration, suitable for floors and post and beam constructions, even with large spans.

Can be applied to:

- glulam, softwood and hardwood
- LVL

FIRE

The various installation methods allow for concealed installation and fire protection at all times, possibly by inserting FIRE STRIPE GRAPHITE to seal the joist-header interface.

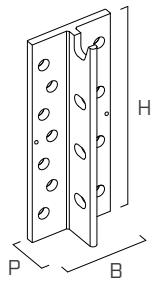
HYBRID STRUCTURES

The HP version can be mounted to timber, concrete or steel. Ideal for hybrid timber-to-concrete or timber-to-steel structures.

CODES AND DIMENSIONS

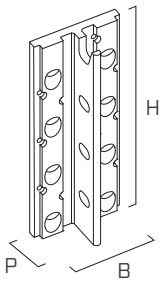
HP - **H**EADER/COLUMN connector for timber (HBS **P**LATE screws), concrete and steel

CODE	B x H x P [in]	pcs
ALUMEGA240HP	3 3/4 x 9 1/2 x 1 15/16	1
ALUMEGA360HP	3 3/4 x 14 1/4 x 1 15/16	1
ALUMEGA480HP	3 3/4 x 19 x 1 15/16	1
ALUMEGA600HP	3 3/4 x 23 5/8 x 1 15/16	1
ALUMEGA720HP	3 3/4 x 28 3/8 x 1 15/16	1
ALUMEGA840HP	3 3/4 x 33 1/16 x 1 15/16	1



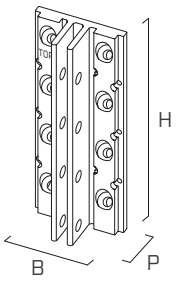
HVG - **H**EADER/COLUMN connector for timber with inclined **VG**S screws

CODE	B x H x P [in]	pcs
ALUMEGA240HVG	3 3/4 x 9 1/2 x 1 15/16	1
ALUMEGA360HVG	3 3/4 x 14 1/4 x 1 15/16	1
ALUMEGA480HVG	3 3/4 x 19 x 1 15/16	1
ALUMEGA600HVG	3 3/4 x 23 5/8 x 1 15/16	1
ALUMEGA720HVG	3 3/4 x 28 3/8 x 1 15/16	1
ALUMEGA840HVG	3 3/4 x 33 1/16 x 1 15/16	1



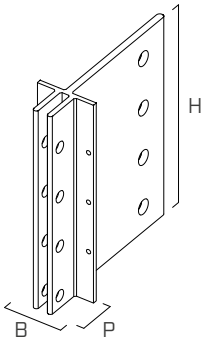
JVG - beam connector (**J**OIST) with inclined **VG**S screws

CODE	B x H x P [in]	pcs
ALUMEGA240JVG	3 3/4 x 9 1/2 x 1 15/16	1
ALUMEGA360JVG	3 3/4 x 14 1/4 x 1 15/16	1
ALUMEGA480JVG	3 3/4 x 19 x 1 15/16	1
ALUMEGA600JVG	3 3/4 x 23 5/8 x 1 15/16	1
ALUMEGA720JVG	3 3/4 x 28 3/8 x 1 15/16	1
ALUMEGA840JVG	3 3/4 x 33 1/16 x 1 15/16	1



JS - beam connector (**J**OIST) with **S**TA/**S**BD dowels

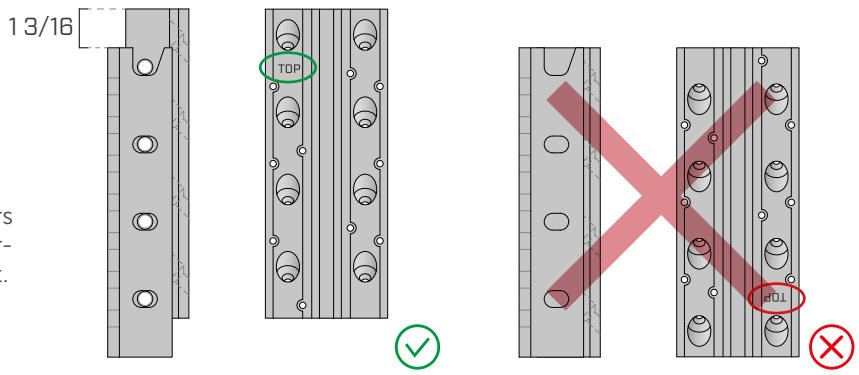
CODE	B x H x P [in]	pcs
ALUMEGA240JS	2 11/16 x 9 1/2 x 1 15/16	1
ALUMEGA360JS	2 11/16 x 14 1/4 x 1 15/16	1
ALUMEGA480JS	2 11/16 x 19 x 1 15/16	1
ALUMEGA600JS	2 11/16 x 23 5/8 x 1 15/16	1
ALUMEGA720JS	2 11/16 x 28 3/8 x 1 15/16	1
ALUMEGA840JS	2 11/16 x 33 1/16 x 1 15/16	1



Each connector type is available in lengths from 9 1/2" to 33 1/16", at 2 3/8" increments, and may be cut to the required length. For example, two ALUMEGA-300JVG, each 11 3/4" long, can be obtained from one ALUMEGA600JVG connector.

CONNECTION BETWEEN CONNECTORS

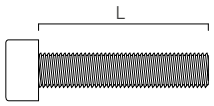
Make sure that the **JVG** and **JS** connectors are correctly installed to the beam, referring to the "**TOP**" marking on the product.



ADDITIONAL PRODUCTS - FASTENING

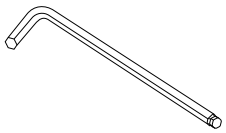
MEGABOLT - cylindrical head bolt with hexagon socket

CODE	material	d_1 [in]	L [in]	pcs
MEGABOLT12030	steel class 8.8 zinc plated ISO 4762	0.48 (M12)	1 3/16	100
MEGABOLT12150		0.48 (M12)	6	50
MEGABOLT12270		0.48 (M12)	10 5/8	25



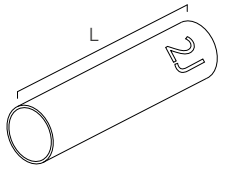
HEX WRENCH 10 mm

CODE	d_1 [mm]	L [in]	pcs
HEX10L234	10	9 3/16	1



JIG ALUMEGA - set of jigs for installing ALUMEGA connectors side-by-side

CODE	installation combination	clear distance between side-by-side connectors [in]	L [in]	pcs
JIGALUMEGA10	ALUMEGA HVG + JVG ALUMEGA HVG + JS	HVG = 3/8 | JVG = 3/8 HVG = 3/8 | JS = 1 7/16	3 1/4 (1J) - 3 13/16 (1H)	6 + 6
JIGALUMEGA22*	ALUMEGA HP + JVG ALUMEGA HP + JS	HP = 7/8 | JVG = 7/8 HP = 7/8 | JS = 1 15/16	3 11/16 (2J) - 4 5/16 (2H)	6 + 6

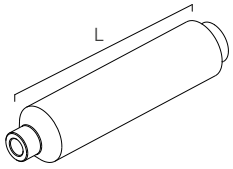


*Not suitable for G ≥ 0.50 due to minimum spacing limitations. See INSTALLATION | ALUMEGA HP, page 7.
For further information see the installation manual on the website www.rothoblaas.com

JIG VGS – drilling template for ALUMEGA

CODE	field of use	L [in]	d_h [in]	d_v [in]	pcs
JIGVGS9	softwood	3 1/8	0.21	0.20	1
JIGVGS9H	hardwood and LVL	3 1/8	0.25	0.24	1

d_h = template hole diameter
d_v = pre-drilling hole diameter



product	description		d [in]	support	reference connector
HBS PLATE HBS PLATE EVO	pan head screw		0.40		ALUMEGA HP
KOS	hexagonal head bolt		0.48 (M12)		ALUMEGA HP
LBS HARDWOOD EVO LBS	round head screw		0.20		ALUMEGA HP ALUMEGA HVG ALUMEGA JVG ALUMEGA JS
VGS VGS EVO	fully threaded countersunk screw		0.36		ALUMEGA HVG ALUMEGA JVG
STA STA A2 | AISI304	smooth dowel		0.63		ALUMEGA JS
SBD	self-drilling dowel		0.30		ALUMEGA JS
INA	threaded rod for chemical anchors		0.48 (M12)		ALUMEGA HP
VIN-FIX	vinyl ester chemical anchor		-		ALUMEGA HP
ULS 440	washer		0.48 (M12)		ALUMEGA HP

RELATED PRODUCTS

SNAIL HSS

BIT

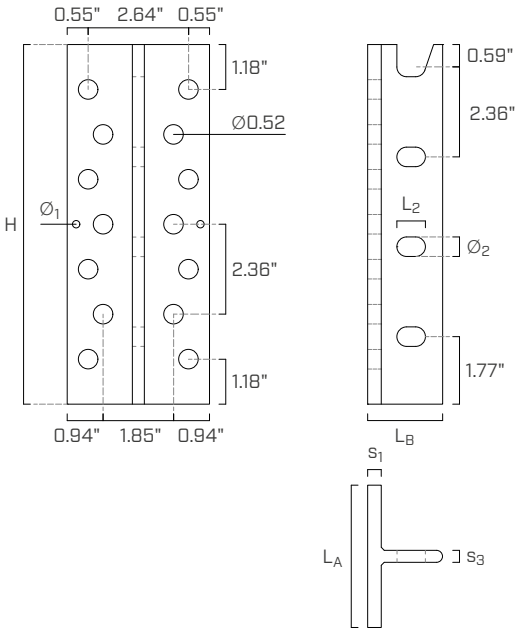
TORQUE LIMITER

BEAR

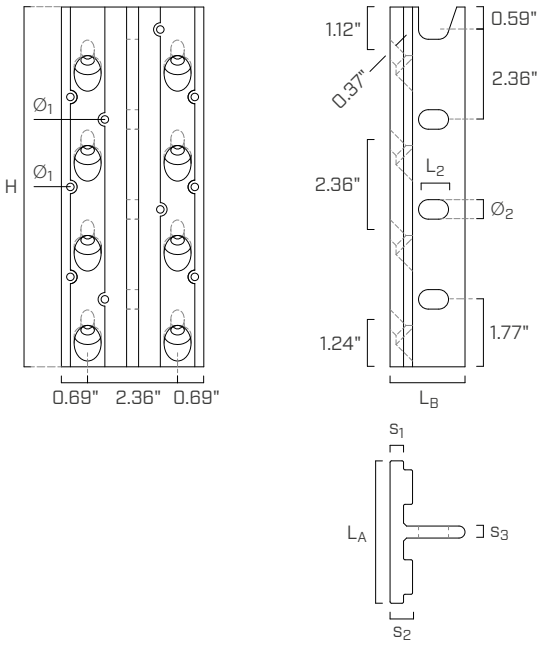
FIRE STRIPE GRAPHITE

GEOMETRY

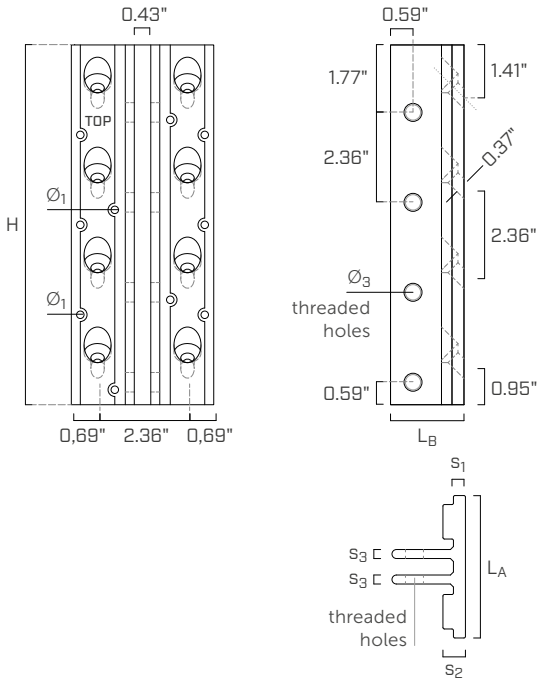
HP - **H**EADER/COLUMN connector for timber (HBS **P**LATE screws), concrete and steel



