

RAPTOR MINI

SMALL RIGGING DEVICE FOR TIMBER ELEMENTS

FAST ASSEMBLY, SAFE LIFTING

Thanks to fastening with just two screws, the lifting plate can be rapidly installed, reducing both production and on-site assembly time. The integrated, folding lifting hook ensures safe and flexible lifting, even in confined spaces.

COMPACT AND VERSATILE

Whether for timber structures or small construction elements, the lifting plate is compact yet robust, offering true versatility. It saves time and improves worksite safety when handling multiple timber components.

CERTIFIED

The plate is compliant to OSHA Section 1926.753(e)(2) and ASME BTH01 2023 and is certified according to the Machinery Directive 2006/42/EC for weights up to 3300 lb.

REUSABLE SCREWS

Thanks to compatibility with the innovative VGSPL, the lifting system allows the fasteners to be reused even after handling. This reduces waste and project costs while maintaining high safety standards.



OSHA 1926.753(e)(2) COMPLIANT ASME BTH-1-2023 COMPLIANT REUSABLE CE 2006/42/CE



FIELDS OF USE

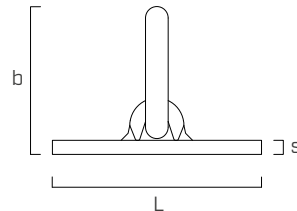
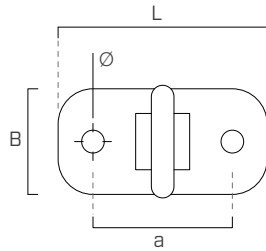
- Prefabricated timber frame walls
- Solid timber or glulam beams
- CLT panels for floor or wall
- Timber supports and columns
- Lightweight constructions for prefabricated roofs

CODE

CODE	plate sizes		max. capacity		suitable screws	pcs
	[mm]	[in]	[kg]	[lb]		
RAPMINI	60 x 120	2 5/16 x 4 3/4	1500	3300	VGS PLATE Ø11 mm	1
					HBS PLATE/HBS PLATE EVO Ø10 mm	
					VGS Ø11 mm (+ HUS10)	

DIMENSIONS

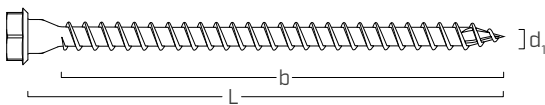
CODE	B		L		s		Ø		a		b	
	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]
RAPMINI	60	2 5/16	120	4 3/4	8	5/16	13	1/2	80	3 1/8	84	3 5/16



COMPATIBLE SCREWS

VGS PLATE

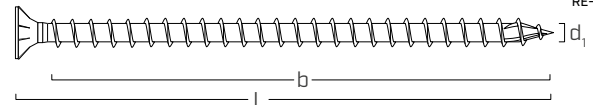
pan head screw for lifting



d ₁ [mm] [in]	CODE	L		b		pcs
		[mm]	[in]	[mm]	[in]	
11 0.44 SW 17 TX 50	VGSPL1160	60	2 3/8	50	1 15/16	25
	VGSPL1180	80	3 1/8	70	2 3/4	25
	VGSPL11100	100	4	90	3 1/2	25
	VGSPL11120	120	4 3/4	110	4 3/8	25
	VGSPL11140	140	5 1/2	130	5 1/8	25
	VGSPL11160	160	6 1/4	150	6	25
	VGSPL11180	180	7 1/8	170	6 3/4	25
	VGSPL11200	200	8	190	7 1/2	25
	VGSPL11240	240	9 1/2	230	9 1/16	25
	VGSPL11280	280	11	270	10 5/8	25

VGS

full thread screw with countersunk head

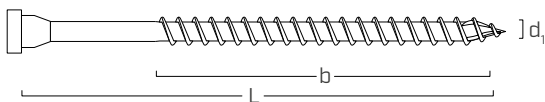


d ₁ [mm] [in]	CODE	L		b		pcs
		[mm]	[in]	[mm]	[in]	
11 0.44 TX 50	VGS1180	80	3 1/8	70	2 3/4	25
	VGS11100	100	4	90	3 1/2	25
	VGS11125	125	4 15/16	115	4 1/2	25
	VGS11150	150	6	140	5 1/2	25
	VGS11175	175	6 7/8	165	6 1/2	25
	VGS11200	200	8	190	7 1/2	25
	VGS11225	225	8 7/8	215	8 7/16	25
	VGS11250	250	10	240	9 1/2	25
	VGS11275	275	10 7/8	265	10 7/16	25
	VGS11300	300	11 3/4	290	11 7/16	25
	VGS11325	325	12 3/4	315	12 3/8	25
	VGS11350	350	13 3/4	340	13 3/8	25
	VGS11375	375	14 3/4	365	14 3/8	25
	VGS11400	400	15 3/4	390	15 3/8	25

The VGS screw can only be installed in combination with HUS washer.

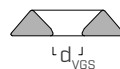
HBS PLATE - HBS PLATE EVO

pan head screw for plates



d ₁ [mm] [in]	CODE	L		b		pcs
		[mm]	[in]	[mm]	[in]	
10 0.4 TX 40	HBSPLEVO1060	60	2 3/8	52	1 15/16	50
	HBSPL1080	80	3 1/8	60	2 3/8	50
	HBSPL10100	100	4	75	2 15/16	50
	HBSPL10120	120	4 3/4	95	3 3/4	50
	HBSPL10140	140	5 1/2	110	4 3/8	50
	HBSPL10160	160	6 1/4	130	5 1/8	50
	HBSPL10180	180	7 1/8	150	6	50

HUS - turned washer

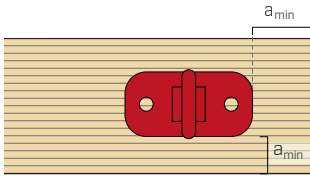


CODE	d _{VGS}		pcs
	[mm]	[in]	
HUS10	11	0.44	50

RAPTOR MINI INSTALLATION

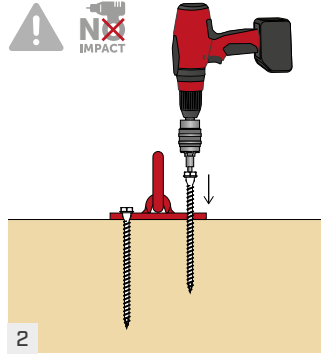


HBSP L Ø10 $M_{ins,max} = 35 \text{ Nm} \mid 25 \text{ ft-lbs}$
VGS | VGSPL Ø11 $M_{ins,max} = 30 \text{ Nm} \mid 22 \text{ ft-lbs}$



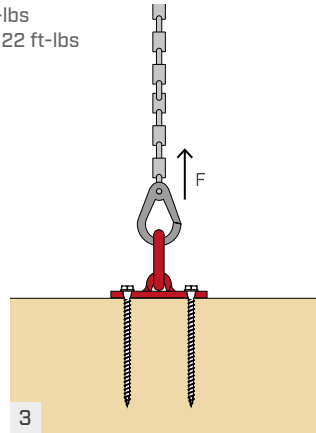
1

Read the instructions for use carefully and follow the directions. The positioning of the plate on the timber element must comply with the minimum recommended distances.



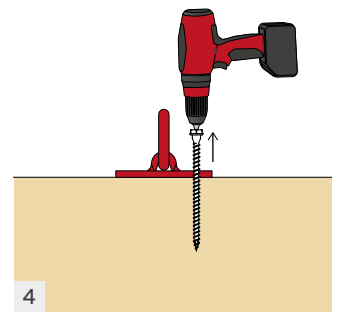
2

Screw length depends on the application and weight of the element to be moved. It is recommended to tighten them in accordance with the tightening torques indicated in the relevant installation instructions.



3

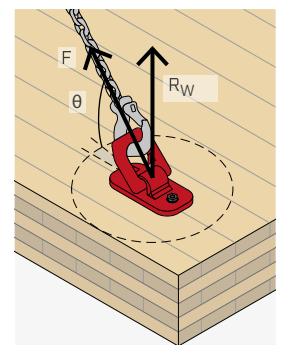
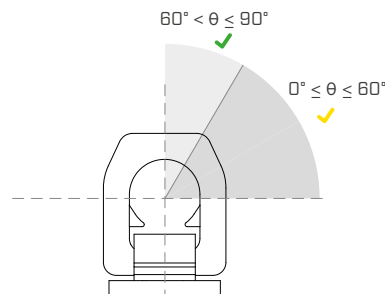
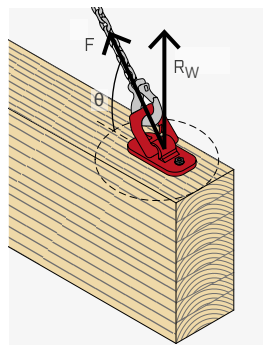
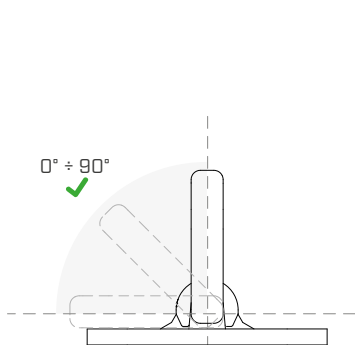
Connect the crane hook and carefully lift the element. Be careful at the corners and the allowed lifting directions and corresponding maximum lifting capacities.



4

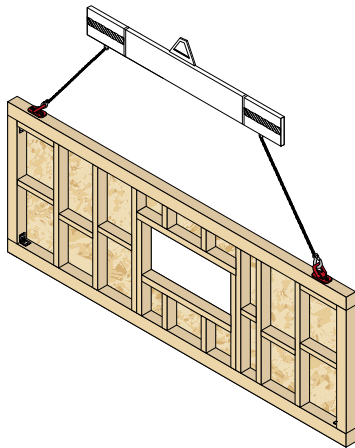
When lifting is complete, remove the screws and dispose of them. They can be used for a single lifting operation, except the VGS PL, which is reusable for transport under specific conditions. See the instructions.