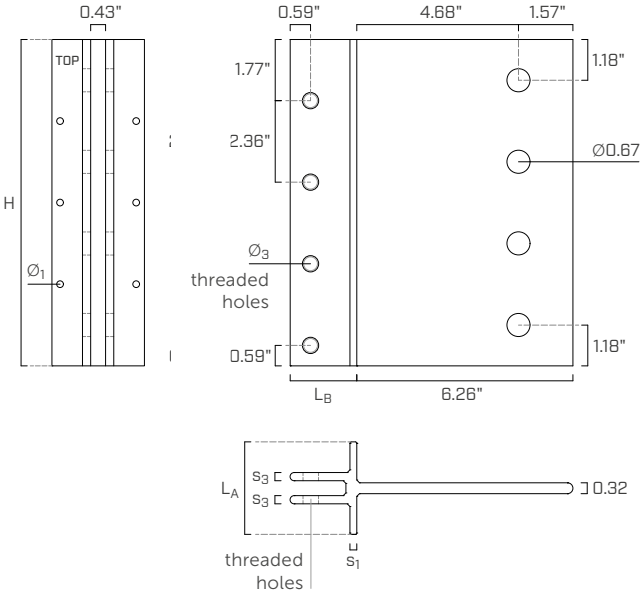
HVG - **H**EADER/COLUMN connector for timber with inclined **VG**S screws



JVG - beam connector (**J**OIST) with inclined **VG**S screws



JS - beam connector (**J**OIST) with **S**TA/**S**BD dowels



			HP	HVG	JVG	JS
flange thickness	s_1	[in]	0.354	0.354	0.315	0.197
flange thickness	s_2	[in]	-	0.591	0.591	-
web thickness	s_3	[in]	0.315	0.315	0.236	0.236
flange length	L_A	[in]	3.740	3.740	3.740	2.677
web length	L_B	[in]	1.969	1.969	1.929	1.929
flange holes	$Ø_1$	[in]	0.197	0.197	0.197	0.197
web slotted holes	$Ø_2$ x L_2	[in]	0.512 x 0.787	0.512 x 0.787	-	-
web threaded holes	$Ø_3$	[in]	-	-	0.48 (M12)	0.48 (M12)

FASTENING OPTIONS

Two connector types are available for headers or columns (HP and HVG) and two for beams (JVG and JS). Any of the two beam connector types can be paired with any header or column connector to suit the requirements of the connected members. The available fastening options provide design flexibility in terms of member cross-section and load capacities.

HP - **H**EADER/COLUMN connector for timber (HBS **P**LATE screws), concrete and steel

CODE	HBS PLATE Ø0.40 [pcs]	KOS Ø0.48 (M12)[1] [pcs]	VIN-FIX Ø0.48 (M12) [pcs]	Ø0.48 (M12) bolts [pcs]
ALUMEGA240HP	14	8	6	6
ALUMEGA360HP	22	12	8	8
ALUMEGA480HP	30	16	12	10
ALUMEGA600HP	38	20	16	12
ALUMEGA720HP	46	24	18	14
ALUMEGA840HP	54	28	20	16

[1]Use all of the outer holes in the connector.

HVG - **H**EADER/COLUMN connector for timber with inclined **VG**S screws

CODE	full fastening VGS Ø0.36 [pcs]	partial fastening[2] VGS Ø0.36 [pcs]	LBS HARDWOOD EVO[3] Ø0.20 x 3 1/8 [pcs]
ALUMEGA240HVG	8	6	6
ALUMEGA360HVG	12	10	10
ALUMEGA480HVG	16	14	14
ALUMEGA600HVG	20	18	18
ALUMEGA720HVG	24	22	22
ALUMEGA840HVG	28	26	26

[2]The topmost holes of the connector are not used.
[3]It is mandatory to use LBS HARDWOOD EVO screws in the outer holes of the connector.

JVG - beam connector (**J**OIST) with inclined **VG**S screws

CODE	full fastening VGS Ø0.36 [pcs]	partial fastening[4] VGS Ø0.36 [pcs]	LBS HARDWOOD EVO[5] Ø0.20 x 3 1/8 [pcs]
ALUMEGA240JVG	8	6	6
ALUMEGA360JVG	12	10	10
ALUMEGA480JVG	16	14	14
ALUMEGA600JVG	20	18	18
ALUMEGA720JVG	24	22	22
ALUMEGA840JVG	28	26	26

[4]The lowermost holes of the connector are not used.
[5]It is mandatory to use LBS HARDWOOD EVO screws in the outer holes of the connector.

JS - beam connector (**J**OIST) with **S**TA/**S**BD dowels

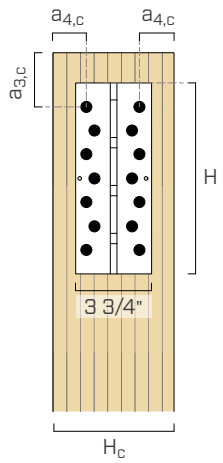
CODE	STA Ø0.63 [pcs]	SBD Ø0.30 [pcs]
ALUMEGA240JS	4	14
ALUMEGA360JS	6	22
ALUMEGA480JS	8	30
ALUMEGA600JS	10	38
ALUMEGA720JS	12	46
ALUMEGA840JS	14	54

MEGABOLT

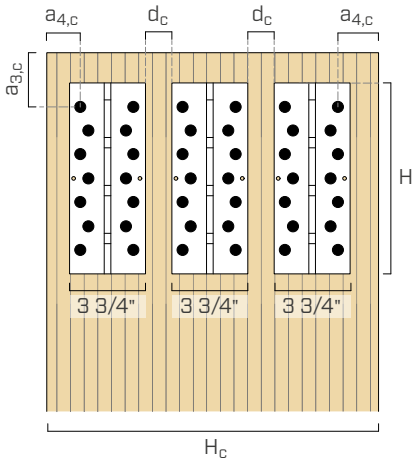
H [in]	full fastening MEGABOLT Ø0.48 (M12) [pcs]
9 1/2	4
14 1/4	6
19	8
23 5/8	10
28 3/8	12
33 1/16	14

MINIMUM DISTANCES AND DIMENSIONS

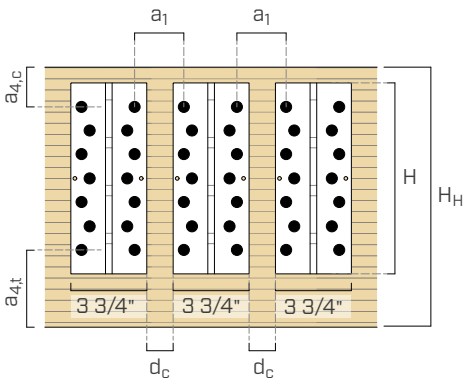
timber column
single connector



timber column
side-by-side connectors



timber header
side-by-side connectors



ALUMEGA HP - minimum distances

column/header			column - loading parallel to grain				header - loading perpendicular to grain			
			G < 0.50		G ≥ 0.50		G < 0.50		G ≥ 0.50	
screw-screw	a_1	[in]	-	-	-	-	≥ 10·d	≥ 4	≥ 10·d	≥ 4
screw-loaded end	$a_{3,t}$	[in]	≥ 15·d	≥ 6	≥ 20·d	≥ 8	-	-	-	-
screw-unloaded end	$a_{3,c}$	[in]	≥ 10·d	≥ 4	≥ 15·d	≥ 6	-	-	-	-
screw-loaded edge	$a_{4,t}$	[in]	-	-	-	-	≥ 10·d	≥ 4	≥ 12·d	≥ 4 3/4
screw-unloaded edge	$a_{4,c}$	[in]	≥ 5·d	≥ 1 15/16	≥ 7·d	≥ 2 3/4	≥ 5·d	≥ 1 15/16	≥ 7·d	≥ 2 3/4

ALUMEGA HP - side-by-side connectors

			single connector		double connector		triple connector	
			G < 0.50	G ≥ 0.50	G < 0.50	G ≥ 0.50	G < 0.50	G ≥ 0.50
column width	H_c	[in]	6 9/16	8 1/8	11 3/16	13 9/16	15 13/16	18 15/16
spacing betweenn connectors	d_c	[in]	-	-	7/8	1 5/8	7/8	1 5/8

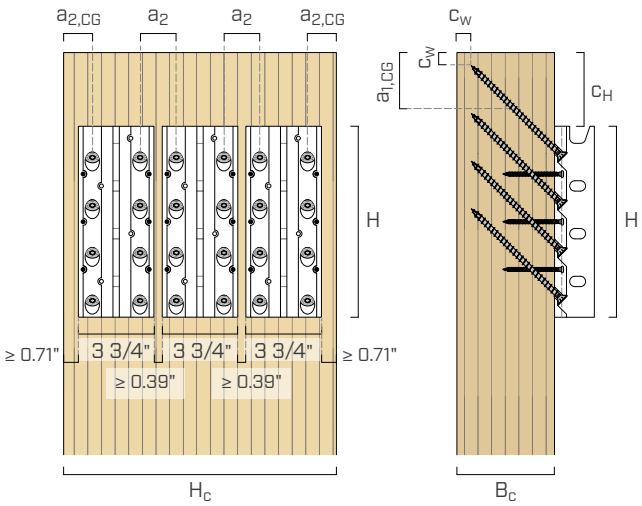
NOTES

- The minimum distances and spacing shown are in accordance with ESR-5207 and ESR-4645 and are valid for loading directions F_v and F_{ax}.
- Loading direction F_{up}
  - Column: the unloaded end distance $a_{3,c}$ shall be considered the loaded end distance $a_{3,t}$.
  - Header: the unloaded edge distance $a_{4,c}$ and loaded edge distance $a_{4,t}$ are reversed. Therefore, $a_{4,c}$ shall be taken as $a_{4,t}$, and $a_{4,t}$ shall be taken as $a_{4,c}$.