LOAD DIRECTIONS ALLOWED

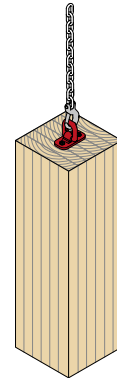


APPLICATION EXAMPLES

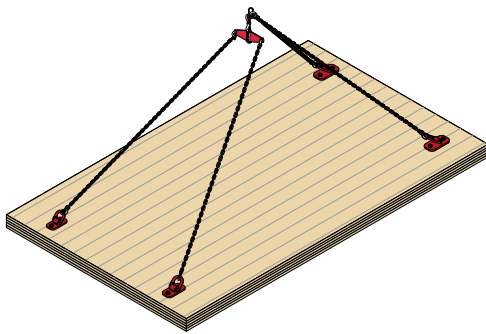
FRAME WALL



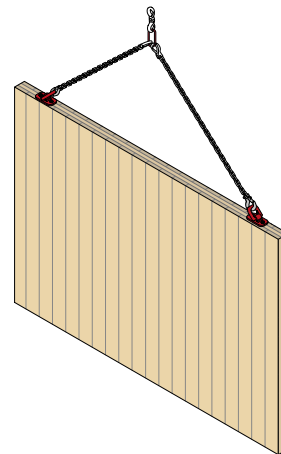
VERTICAL COLUMN



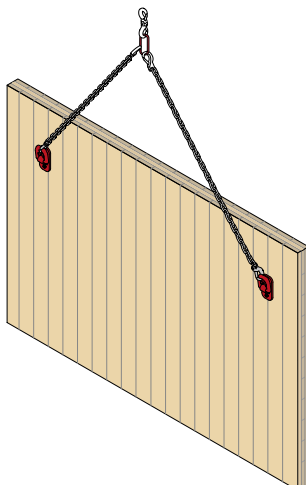
HORIZONTAL CLT PANEL



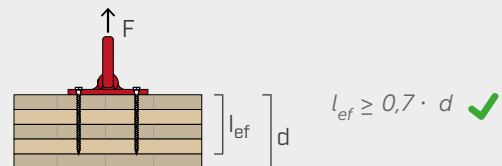
VERTICAL CLT PANEL - NARROW FACE



VERTICAL CLT PANEL - LATERAL FACE

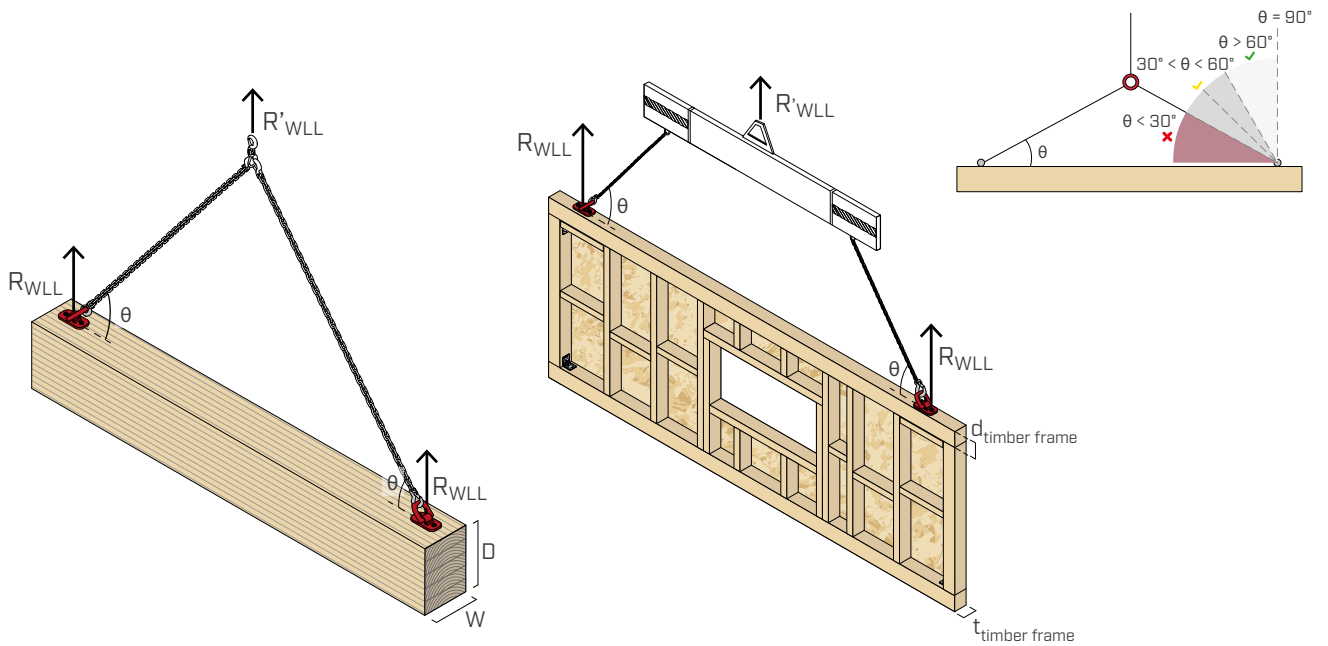


INFLUENCE OF THE RATIO OF SCREW LENGTH TO THE ELEMENT THICKNESS



For lifting applications with the load component perpendicular to the timber grain, in order to reach the maximum capacity of the lifting system, it is recommended to use screws longer than $0.7 \cdot d$ (d = depth of the timber element) to avoid cracking. In the event that the ratio is not fulfilled, critical shear and deflection checks can be carried out according to AWC-NDS Chapters 3 & 5.

LOAD VALUES | HORIZONTAL BEAM AND FRAME WALL

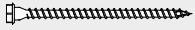


TOTAL RIGGING CAPACITY CALCULATION

$$R'_{WLL} = R_{WLL} \cdot n$$

R'_{WLL} = total system rigging capacity.
 R_{WLL} = reference rigging capacity for a single anchor system (provided in the tables).
 n = number of completely load-bearing anchor systems.

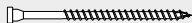
MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

VGS PLATE screw		no. of screws 	capacity R_{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
VGSP11160	11 x 60 0.44 x 2 3/8	2 	728	617	496	342
VGSP11180	11 x 80 0.44 x 3 1/8	2 	1014	838	661	452
VGSP11100	11 x 100 0.44 x 4	2 	1301	1047	805	540
VGSP11120	11 x 120 0.44 x 4 3/4	2 	1598	1224	904	595
VGSP11140	11 x 140 0.44 x 5 1/2	2 	1885	1389	1003	616
VGSP11160	11 x 160 0.44 x 6 1/4	2 	2183	1543	1091	626
VGSP11180	11 x 180 0.44 x 7 1/8	2 	2469	1698	1137	635
VGSP11200	11 x 200 0.44 x 8	2 	2767	1841	1171	643
VGSP11240	11 x 240 0.44 x 9 1/2	2 	3300	2116	1215	652
VGSP11280	11 x 280 0.44 x 11	2 	3300	2227	1249	658

θ = lifting angle

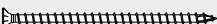
LOAD VALUES | HORIZONTAL BEAM AND FRAME WALL

MAXIMUM CAPACITY PER ANCHOR POINT WITH HBS PLATE SCREWS

HBS PLATE/HBS PLATE EVO screw	CODE	d x L [mm] [in]	no. of screws 	capacity R _{WLL} [lbs]			
				$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
HBSPLEVO1060		10 x 60 0.4 x 2 3/8	2 	683	584	463	320
HBSPL1080		10 x 80 0.4 x 3 1/8	2 	794	683	551	386
HBSPL10100		10 x 100 0.4 x 4	2 	992	838	661	452
HBSPL10120		10 x 120 0.4 x 4 3/4	2 	1257	1003	772	518
HBSPL10140		10 x 140 0.4 x 5 1/2	2 	1455	1124	838	551
HBSPL10160		10 x 160 0.4 x 6 1/4	2 	1720	1279	937	595
HBSPL10180		10 x 180 0.4 x 7 1/8	2 	1984	1422	1014	617

θ = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS SCREWS

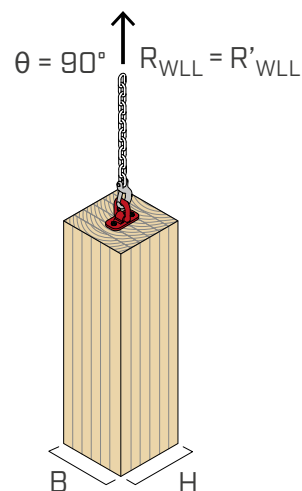
VGS screw	CODE	d x L [mm] [in]	no. of screws 	capacity R _{WLL} [lbs]			
				$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
VGS1180		11 x 80 0.44 x 3 1/8	2 	893	750	595	408
VGS11100		11 x 100 0.44 x 4	2 	1190	970	761	507
VGS11125		11 x 125 0.44 x 4 15/16	2 	1554	1202	893	584
VGS11150		11 x 150 0.44 x 6	2 	1918	1411	1014	638
VGS11175		11 x 175 0.44 x 6 7/8	2 	2282	1598	1124	649
VGS11200		11 x 200 0.44 x 8	2 	2646	1786	1194	660
VGS11225		11 x 225 0.44 x 8 7/8	2 	3009	1962	1224	667
VGS11250		11 x 250 0.44 x 10	2 	3300	2116	1256	673
VGS11275		11 x 275 0.44 x 10 7/8	2 	3300	2194	1276	677
VGS11300		11 x 300 0.44 x 11 3/4	2 	3300	2238	1294	681
VGS11325		11 x 325 0.44 x 12 3/4	2 	3300	2238	1301	682
VGS11350		11 x 350 0.44 x 13 3/4	2 	3300	2238	1301	682
VGS11375		11 x 375 0.44 x 14 3/4	2 	3300	2238	1301	682
VGS11400		11 x 400 0.44 x 15 3/4	2 	3300	2238	1301	682

θ = lifting angle

NOTES:

- For load capacities in Timber Frame applications refer to the rigging capacity table for "horizontal beam" considering possible reduction factors for different timber grades.
- For the calculation process a timber process a reference specific gravity of 0.42 has been considered..
- Minimum beam base $W \geq 4"$.
- Minimum beam base $d > 2 \frac{7}{8}"$.
- Minimum width of Timber Frame structure $t_{\text{timber frame}} \geq 4"$.
- Minimum thickness of Timber Frame structure $d_{\text{timber frame}} \geq 2 \frac{7}{8}"$.