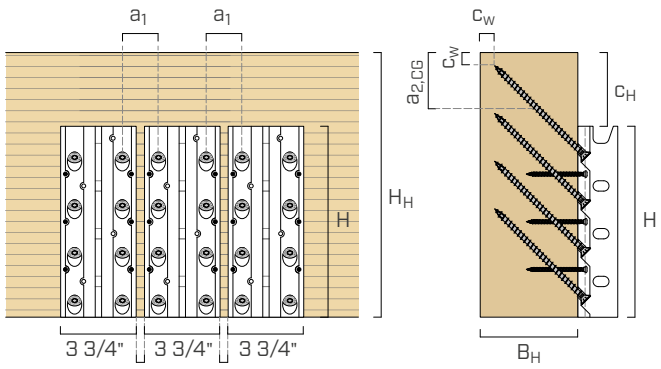
INSTALLATION | **ALUMEGA HVG**

MINIMUM DISTANCES AND DIMENSIONS

column fully fastened with VGS screws
side-by-side connectors



header fully fastened with VGS screws
side-by-side connectors



ALUMEGA HVG - single connector

H	VGS Ø0.36 x 6 1/4				VGS Ø0.36 x 8				VGS Ø0.36 x 9 1/2			
	column		header		column		header		column		header	
	B_c x H_c	c_H	B_H x H_H	c_H	B_c x H_c	c_H	B_H x H_H	c_H	B_c x H_c	c_H	B_H x H_H	c_H
[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]
9 1/2	4 1/2 x 5 3/16		4 1/2 x 12 3/4		5 9/16 x 5 3/16		5 9/16 x 13 7/8		6 3/4 x 5 3/16		6 3/4 x 15	
14 1/4	4 1/2 x 5 3/16		4 1/2 x 17 1/2		5 9/16 x 5 3/16		5 9/16 x 18 5/8		6 3/4 x 5 3/16		6 3/4 x 19 3/4	
19	4 1/2 x 5 3/16	4 1/2	4 1/2 x 22 1/4	3 3/8	5 9/16 x 5 3/16	5	5 9/16 x 23 3/8	4 1/2	6 3/4 x 5 3/16	5 9/16	6 3/4 x 24 7/16	5 9/16
23 5/8	4 1/2 x 5 3/16		4 1/2 x 26 15/16		5 9/16 x 5 3/16		5 9/16 x 28 1/16		6 3/4 x 5 3/16		6 3/4 x 29 3/16	
28 3/8	4 1/2 x 5 3/16		4 1/2 x 31 11/16		5 9/16 x 5 3/16		5 9/16 x 32 13/16		6 3/4 x 5 3/16		6 3/4 x 33 7/8	
33 1/16	4 1/2 x 5 3/16		4 1/2 x 36 7/16		5 9/16 x 5 3/16		5 9/16 x 37 1/2		6 3/4 x 5 3/16		6 3/4 x 38 5/8	

ALUMEGA HVG - minimum distances

column/header			VGS Ø0.36	
spacing between screws parallel to grain	a_1	[in]	≥ 7·d	≥ 2 1/2
spacing between screws perpendicular to grain	a_2	[in]	≥ 5·d	≥ 1 3/4
screw end distance - column	$a_{1,CG}$	[in]	≥ 10·d	≥ 3 1/2
screw edge distance - column/header	$a_{2,CG}$	[in]	≥ 4·d	≥ 1 7/16

ALUMEGA HVG - side-by-side connectors

			single connector	double connector	triple connector
column width	H_c	[in]	5 3/16	9 5/16	13 7/16

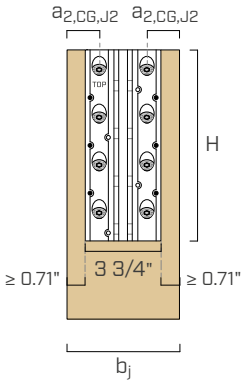
NOTES

- The distances $a_{1,CG}$ and $a_{2,CG}$ refer to the centre of gravity of the threaded part of the screw in the timber element.
- In addition to the stated minimum distances $a_{1,CG,J1}$, it is recommended to use a timber cover $c_W \geq 3/8"$.
- The minimum length of VGS screws is 6 1/4".
- The minimum distances and spacing are in accordance with ESR-5207 and ESR-4645 and are valid for timber elements with G ≤ 0.55 and for loading directions F_V, F_{ax} and F_{up}.
- The spacings between side-by-side connectors are based on VGS screws.

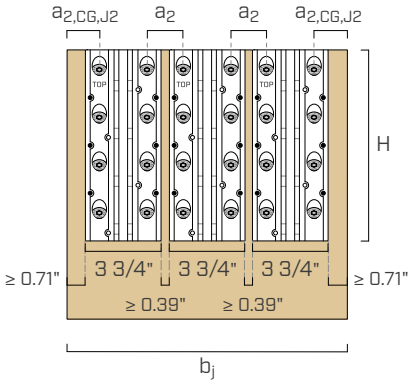
INSTALLATION | **ALUMEGA JVG**

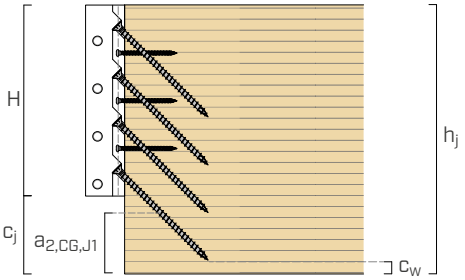
MINIMUM DISTANCES AND DIMENSIONS

beam fully fastened with VGS screws
single connector



beam fully fastened with VGS screws
side-by-side connectors





ALUMEGA JVG - single connector

H	VGS Ø0.36 x 6 1/4		VGS Ø0.36 x 8		VGS Ø0.36 x 9 1/2	
	b_j x h_j	c_j	b_j x h_j	c_j	b_j x h_j	c_j
[in]	[in]	[in]	[in]	[in]	[in]	[in]
9 1/2	5 3/16 x 13 1/2	4 1/16	5 3/16 x 14 1/8	4 5/8	5 3/16 x 15 3/16	5 3/4
14 1/4	5 3/16 x 18 1/4		5 3/16 x 18 13/16		5 3/16 x 19 15/16	
19	5 3/16 x 22 15/16		5 3/16 x 23 9/16		5 3/16 x 24 5/8	
23 5/8	5 3/16 x 27 11/16		5 3/16 x 28 1/4		5 3/16 x 29 3/8	
28 3/8	5 3/16 x 32 3/8		5 3/16 x 33		5 3/16 x 34 1/8	
33 1/16	5 3/16 x 37 1/8		5 3/16 x 37 11/16		5 3/16 x 38 13/16	

ALUMEGA JVG - minimum distances

beam			VGS Ø0.36	
spacing between screws	a_2	[in]	≥ 5·d	≥ 1 3/4
screw edge distance - joist	$a_{2,CG,J1}$	[in]	≥ 8.4·d	≥ 3
screw edge distance - joist	$a_{2,CG,J2}$	[in]	≥ 4·d	≥ 1 7/16

ALUMEGA JVG - side-by-side connectors

			single connector	double connector	triple connector
beam width	b_j	[in]	5 3/16	9 5/16	13 7/16

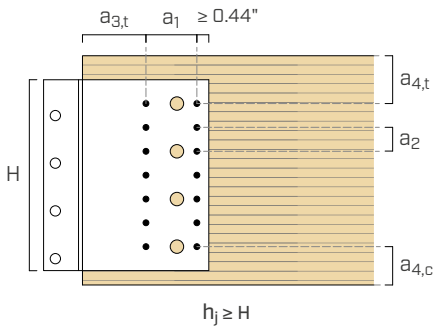
NOTES

- The distances $a_{1,CG,J1}$ and $a_{2,CG,J2}$ refer to the centre of gravity of the threaded part of the screw in the timber element.
- In addition to the stated minimum distances $a_{1,CG}$ and $a_{2,CG,}$ it is recommended to use a timber cover $c_w \geq 3/8"$.
- The minimum length of VGS screws is 6 1/4".
- The minimum distances and spacing are in accordance with ESR-5207 and ESR-4645 and are valid for timber elements with G ≤ 0.55 and for loading directions F_v, F_{ax} and F_{up}.
- The spacings between side-by-side connectors are based on VGS screws.

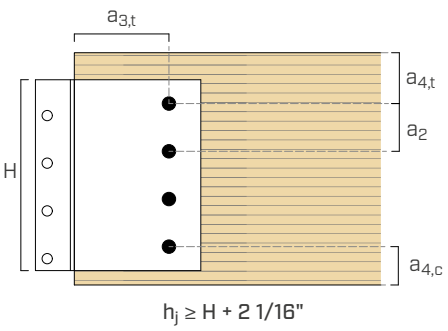
INSTALLATION | **ALUMEGA JS**

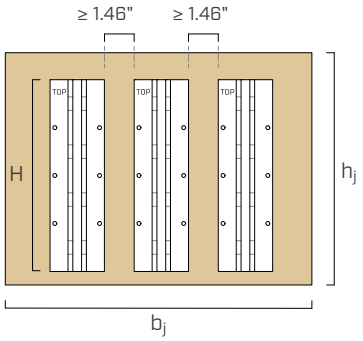
MINIMUM DISTANCES AND DIMENSIONS

self-drilling dowel SBD Ø0.30



STA smooth dowel Ø0.63



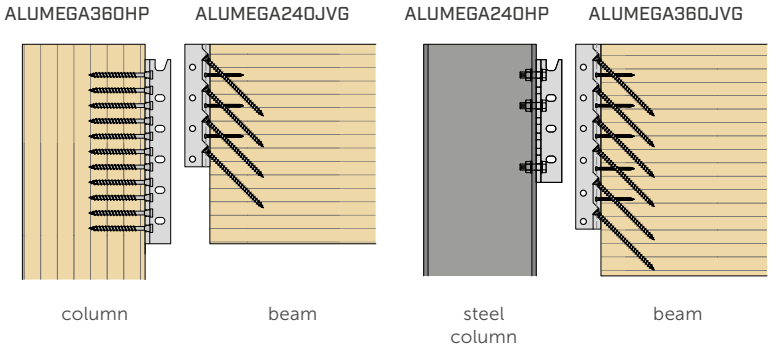


The minimum clear spacing of 1.46" between ALUMEGA JS connectors installed side-by-side satisfies the minimum 0.39" clear spacing requirement between HVG connectors on column. Different clear spacings apply when side-by-side JS connectors are paired with HP connectors - refer to page 7.

secondary beam-timber				**self-drilling dowel SBD Ø0.30**	**smooth dowel STA Ø0.63**
spacing between dowels parallel to grain	a_1	[in]	≥ 4·d	≥ 1 3/16	-
spacing between dowels perpendicular to grain	a_2	[in]	≥ 3·d	≥ 7/8	≥ 1 7/8
dowel loaded end distance	$a_{3,t}$	[in]	≥ 7·d	≥ 2 1/16	≥ 4 7/16
dowel loaded edge distance	$a_{4,t}$	[in]	≥ 4·d	≥ 1 3/16	≥ 2 1/2
dowel unloaded edge distance	$a_{4,c}$	[in]	≥ 3·d	≥ 7/8	≥ 1 7/8

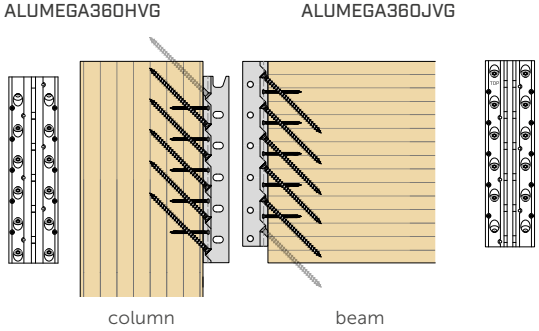
For loading direction F_{up} the unloaded edge distance $a_{4,c}$ and loaded edge distance $a_{4,t}$ are reversed. Therefore, $a_{4,c}$ shall be taken as $a_{4,t}$, and $a_{4,t}$ shall be taken as $a_{4,c}$.
Pay particular attention when installing SBD dowels to maintain the required knife plate edge distances. A 5/32" diameter pilot hole is recommended to ensure accurate positioning.

PAIRING CONNECTORS WITH DIFFERENT LENGTHS



The beam connectors (JVG and JS) can be paired with column or header connectors (HVG and HP) of different lengths. The configurations shown are structurally efficient, as they help balance the load resistance between the HP and JVG connectors while preventing the lower inclined screw from extending beyond the connection (left-hand side). The overall connection resistance is the lesser of the connector and bolt resistances.