LOAD VALUES | VERTICAL COLUMN



MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

VGS PLATE screw CODE	d x L [mm] [in]	no. of screws	capacity R_{WLL} [lbs] $\theta = 90^\circ$
VGSPL11100	11 x 100 0.44 x 4	2	330
VGSPL11120	11 x 120 0.44 x 4 3/4	2	409
VGSPL11140	11 x 140 0.44 x 5 1/2	2	487
VGSPL11160	11 x 160 0.44 x 6 1/4	2	565
VGSPL11180	11 x 180 0.44 x 7 1/8	2	656
VGSPL11200	11 x 200 0.44 x 8	2	747
VGSPL11240	11 x 240 0.44 x 9 1/2	2	903
VGSPL11280	11 x 280 0.44 x 11	2	1060

θ = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH HBS PLATE SCREWS

HBS PLATE/HBS PLATE EVO screw CODE	d x L [mm] [in]	no. of screws	capacity R_{WLL} [lbs] $\theta = 90^\circ$
HBSPL10100	10 x 100 0.4 x 4	2	233
HBSPL10120	10 x 120 0.4 x 4 3/4	2	308
HBSPL10140	10 x 140 0.4 x 5 1/2	2	366
HBSPL10160	10 x 160 0.4 x 6 1/4	2	436
HBSPL10180	10 x 180 0.4 x 7 1/8	2	517

θ = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS SCREWS

VGS screw CODE	d x L [mm] [in]	no. of screws	capacity R_{WLL} [lbs] $\theta = 90^\circ$
VGS11100	11 x 100 0.44 x 4	2	312
VGS11125	11 x 125 0.44 x 4 15/16	2	410
VGS11150	11 x 150 0.44 x 6	2	520
VGS11175	11 x 175 0.44 x 6 7/8	2	611
VGS11200	11 x 200 0.44 x 8	2	729
VGS11225	11 x 225 0.44 x 8 7/8	2	820
VGS11250	11 x 250 0.44 x 10	2	937

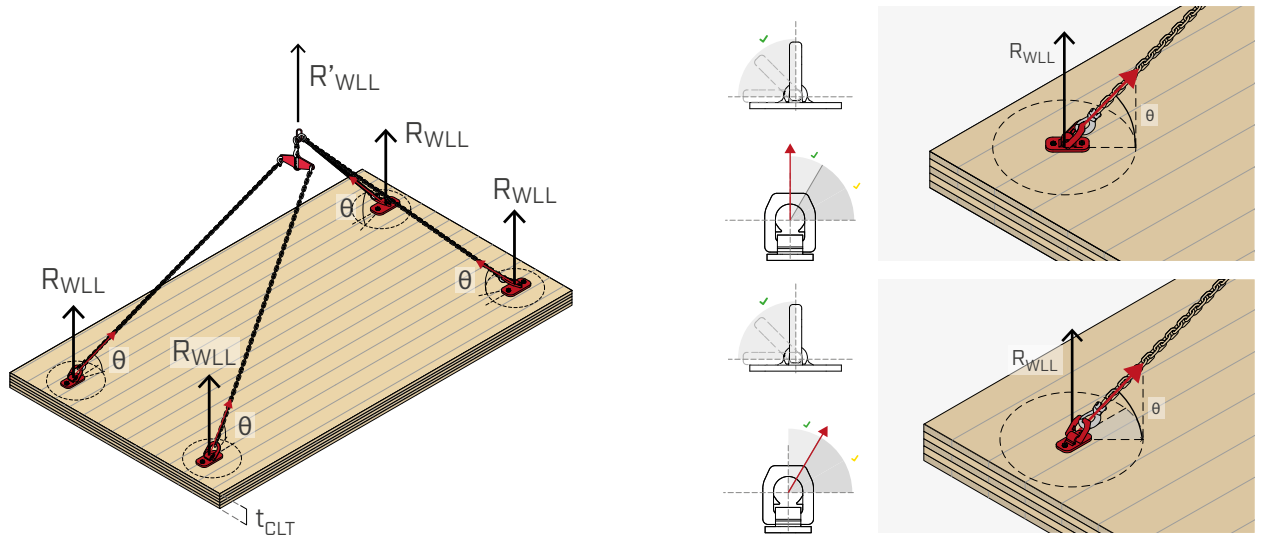
VGS screw CODE	d x L [mm] [in]	no. of screws	capacity R_{WLL} [lbs] $\theta = 90^\circ$
VGS11275	11 x 275 0.44 x 10 7/8	2	1028
VGS11300	11 x 300 0.44 x 11 3/4	2	1119
VGS11325	11 x 325 0.44 x 12 3/4	2	1223
VGS11350	11 x 350 0.44 x 13 3/4	2	1328
VGS11375	11 x 375 0.44 x 14 3/4	2	1432
VGS11400	11 x 400 0.44 x 15 3/4	2	1536

θ = lifting angle

NOTES:

- Load-bearing capacity and compliance with safety requirements have been verified through specific testing.
- Minimum column cross-section (B x H) 4" x 7 1/8".

RIGGING CAPACITY | HORIZONTAL CLT PANEL



TOTAL RIGGING CAPACITY CALCULATION

$$R'_{WLL} = R_{WLL} \cdot n$$

R'_{WLL} = total system rigging capacity.
 R_{WLL} = reference rigging capacity for a single anchor system (provided in the tables).
 n = number of completely load-bearing anchor systems.