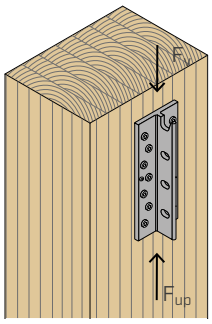
PARTIAL FASTENING FOR **HVG** AND **JVG** CONNECTORS



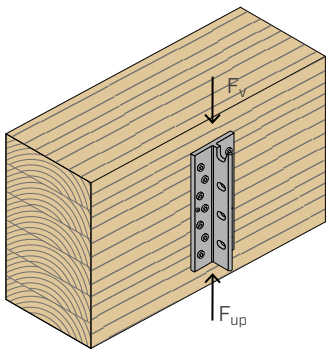
Partial fastening is permitted for the HVG and JVG connectors. For HVG connectors, partial fastening applies when the topmost holes are not used; for JVG connectors, partial fastening applies when the lowermost holes are not used. This option is particularly favorable for connections where the top of the beam is flush with the column. For fire-exposed connections, the lowermost screw may be omitted from the joist connector so the remaining fasteners are positioned outside the calculated charred layer.

ALLOWABLE LOADS | **ALUMEGA HP**

column

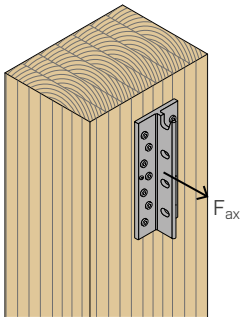


header

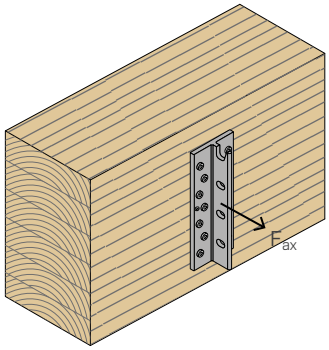


H	fasteners			allowable downloads and uplift[1][2]					
	screw	screw	bolt	column			header		
	LBSHEVO Ø0.20 x 3 1/8	HBSPL Ø0.40 x 4	MEGABOLT Ø0.48 (M12)	G = 0.42	G = 0.49	G = 0.55	G = 0.42	G = 0.49	G = 0.55
[in]	[pcs]	[pcs]	[pcs]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]
9 1/2	2	14	4	**7.03**	**7.39**	**7.39**	**4.72**	**5.39**	**5.44**
14 1/4	2	22	6	**11.05**	**11.61**	**11.61**	**7.42**	**8.47**	**8.54**
19	4	30	8	**15.06**	**15.83**	**15.83**	**10.12**	**11.55**	**11.65**
23 5/8	4	38	10	**19.08**	**20.05**	**20.05**	**12.81**	**14.63**	**14.75**
28 3/8	6	46	12	**23.10**	**24.27**	**24.27**	**15.51**	**17.71**	**17.86**
33 1/16	6	54	14	**27.12**	**28.49**	**28.49**	**18.21**	**20.79**	**20.97**

column



header



H	fasteners			allowable (tension) axial[1][2][3]			
	screw	screw	bolt	screw			bolt
	LBSHEVO Ø0.20 x 3 1/8	HBSPL Ø0.40 x 4	MEGABOLT Ø0.48 (M12)	G = 0.42	G = 0.49	G = 0.55	MEGABOLT Ø0.48 (M12)
[in]	[pcs]	[pcs]	[pcs]	[kips]	[kips]	[kips]	[kips]
9 1/2	2	14	4	**4.59**	**5.17**	**5.64**	**7.34**
14 1/4	2	22	6	**6.90**	**7.77**	**8.48**	**11.18**
19	4	30	8	**9.12**	**10.27**	**11.21**	**15.02**
23 5/8	4	38	10	**11.28**	**12.71**	**13.87**	**18.87**
28 3/8	6	46	12	**13.40**	**15.09**	**16.47**	**22.71**
33 1/16	6	54	14	**15.48**	**17.43**	**19.02**	**26.55**

NOTES

[1] ESR-5207 allows allowable uplift and axial tension resistance to be calculated in accordance with the applicable code. The tabulated values are determined in accordance with the NDS, ESR-4645, and the mechanical model in ETA-23/0824.

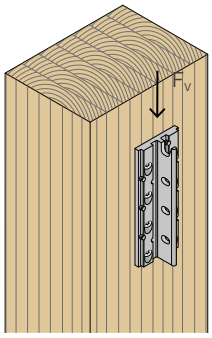
[2] The resistances apply to HBSPL Ø0.40 x 4 and remain valid when using longer HBSPL Ø0.40 screws.

[3] The reported axial tension resistance F_{ax} is applicable after the initial slip associated with the slotted holes has occurred. See TENSILE RESISTANCE, page 18.

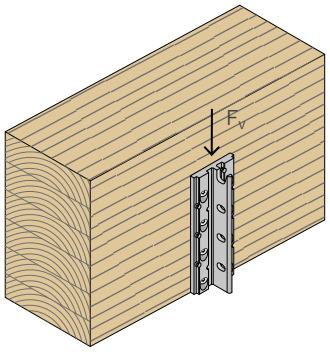
See page 15 for GENERAL PRINCIPLES.

ALLOWABLE LOADS | **ALUMEGA HVG**

column

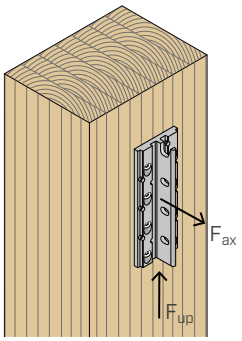


header

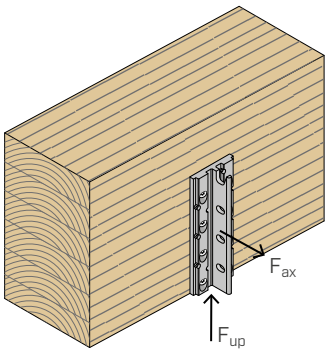


H	fasteners			allowable downloads								
	screw	screw	bolt	G = 0.42 VGS Ø0.36			G = 0.49 VGS Ø0.36			G = 0.55 VGS Ø0.36		
	LBSHEVO Ø0.20 x 3 1/8	VGS[2] Ø0.36	MEGABOLT Ø0.48 (M12)	6 1/4	8	9 1/2	6 1/4	8	9 1/2	6 1/4	8	9 1/2
[in]				[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]
9 1/2	6	8	4	**9.29**	-	-	**10.51**	-	-	**11.54**	-	-
14 1/4	10	12	6	**12.54**	-	-	**14.19**	-	-	**15.57**	-	-
19	14	16	8	**16.73**	**21.65**	-	**18.92**	**24.49**	-	**20.77**	**26.87**	-
23 5/8	18	20	10	**20.91**	**27.06**	-	**23.65**	**30.61**	-	**25.96**	**33.59**	-
28 3/8	22	24	12	**25.09**	**32.47**	**39.85**	**28.39**	**36.73**	**45.08**	**31.15**	**40.31**	**48.65**
33 1/16	26	28	14	**29.27**	**37.88**	**46.49**	**33.12**	**42.86**	**52.60**	**36.34**	**47.03**	**56.75**

column



header



H	fasteners			allowable uplift[1]			allowable (tension) axial[1][3]		
	screw	screw	bolt						
	LBSHEVO Ø0.20 x 3 1/8	VGS[2] Ø0.36	MEGABOLT Ø0.48 (M12)	G = 0.42	G = 0.49	G = 0.55	G = 0.42	G = 0.49	G = 0.55
[in]	[pcs]	[pcs]	[pcs]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]
9 1/2	6	8	4	**0.92**	**1.05**	**1.17**	**1.81**	**2.05**	**2.23**
14 1/4	10	12	6	**1.54**	**1.76**	**1.94**	**3.02**	**3.41**	**3.72**
19	14	16	8	**2.15**	**2.46**	**2.72**	**4.22**	**4.78**	**5.21**
23 5/8	18	20	10	**2.77**	**3.16**	**3.50**	**5.43**	**6.15**	**6.69**
28 3/8	22	24	12	**3.39**	**3.86**	**4.28**	**6.64**	**7.51**	**8.18**
33 1/16	26	28	14	**4.00**	**4.56**	**5.05**	**7.84**	**8.88**	**9.67**

NOTES

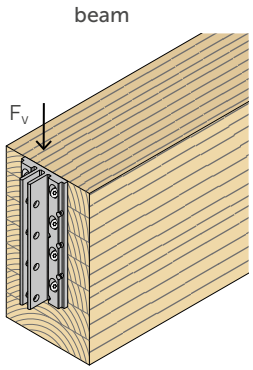
[1] ESR-5207 allows allowable uplift and axial tension resistance to be calculated in accordance with the applicable code. The tabulated values are determined in accordance with the NDS, ESR-4645, and the mechanical model in ETA-23/0824.

[2] The ESR-4645 test program certified ALUMEGA HVG and JVG models with VGS screw lengths up to 11 3/4". To increase safety in the event of incorrect installation, the use of connectors with shorter screws is preferred. It is mandatory to drill a pilot hole Ø0.20" x 2.0" using the JIG VGS drilling jig, and VGS screws shall be installed with controlled torque ≤ 15 ft·lbs (20 Nm) using a TORQUE LIMITER or BEAR torque wrench.

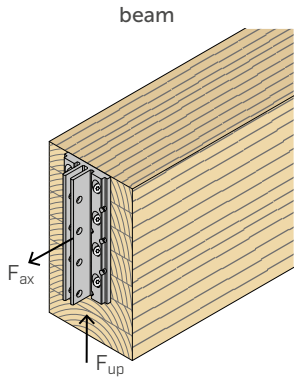
[3] The reported axial tension resistance F_{ax} is applicable after the initial slip associated with the slotted holes has occurred. See TENSILE RESISTANCE, page 18.

See page 15 for GENERAL PRINCIPLES.