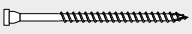
MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

VGS PLATE screw		no. of screws	capacity R_{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$	$90^\circ \geq \theta > 60^\circ$	$60^\circ \geq \theta > 45^\circ$	$45^\circ \geq \theta > 30^\circ$
VGSP11160	11 x 60 0.44 x 2 3/8	2 	672	573	463	308
VGSP11180	11 x 80 0.44 x 3 1/8	2 	937	783	606	379
VGSP11100	11 x 100 0.44 x 4	2 	1213	981	720	422
VGSP11120	11 x 120 0.44 x 4 3/4	2 	1477	1146	763	432
VGSP11140	11 x 140 0.44 x 5 1/2	2 	1753	1301	795	439
VGSP11160	11 x 160 0.44 x 6 1/4	2 	2017	1443	820	445
VGSP11180	11 x 180 0.44 x 7 1/8	2 	2293	1533	843	449
VGSP11200	11 x 200 0.44 x 8	2 	2557	1609	861	453
VGSP11240	11 x 240 0.44 x 9 1/2	2 	3097	1715	885	458
VGSP11280	11 x 280 0.44 x 11	2 	3300	1798	903	461

θ = lifting angle

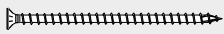
RIGGING CAPACITY | HORIZONTAL CLT PANEL

MAXIMUM CAPACITY PER ANCHOR POINT WITH **HBS PLATE** SCREWS

HBS PLATE/HBS PLATE EVO screw		no. of screws 	capacity R _{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
HBSPLEVO1060	10 x 60 0.4 x 2 3/8	2 	628	540	430	298
HBSPL1080	10 x 80 0.4 x 3 1/8	2 	728	628	507	332
HBSPL10100	10 x 100 0.4 x 4	2 	915	772	617	386
HBSPL10120	10 x 120 0.4 x 4 3/4	2 	1157	937	702	416
HBSPL10140	10 x 140 0.4 x 5 1/2	2 	1345	1047	738	425
HBSPL10160	10 x 160 0.4 x 6 1/4	2 	1587	1190	772	433
HBSPL10180	10 x 180 0.4 x 7 1/8	2 	1830	1334	802	439

θ = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH **VGS** SCREWS

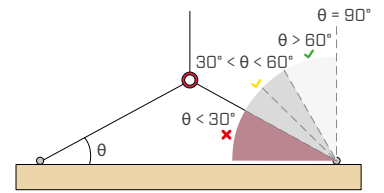
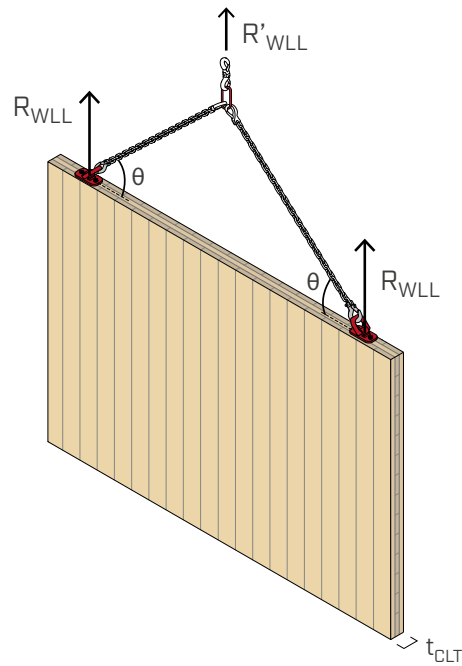
VGS screw		no. of screws 	capacity R _{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
VGS1180	11 x 80 0.44 x 3 1/8	2 	827	694	551	356
VGS11100	11 x 100 0.44 x 4	2 	1102	904	705	419
VGS11125	11 x 125 0.44 x 4 15/16	2 	1433	1124	763	432
VGS11150	11 x 150 0.44 x 6	2 	1775	1312	807	442
VGS11175	11 x 175 0.44 x 6 7/8	2 	2116	1491	833	447
VGS11200	11 x 200 0.44 x 8	2 	2447	1595	858	452
VGS11225	11 x 225 0.44 x 8 7/8	2 	2789	1661	873	455
VGS11250	11 x 250 0.44 x 10	2 	3120	1734	889	458
VGS11275	11 x 275 0.44 x 10 7/8	2 	3300	1782	900	460
VGS11300	11 x 300 0.44 x 11 3/4	2 	3300	1825	908	462
VGS11325	11 x 325 0.44 x 12 3/4	2 	3300	1843	912	463
VGS11350	11 x 350 0.44 x 13 3/4	2 	3300	1843	912	463
VGS11375	11 x 375 0.44 x 14 3/4	2 	3300	1843	912	463
VGS11400	11 x 400 0.44 x 15 3/4	2 	3300	1843	912	463

θ = lifting angle

NOTES:

- When transporting horizontal CLT panels, the ratio of timber thickness to screw length can affect the load-bearing capacity.
- The load-bearing capacity values given are per single anchorage point.
- In order to consider all fastening points as fully load-bearing, it is necessary to ensure that the load is evenly distributed over all fastening points by means of suitable compensating systems.
- Minimum wall thickness: $t_{CLT} \geq 3 \frac{1}{8}"$.

RIGGING CAPACITY | VERTICAL CLT PANEL - NARROW FACE

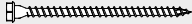


TOTAL RIGGING CAPACITY CALCULATION

$$R'_{WLL} = R_{WLL} \cdot n$$

R'_{WLL} = total system rigging capacity.
 R_{WLL} = reference rigging capacity for a single anchor system (provided in the tables).
 n = number of completely load-bearing anchor systems.

MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

VGS PLATE screw		no. of screws 	capacity R_{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
VGSPL1160	11 x 60 0.44 x 2 3/8	2 	474	375	287	187
VGSPL1180	11 x 80 0.44 x 3 1/8	2 	650	507	375	243
VGSPL11100	11 x 100 0.44 x 4	2 	816	617	452	283
VGSPL11120	11 x 120 0.44 x 4 3/4	2 	981	739	511	290
VGSPL11140	11 x 140 0.44 x 5 1/2	2 	1135	849	533	294
VGSPL11160	11 x 160 0.44 x 6 1/4	2 	1290	926	550	298
VGSPL11180	11 x 180 0.44 x 7 1/8	2 	1444	1014	565	301
VGSPL11200	11 x 200 0.44 x 8	2 	1598	1078	577	304
VGSPL11240	11 x 240 0.44 x 9 1/2	2 	1896	1149	593	307
VGSPL11280	11 x 280 0.44 x 11	2 	2194	1205	605	309

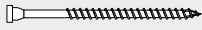
θ = lifting angle

NOTES:

- Minimum wall thickness: $t_{CLT} \geq 4"$.
- Be careful not to insert the screw into the glue of the CLT panel.

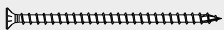
RIGGING CAPACITY | VERTICAL CLT PANEL - NARROW FACE

MAXIMUM CAPACITY PER ANCHOR POINT WITH HBS PLATE SCREWS

HBS PLATE / HBS PLATE EVO screw		no. of screws 	capacity R _{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
HBSPLEVO1060	10 x 60 0.4 x 2 3/8	2 	463	364	265	176
HBSPL1080	10 x 80 0.4 x 3 1/8	2 	518	419	320	220
HBSPL10100	10 x 100 0.4 x 4	2 	639	507	386	254
HBSPL10120	10 x 120 0.4 x 4 3/4	2 	794	617	463	279
HBSPL10140	10 x 140 0.4 x 5 1/2	2 	904	705	495	285
HBSPL10160	10 x 160 0.4 x 6 1/4	2 	1047	794	517	290
HBSPL10180	10 x 180 0.4 x 7 1/8	2 	1202	871	537	294

θ = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS SCREWS

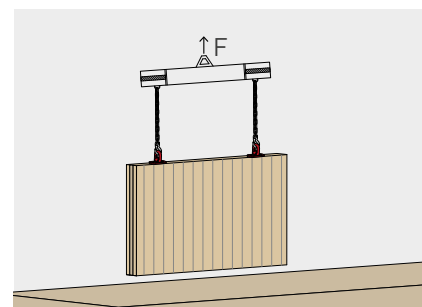
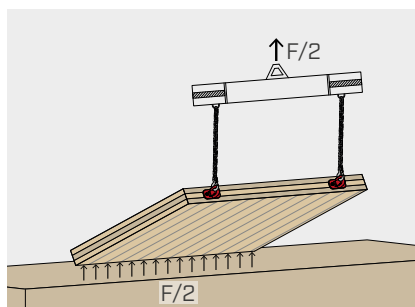
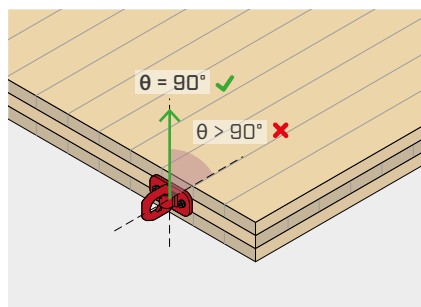
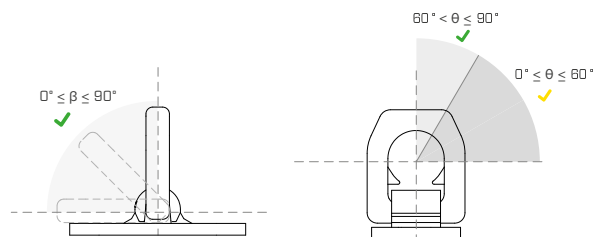
VGS screw		no. of screws 	capacity R _{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
VGS1180	11 x 80 0.44 x 3 1/8	2 	584	463	342	231
VGS11100	11 x 100 0.44 x 4	2 	750	573	419	276
VGS11125	11 x 125 0.44 x 4 15/16	2 	948	717	518	297
VGS11150	11 x 150 0.44 x 6	2 	1146	849	552	304
VGS11175	11 x 175 0.44 x 6 7/8	2 	1345	959	571	308
VGS11200	11 x 200 0.44 x 8	2 	1543	1058	588	311
VGS11225	11 x 225 0.44 x 8 7/8	2 	1731	1134	599	313
VGS11250	11 x 250 0.44 x 10	2 	1918*	1184	611	315
VGS11275	11 x 275 0.44 x 10 7/8	2 	2105*	1218	618	317
VGS11300	11 x 300 0.44 x 11 3/4	2 	2282*	1248	624	318
VGS11325	11 x 325 0.44 x 12 3/4	2 	2469*	1278	630	319
VGS11350	11 x 350 0.44 x 13 3/4	2 	2646*	1304	635	320
VGS11375	11 x 375 0.44 x 14 3/4	2 	2822*	1328	640	321
VGS11400	11 x 400 0.44 x 15 3/4	2 	3009*	1349	644	321

θ = lifting angle

(*) In the case of lifting from a horizontal position, the strength during "tilting" becomes governed. In this case, the strength must be reduced by applying a reduction coefficient of 0.8.