ALLOWABLE LOADS | **ALUMEGA JVG**



H	fasteners			allowable downloads								
	screw	screw	bolt	G = 0.42 VGS Ø0.36			G = 0.49 VGS Ø0.36			G = 0.55 VGS Ø0.36		
	LBSHEVO Ø0.20 x 3 1/8	VGS[2] Ø0.36	MEGABOLT Ø0.48 (M12)	6 1/4	8	9 1/2	6 1/4	8	9 1/2	6 1/4	8	9 1/2
[in]				[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]
9 1/2	6	8	4	**9.29**	-	-	**10.51**	-	-	**11.54**	-	-
14 1/4	10	12	6	**12.54**	-	-	**14.19**	-	-	**15.57**	-	-
19	14	16	8	**16.73**	**21.65**	-	**18.92**	**24.49**	-	**20.77**	**26.87**	-
23 5/8	18	20	10	**20.91**	**27.06**	-	**23.65**	**30.61**	-	**25.96**	**33.59**	-
28 3/8	22	24	12	**25.09**	**32.47**	**39.85**	**28.39**	**36.73**	**45.08**	**31.15**	**40.31**	**48.65**
33 1/16	26	28	14	**29.27**	**37.88**	**46.49**	**33.12**	**42.86**	**52.60**	**36.34**	**47.03**	**56.75**



H	fasteners			allowable uplift[1]			allowable (tension) axial[1][2]		
	screw LBSHEVO Ø0.20 x 3 1/8	screw VGS[2] Ø0.36	bolt MEGABOLT Ø0.48 (M12)	G = 0.42	G = 0.49	G = 0.55	G = 0.42	G = 0.49	G = 0.55
[in]	[pcs]	[pcs]	[pcs]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]
9 1/2	6	8	4	**0.62**	**0.71**	**0.78**	**0.55**	**0.62**	**0.68**
14 1/4	10	12	6	**1.03**	**1.18**	**1.30**	**0.92**	**1.04**	**1.13**
19	14	16	8	**1.44**	**1.65**	**1.82**	**1.29**	**1.46**	**1.59**
23 5/8	18	20	10	**1.86**	**2.12**	**2.34**	**1.65**	**1.87**	**2.04**
28 3/8	22	24	12	**2.27**	**2.59**	**2.87**	**2.02**	**2.29**	**2.49**
33 1/16	26	28	14	**2.68**	**3.06**	**3.39**	**2.39**	**2.70**	**2.94**

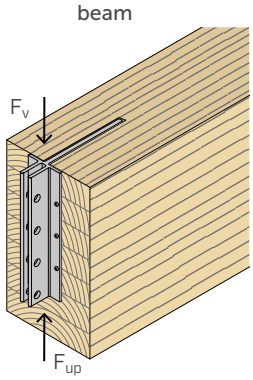
NOTES

(1) ESR-5207 allows allowable uplift and axial tension resistance to be calculated in accordance with the applicable code. The tabulated values are determined in accordance with the NDS, ESR-4645, and the mechanical model in ETA-23/0824.

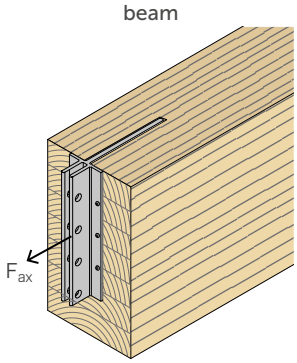
(2) The ESR-4645 test program certified ALUMEGA HVG and JVG models with VGS screw lengths up to 11 3/4". To increase safety in the event of incorrect installation, the use of connectors with shorter screws is preferred. It is mandatory to drill a pilot hole Ø0.20" × 2.0" using the JIG VGS drilling jig, and VGS screws shall be installed with controlled torque ≤ 15 ft·lbs (20 Nm) using a TORQUE LIMITER or BEAR torque wrench.

(3) The reported axial tension resistance F_{ax} is applicable after the initial slip associated with the slotted holes has occurred. See TENSILE RESISTANCE, page 18.

See page 15 for GENERAL PRINCIPLES.



H	fasteners		allowable downloads and uplift[1][2]					
	screw	bolt	STA Ø0.63 x 8[3]			SBD Ø0.30 x 7 11/16[4]		
	LBSHEVO Ø0.20 x 3 1/8	MEGABOLT Ø0.48 (M12)	G = 0.42	G = 0.49	G = 0.55	G = 0.42	G = 0.49	G = 0.55
[in]	[pcs]	[pcs]	[kips]	[kips]	[kips]	[kips]	[kips]	[kips]
9 1/2	4	4	**3.55**	**3.83**	**3.96**	**3.91**	**4.26**	**4.54**
14 1/4	4	6	**6.66**	**7.34**	**7.80**	**8.19**	**8.91**	**9.49**
19	6	8	**10.01**	**11.36**	**12.11**	**13.58**	**14.81**	**15.78**
23 5/8	6	10	**13.43**	**15.64**	**16.73**	**19.70**	**21.52**	**22.97**
28 3/8	8	12	**16.82**	**19.65**	**21.47**	**26.23**	**28.72**	**30.71**
33 1/16	8	14	**20.15**	**23.59**	**26.24**	**32.98**	**36.18**	**38.74**



H	fasteners		allowable (tension) axial[1][5]		
	screw	bolt	STA Ø0.63 x 8[3]	SBD Ø0.30 x 7 11/16[4]	bolt
	LBSHEVO Ø0.20 x 3 1/8	MEGABOLT Ø0.48 (M12)	G ≥ 0.42	G ≥ 0.42	MEGABOLT Ø0.48 (M12)
[in]	[pcs]	[pcs]	[kips]	[kips]	[kips]
9 1/2	4	4	**12.69**	**16.11**	**7.34**
14 1/4	4	6	**19.03**	**25.32**	**11.18**
19	6	8	**25.38**	**34.53**	**15.02**
23 5/8	6	10	**31.72**	**43.74**	**18.87**
28 3/8	8	12	**38.06**	**52.95**	**22.71**
33 1/16	8	14	**44.41**	**62.15**	**26.55**

NOTES

(1) ESR-5207 allows allowable uplift and axial tension resistance to be calculated in accordance with the applicable code. The tabulated values are determined in accordance with the NDS and the mechanical model in ETA-23/0824.

(2) Tabulated values are based on the dowel embedment length being equal on each side of the knife plate and on a 7/16" slot in the wood for the knife plate. The beam must be in contact with the connector plate.

(3) STA smooth dowel Ø0.63": $F_{y,b}$ = 55000 psi.

(4) SBD self-drilling dowel Ø0.30": $F_{y,b}$ = 150000 psi.

(5) The reported axial tension resistance F_{ax} is applicable after the initial slip associated with the slotted holes has occurred.
See TENSILE RESISTANCE, page 18.

See page 15 for GENERAL PRINCIPLES.

GENERAL PRINCIPLES

DESIGN BASIS

- The tabulated allowable loads are for Allowable Stress Design (ASD) and include the load duration factor C_D, addressed in the NDS. Do not increase tabulated values for short-duration loading.
- Tabulated values apply only to the configurations, materials, and fasteners shown. Substitutions are not permitted unless specifically evaluated.
- For any loading direction, the allowable capacity of the beam to column/header connection must be taken as the minimum of the following:
  - ASD capacity of the ALUMEGA HP or HVG connector fastened to the column/header.
  - ASD capacity of the ALUMEGA JVG or JS connector fastened to the beam.
  - ASD capacity of the MEGABOLT bolts or aluminum knife plates (not reported in the table, if it does not govern).
- Tabulated values apply to wood members used in dry service conditions. Use in wet service conditions is not recommended and has not been evaluated.
- Wood members should be installed at a moisture content close to the expected in-service equilibrium moisture content to limit cracking and splitting.
- Uplift and download resistance values of ALUMEGA HP and HVG are valid only for wood members with a reference compression perpendicular to grain strength $F_{c\perp}$ meeting the minimum required values:
  - ALUMEGA HP: 315 psi.
  - ALUMEGA HVG: 500 psi for G=0.42, 560 psi for G=0.49 and 650 psi for G=0.55.

WOOD MEMBER VERIFICATION

- The structural wood members must be designed and verified by the designer in accordance with the applicable provisions of the NDS.
- In some cases, the connector resistance may exceed the beam shear resistance. See SHEAR DESIGN, page 19.

LOADING

- ESR-5207 does not address load eccentricity in the downward direction Fv, which can generate torsion on the connection. Designers should evaluate the need for supplemental fastening or ALUMEGA connectors installed side-by-side. See TORSIONAL DESIGN, page 19.
- The following verification must be satisfied for combined loading:

$$\left(\frac{F_v}{R_{v,ASD}}\right)+\left(\frac{F_{up}}{R_{up,ASD}}\right)+\left(\frac{F_{ax}}{R_{ax,ASD}}\right)\leq 1$$

F_v and F_{up} are loads acting in opposite directions. Therefore, only one of the loads F_v and F_{up} can act in combination with F_{ax} load.

INSTALLATION

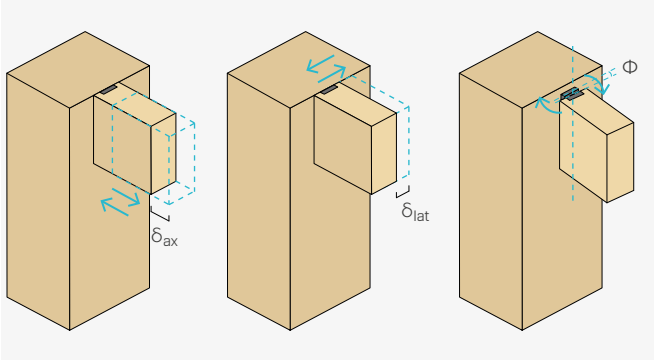
- The installation of screws - especially VGS and HBS PLATE – must strictly follow the installation instructions on pages 21 and 22, and the Rotho Blaas technical documentation, to ensure the required structural performance.
- The distances and spacings in the INSTALLATION section refer to the minimum wood member dimensions for screws inserted without pre-drilling hole and do not take fire resistance requirements into account.
- ALUMEGA HP may be installed to concrete or steel. The design of these connections must be performed by the designer in accordance with the applicable code.

SIDE-BY-SIDE CONNECTORS

- For a connection consisting of up to three side-by-side connectors of the same length, the total allowable resistance equals the sum of the allowable resistances of the individual connectors.
- Pay particular attention during the installation of the side-by-side connectors to avoid uneven load sharing between connectors. Use of the JIG ALUMEGA assembly template is recommended.

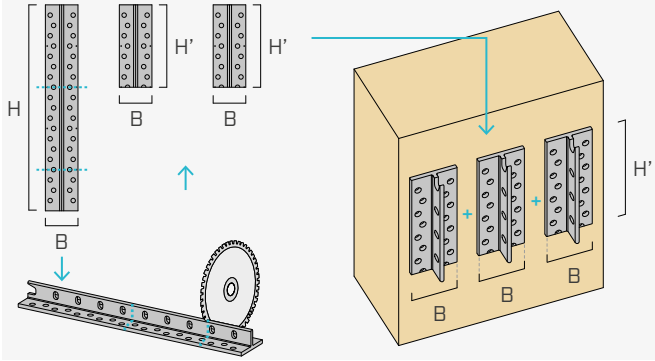
MAIN CHARACTERISTICS

ASSEMBLY TOLERANCE



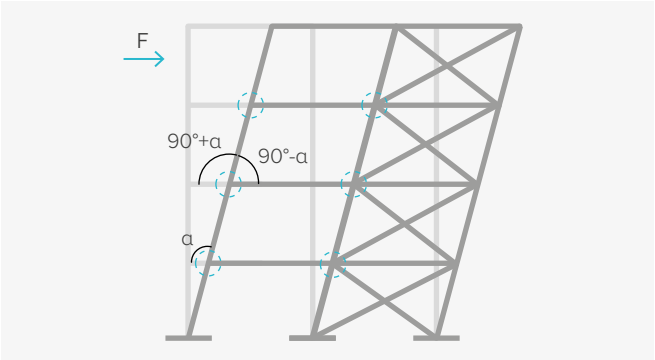
It offers the greatest assembly tolerance of any high-strength connector on the market:
δ_{ax} = 5/16" (± 5/32"), δ_{lat} = 1/8" (± 1/16") and Φ = ± 6°.

MODULARITY



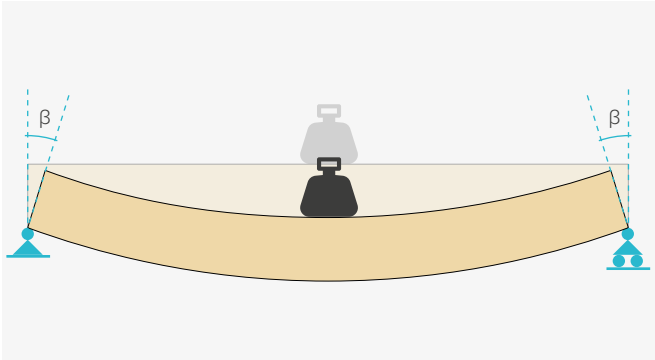
Available in six standard lengths; the overall length H may be adjusted due to the modular connector geometry. Connectors may also be installed side-by-side to accommodate geometric constraints and/or required design capacity.

INTER-STOREY DRIFT FOR HORIZONTAL LOADS



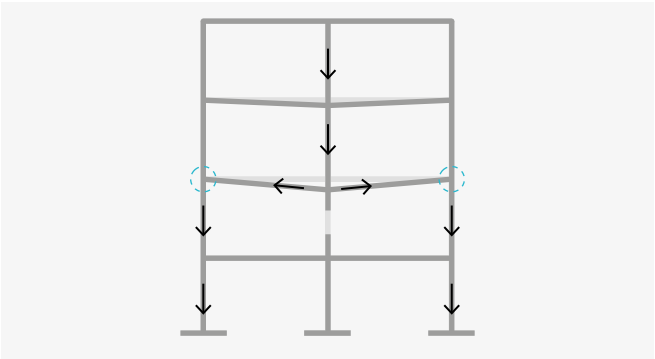
The connector's rotation capacity is compatible, depending on the installation configuration, with inter-storey drift caused by seismic or wind loading.

ROTATION FOR GRAVITATIONAL LOADS



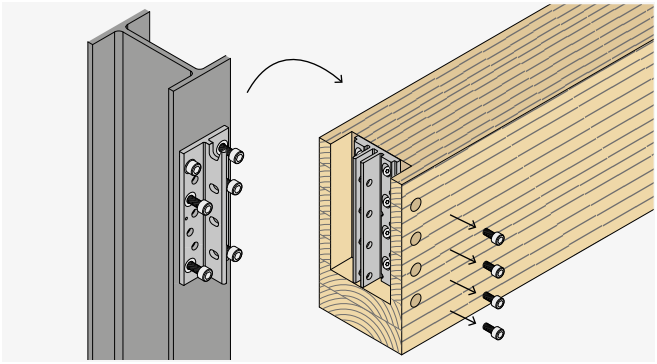
Under gravity loading, the connector exhibits hinged behavior and allows the rotation of the beam ends, provided that the overall connection detailing permits such rotation.

ROBUSTNESS



The connector's rotational capacity can facilitate the development of catenary action under exceptional loading. Where high tensile forces are expected, design additional connections to resist tensile loads and verify the overall performance through a global structural analysis.

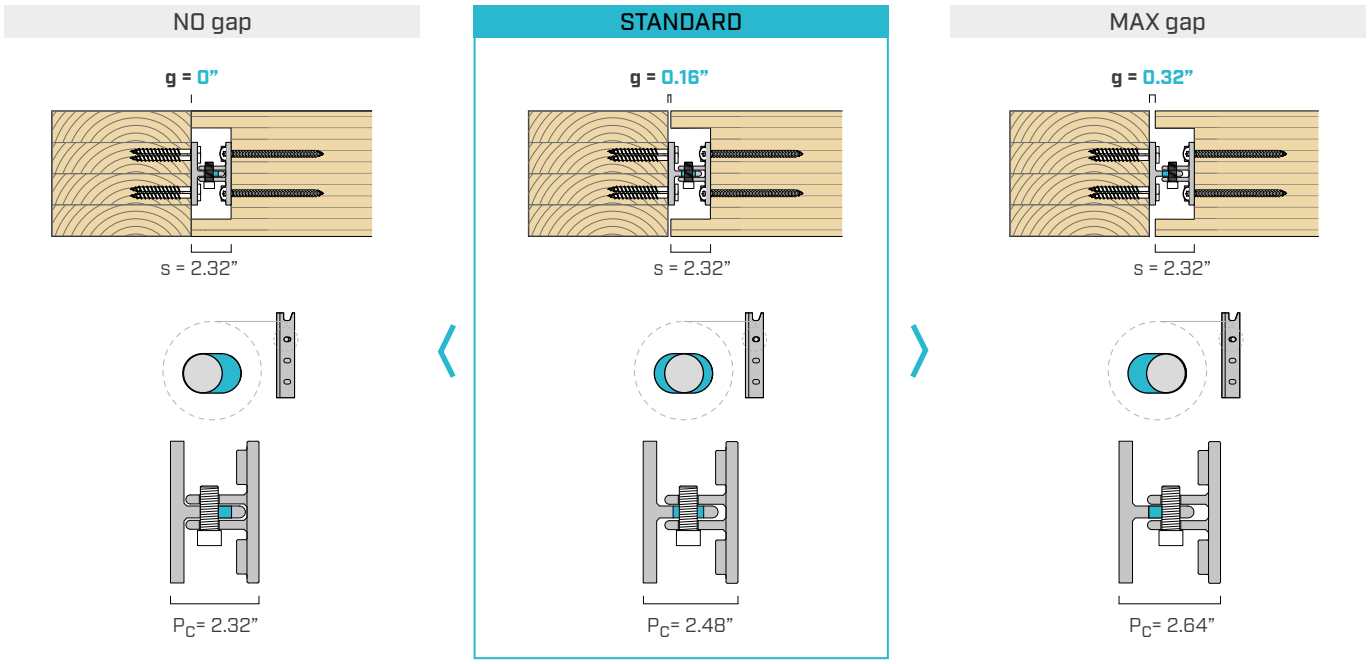
DISASSEMBLY



The system is suitable for temporary structures and for structures at the end of their service life. ALUMEGA connections can be disassembled by removing the MEGABOLT bolts, simplifying component separation and facilitating Design for Disassembly (DfD).

INSTALLATION CONFIGURATIONS

The standard configuration for the fabrication of the timber elements provides a nominal gap of 0.16" (*4 mm*). At the construction site, the gap may vary between the limiting cases: no gap and 0.32" (*8 mm*).



Where it is necessary to limit the gap (e.g., to satisfy fire-resistance detailing), the routing depth in the beam may be increased. An increased routing depth reduces the gap between the beam and the column/header, and also reduces the axial installation tolerance along the beam axis. The limiting case - requiring high assembly precision - occurs at a routing depth of 2.64" (*67 mm*), resulting in a 0" in gap.

routing depth s in *(mm)*	**assembled connectors size P_C** in *(mm)*								
	2.32 *(59)*	**2.36 *(60)***	**2.40 *(61)***	**2.44 *(62)***	**2.48 *(63)***	**2.52 *(64)***	**2.56 *(65)***	**2.60 *(66)***	**2.64 *(67)***
2.32 *(59)*	g = 0" *(0)*	g = 0.04" *(1)*	g = 0.08" *(2)*	g = 0.12" *(3)*	g = 0.16" *(4)*	g = 0.20" *(5)*	g = 0.24" *(6)*	g = 0.28" *(7)*	g = 0.32" *(8)*
2.40 *(61)*	-	-	g = 0" *(0)*	g = 0.04" *(1)*	g = 0.08" *(2)*	g = 0.12" *(3)*	g = 0.16" *(4)*	g = 0.20" *(5)*	g = 0.24" *(6)*
2.48 *(63)*	-	-	-	-	g = 0" *(0)*	g = 0.04" *(1)*	g = 0.08" *(2)*	g = 0.12" *(3)*	g = 0.16" *(4)*
2.56 *(65)*	-	-	-	-	-	-	g = 0" *(0)*	g = 0.04" *(1)*	g = 0.08" *(2)*
2.64 *(67)*	-	-	-	-	-	-	-	-	g = 0" *(0)*

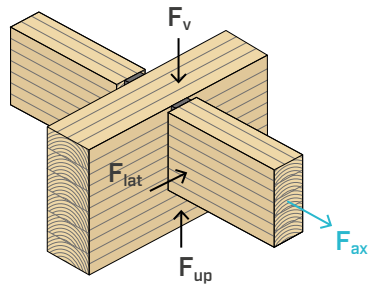
Fire-resistance requirements may be addressed by limiting the gap or by protecting exposed metal components with approved fire-protection products (e.g., FIRE STRIPE GRAPHITE, FIRE SEALING SILICONE, MS SEAL, and FIRE SEALING ACRYLIC). From a structural standpoint, the hinged behavior of the connection, therefore the free end rotation of the beam, can be achieved with configurations with a larger gap between the beam and the column/header.

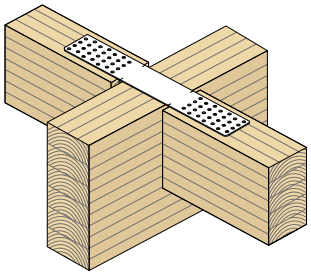
TENSILE RESISTANCE

The axial tension resistance F_{ax} of the connection is valid after the initial slip associated with the slotted holes in the ALUMEGA HP and ALUMEGA HVG connectors. If the design requires the connection to resist tension without initial slip (or with limited initial slip), use one of the following approaches:

- In case of concealed connection, adjust the routing depth in the beam (or in the column/header) to eliminate or reduce axial sliding. See INSTALLATION CONFIGURATIONS section.
- Provide an additional fastening system at the top of the beam. This may be a standard connector (e.g., WHT PLATE T), a custom steel plate, or a system with fasteners depending on the geometrical and strength requirements.

Note: These solutions may change the rotational stiffness of the connection and alter its hinge behavior.



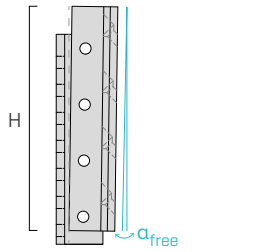


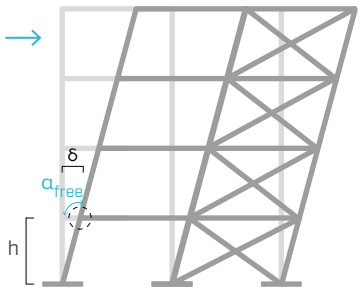
ROTATIONAL COMPATIBILITY

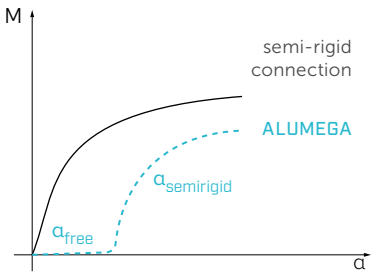
The ALUMEGA HVG and HP connectors have horizontally slotted holes, which not only offer installation tolerance, but also allow free rotation of the connection. The table shows the maximum free rotation α_{free} of the connection and the associated storey-drift, as a function of the length H of the connector. The connector, once it has reached α_{free} rotation has a further $\alpha_{semi\text{-}rigid}$ rotation before failure. $\alpha_{semi\text{-}rigid}$ rotation occurs due to the deformation of the aluminum connector and its fastening. The moment-rotation graph shows a comparison between the theoretical behaviour of a connection with ALUMEGA and that of a common semi-rigid connection. For a connection with ALUMEGA, it is possible to assume a first phase, the extension of which is a function of H, in which the behaviour is hinge-like; in a second phase, semi-rigid behaviour can be assumed. It should be noted that α_{free}, and consequently the storey-drift capability, occurs without deformation or damage to the aluminum or fasteners, and depend on several factors, including:

- the positioning of the connector relative to the beam;
- the beam height;
- the actual gap between the joist and the column/header;
- the vertical load applied to the beam;
- for concealed connections, the depth of the routing in the beam or column/header, and the thickness of fire-resistant products (e.g. FIRE STRIPE GRAPHITE).

All the above considerations must be verified through testing. See www.rothoblaas.com for updates.







H [in]	maximum free rotation α_{free} [°]	STOREY-DRIFT δ/h [%]
9 1/2	2,5	4,4
14 1/4	1,5	2,7
19	1,1	1,9
23 5/8	0,8	1,5
28 3/8	0,7	1,2
33 1/16	0,6	1,0

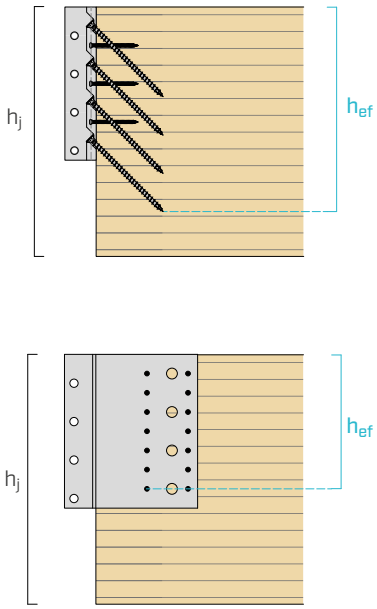
SHEAR DESIGN

The use of concealed connectors, such as ALUMEGA, requires special design considerations:

- reduction in the shear resistance of the beam when the connection engages only a limited portion of the beam height;
- potential stability issues of the beam at the supports during installation or in service.

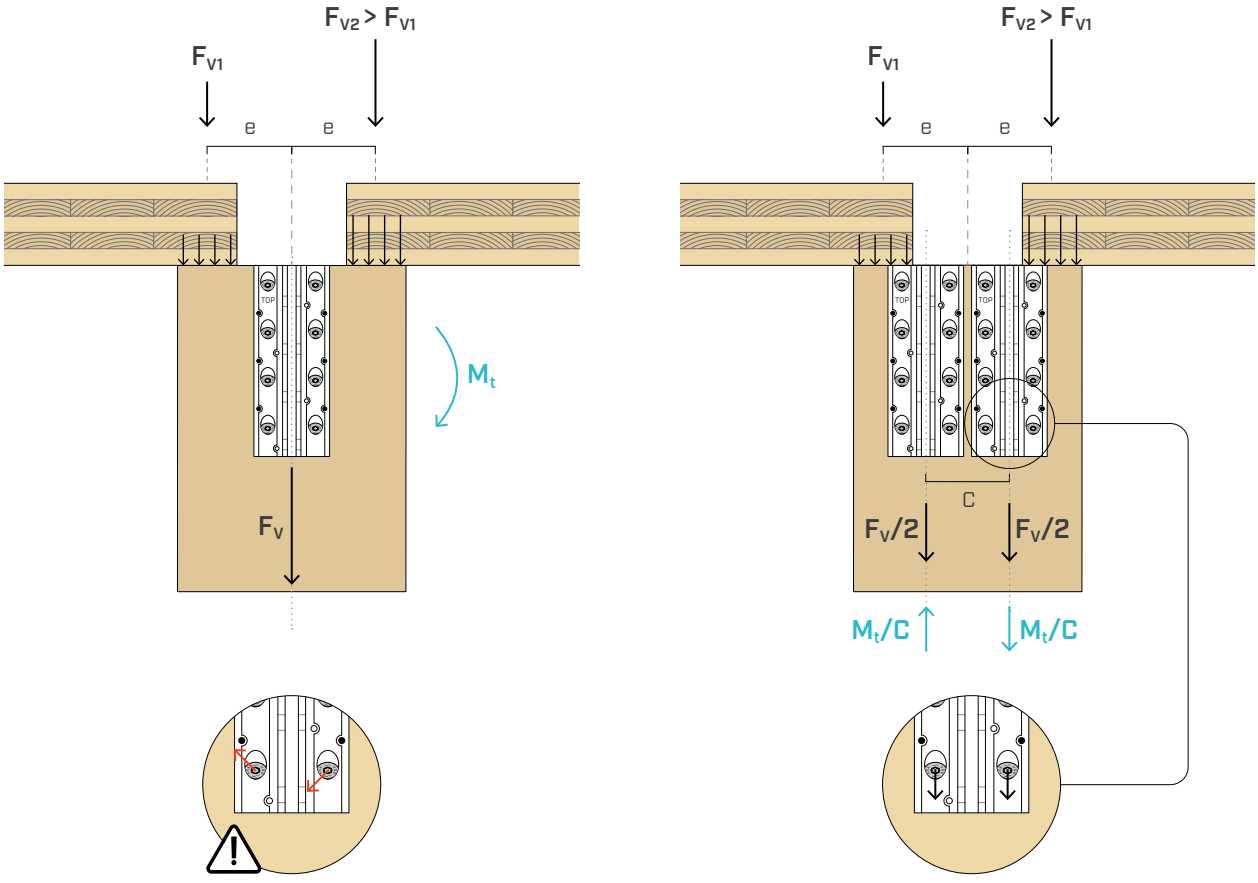
According to various technical standards and design guidelines, it is recommended to use connectors with a height $h_{ef} \geq 70\%$ of the beam height h_j. This ensures adequate lateral stability and helps to prevent tension perpendicular to the timber grain. Alternatively, specific design solutions can be adopted, such as:

- use of larger connector and/or longers screws.
- insertion of screws perpendicular to the beam to increase the shear resistance capacity;
- stabilisation of the beam through connection to the floor slab or other structural elements.



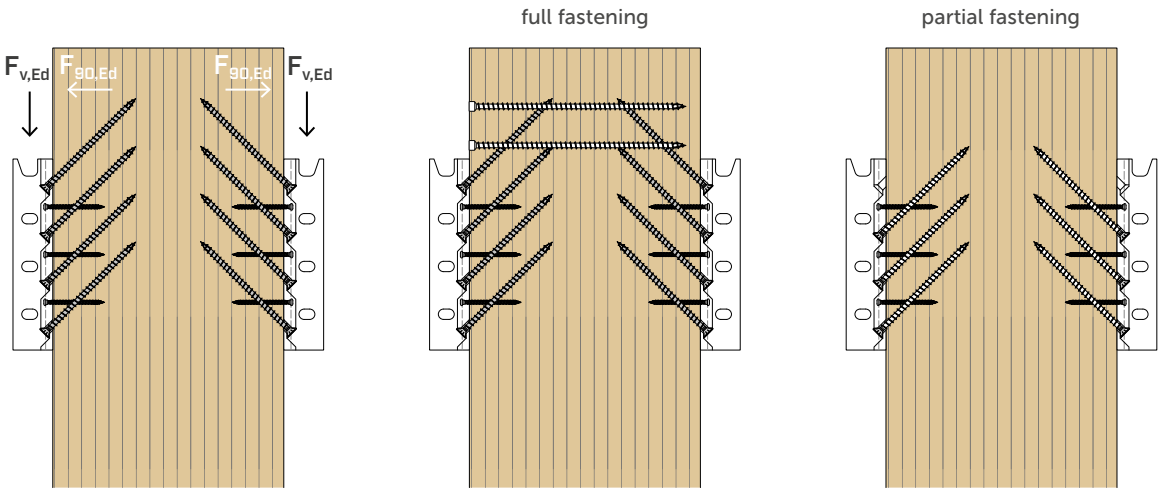
TORSIONAL DESIGN

Particular attention should be paid to possible torsional moments caused by eccentricities between the vertical loads and the connector's centre of gravity. This typically occurs in edge beams and internal beams subjected to asymmetric loading, including during the installation phase, generating unintended stresses in the screws.
In the presence of significant eccentricities, for example in wide beams or under highly unbalanced loads, it is recommended to adopt a side-by-side connector configuration, in order to improve the load distribution.

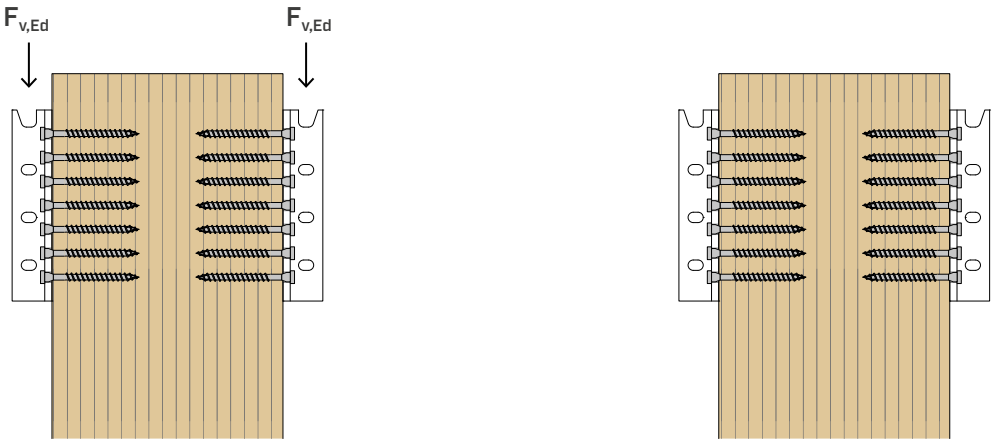


TENSION PERPENDICULAR TO GRAIN IN THE COLUMN/HEADER

When subjected to gravity loading, ALUMEGA HVG connectors may generate tension perpendicular to grain in the portion of the timber column/header located above the connector. When the connectors are installed on both sides of the timber member with full fastening, it is recommended to install reinforcement screws (VGS/VGZ) which fully penetrate through the depth of the timber member. Alternatively, the configuration with partial fastening does not require reinforcement screws.

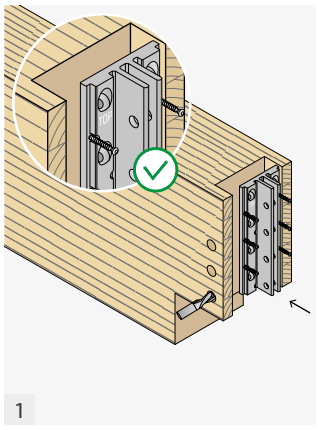


For applications using ALUMEGA HP connectors under gravity loading, reinforcement screws are not required, as no significant tension perpendicular to grain is generated in the timber column/header.

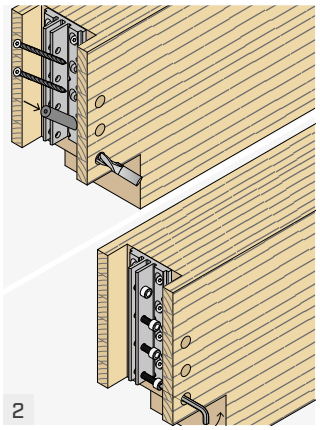


For further updates and technical documentation, **please refer to the ALUMEGA - Technical Guide** at www.rothoblaas.com

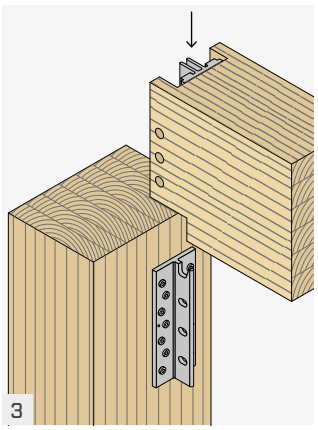
TOP-DOWN INSTALLATION WITH ROUTING IN THE BEAM



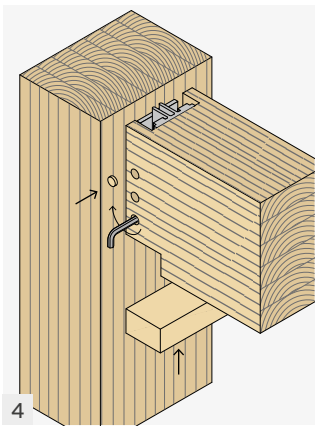
Make the routing in the beam and drill the holes (minimum 1" - *25 mm*) for the MEGABOLT bolts. Position the ALUMEGA JVG connector on the beam, ensuring the connector is correctly oriented with the "TOP" marking facing up. Fasten the connector using LBSHEVO Ø0.20" x 3 1/8" screws.



Drill 3/16" diameter pilot holes with a minimum length of 2" using the JIG VGS drilling jig. Install the VGS screws at a 45° angle, applying controlled torque ≤ 15 ft·lbs (*20 Nm*) with TORQUE LIMITER or BEAR torque wrench. Install the MEGABOLT bolts as follows: the first bolt must pass completely through both connector stems, while the remaining bolts must pass through the first stem only.

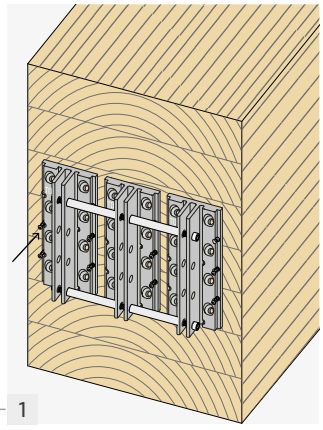


Position the ALUMEGA HP connector on the column and install LBSHEVO Ø0.20" positioning screws (recommended), followed by the HBS PLATE screws with a maximum installation torque of ≤ 25 ft·lbs (*35 Nm*). Use TORQUE LIMITER or BEAR torque wrench. Position the beam from top to bottom, using the upper positioning notch in the ALUMEGA HP connector.

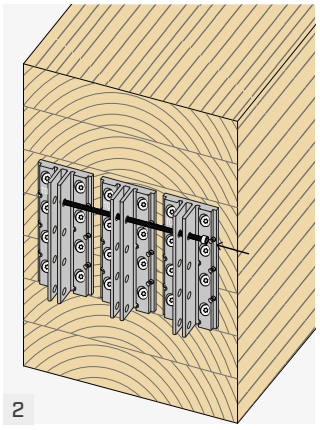


Fully tighten the MEGABOLT bolts using a 10 mm hexagonal wrench until the bolt is fully inserted, to a maximum recommended installation torque ≤ 22 ft·lbs (*30 Nm*). Install TAPS timber plugs in the round holes, then install the closure board to conceal the connection for fire-resistance purposes.

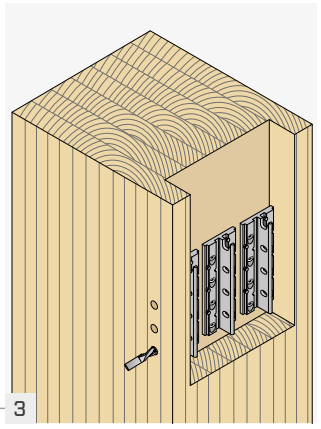
TOP-DOWN INSTALLATION WITH ROUTING IN THE COLUMN



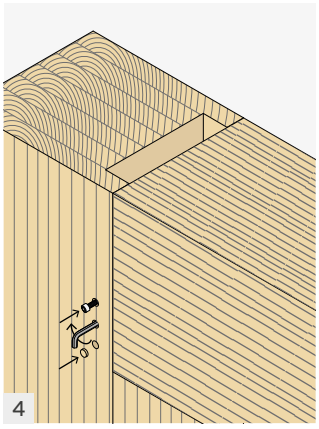
Position the three JVG connectors - preassembled with the JIG ALUMEGA template and bolts - onto the beam. After installing the LBSHEVO Ø0.20" x 3 1/8" screws, remove the jigs and bolts.



Drill 3/16" diameter pilot holes with a minimum length of 2" using the JIG VGS drilling jig. Install the VGS screws at a 45° angle, applying controlled torque ≤ 15 ft·lbs (*20 Nm*) with TORQUE LIMITER or BEAR torque wrench. Install the upper MEGABOLT bolt through the three JVG connectors.

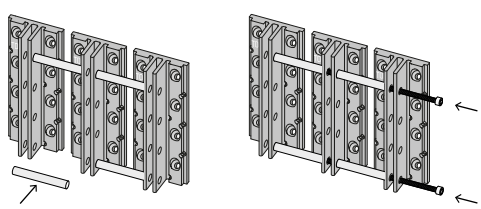


Make the routing in the column and drill the holes (minimum 1" - *25 mm*) for the MEGABOLT bolts. Use JIG ALUMEGA template to position the ALUMEGA HVG connectors. Fasten LBSHEVO Ø0.20" x 3 1/8" screws. Drill 3/16" diameter pilot holes with a minimum length of 2" using the JIG VGS drilling jig. Install the VGS screws at a 45° angle, applying controlled torque ≤ 15 ft·lbs (*20 Nm*) with TORQUE LIMITER or BEAR torque wrench.



Erect the beam from top to bottom using the upper positioning notch in the ALUMEGA HVG connectors. Insert the remaining MEGABOLT bolts and screw them in completely with a 10 mm hexagonal wrench.

0

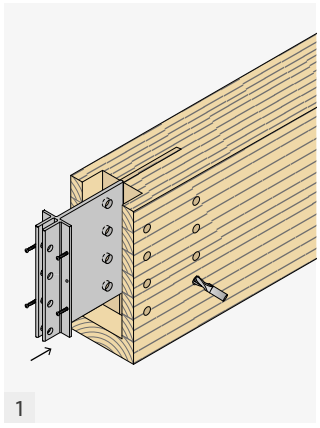


MANUALS

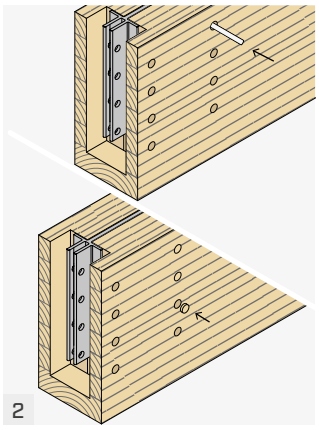
JIG INSTALLATION

Place the JVG connectors side-by-side and position the jigs over two rows of Ø0.48 (M12) holes in the connectors. Insert the MEGABOLT bolts through the Ø0.48 (M12) threaded holes, ensuring the connectors remain properly aligned. The use of the jig for HP and HVG connectors is similar, it is recommended to use Ø0.48 (M12) nuts to avoid MEGABOLT bolts slipping out during installation.

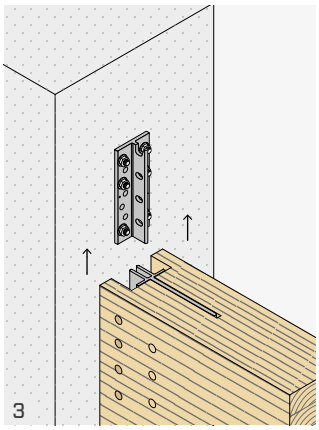
“BOTTOM-UP” INSTALLATION WITH ROUTING IN THE BEAM



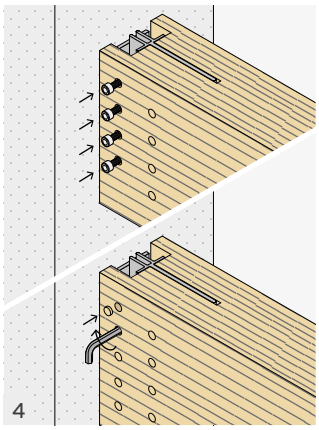
Make a partial depth routing in the beam and drill the holes (minimum 1” - *25 mm*) for the MEGABOLT bolts and for Ø0.63” STA smooth dowels. Position the ALUMEGA JS connector on the beam, ensuring the connector is correctly oriented with the “TOP” marking facing up. Fasten the connector using LBSHEVO Ø0.20” screws (optional).



Insert Ø0.63” STA dowels and then close with TAPS timber plugs.

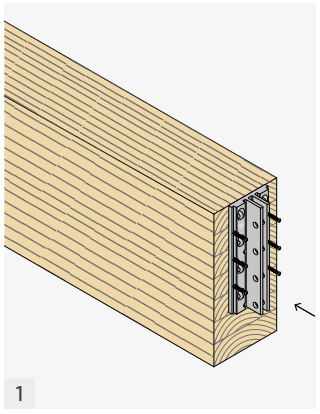


Position the ALUMEGA HP connector on concrete with Ø0.48 (M12) INA threaded rods and VIN-FIX resin anchor according to the relevant installation instructions. Lift the beam from the bottom upwards, and fully insert the upper MEGABOLT bolt in when the ALUMEGA JS connector is positioned above the ALUMEGA HP connector.

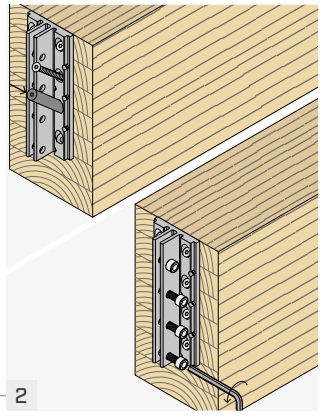


Position the beam from top to bottom, using the upper positioning notch in the ALUMEGA HP connector. Fully tighten the MEGABOLT bolts using a 10 mm hexagonal wrench to a maximum recommended installation torque ≤ 22 ft·lbs (*30 Nm*). Install TAPS timber plugs in the round holes.

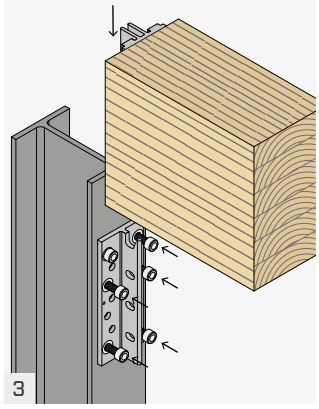
EXPOSED “TOP-DOWN” INSTALLATION



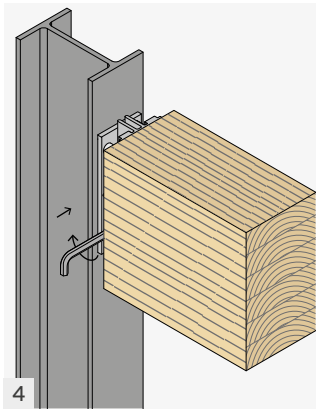
Position the ALUMEGA JVG connector on the beam, ensuring the connector is correctly oriented with the “TOP” marking facing up. Fasten the connector using LBSHEVO Ø0.20” x 3 1/8” screws.



Drill 3/16” diameter pilot holes with a minimum length of 2” using the JIG VGS drilling jig. Install the VGS screws at a 45° angle, applying controlled torque ≤ 15 ft·lbs (*20 Nm*) with TORQUE LIMITER or BEAR torque wrench. Install the MEGABOLT bolts as follows: the first bolt must pass completely through both connector stems, while the remaining bolts must pass through the first stem only.



Fasten the ALUMEGA HP connector to the steel member using M12 bolts and washer (MEGABOLT bolts can be used). Position the beam from top to bottom, using the upper positioning notch in the ALUMEGA HP connector.



Fully tighten the MEGABOLT bolts with a 10 mm hexagonal wrench to a maximum recommended installation torque ≤ 22 ft·lbs (*30 Nm*).