RIGGING CAPACITY | LIFTING PANEL/CLT WALL FROM A HORIZONTAL POSITION.

For lifting CLT walls from a horizontal to a vertical position, the load capacities indicated in the table above apply (VERTICAL CLT PANEL FROM EDGE), applying the reduction coefficient where necessary. During the "tipping" phase, however, the fixed support of the underside of the wall must be ensured so that half of the load is transferred to the ground.



Lifting range

Solutions engineered for the safe lifting and handling of timber elements.
The product range includes devices designed to accommodate different load configurations and on-site handling requirements.



RAPTOR MINI



RAPTOR



RAPTOR MAXI



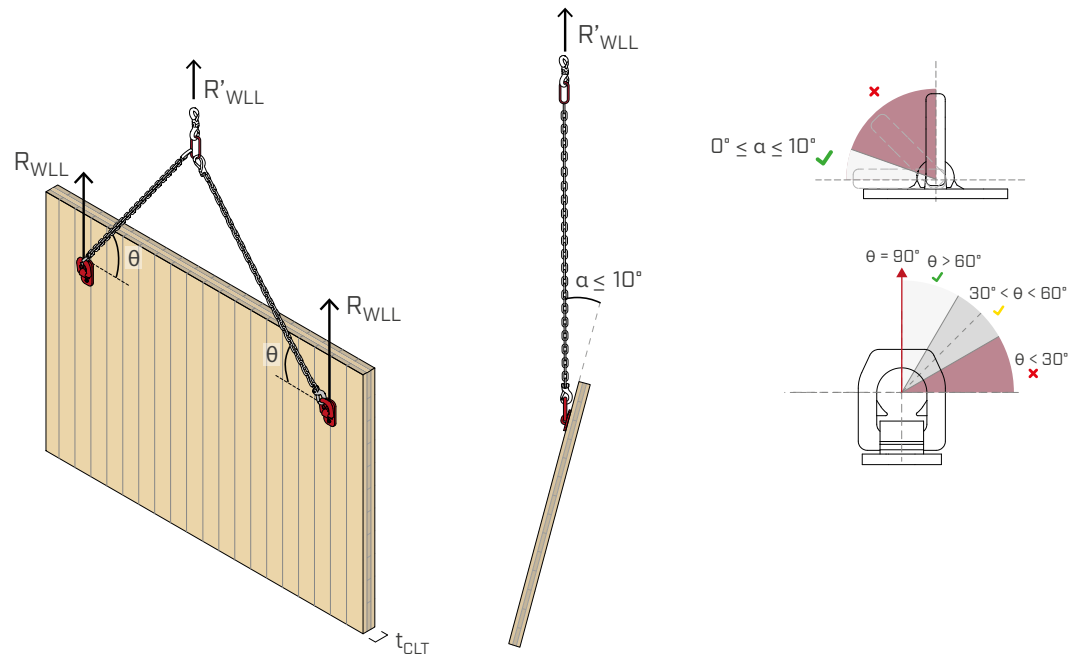
WASP

The comprehensive technical documentation is available at www.rothoblaas.com



rothoblaas.it

RIGGING CAPACITY | VERTICAL CLT PANEL - LATERAL FACE

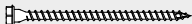


TOTAL RIGGING CAPACITY CALCULATION

$$R'_{WLL} = R_{WLL} \cdot n$$

R'_{WLL} = total system rigging capacity.
 R_{WLL} = reference rigging capacity for a single anchor system (provided in the tables).
 n = number of completely load-bearing anchor systems.

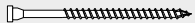
MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

VGS PLATE screw		no. of screws		capacity R_{WLL} [lbs]			
CODE	d x L [mm] [in]			$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
VGSP11160	11 x 60 0.44 x 2 3/8	2		538	342	220	132
VGSP11180	11 x 80 0.44 x 3 1/8	2		636	463	298	176
VGSP11100	11 x 100 0.44 x 4	2		685	573	386	231
VGSP11120	11 x 120 0.44 x 4 3/4	2		685	594	452	276
VGSP11140	11 x 140 0.44 x 5 1/2	2		685	594	485	320
VGSP11160	11 x 160 0.44 x 6 1/4	2		685	594	485	343
VGSP11180	11 x 180 0.44 x 7 1/8	2		685	594	485	343
VGSP11200	11 x 200 0.44 x 8	2		685	594	485	343
VGSP11240	11 x 240 0.44 x 9 1/2	2		685	594	485	343
VGSP11280	11 x 280 0.44 x 11	2		685	594	485	343

θ = lifting angle

RIGGING CAPACITY | VERTICAL CLT PANEL - LATERAL FACE

MAXIMUM CAPACITY PER ANCHOR POINT WITH HBS PLATE SCREWS

HBS PLATE/HBS PLATE EVO screw		no. of screws 	capacity R _{WLL} [lbs]			
CODE	d x L [mm] [in]		$\theta = 90^\circ$ 	$90^\circ \geq \theta > 60^\circ$ 	$60^\circ \geq \theta > 45^\circ$ 	$45^\circ \geq \theta > 30^\circ$ 
HBSPLEVO1060	10 x 60 0.4 x 2 3/8	2 	536	320	209	121
HBSPL1080	10 x 80 0.4 x 3 1/8	2 	574	386	243	143
HBSPL10100	10 x 100 0.4 x 4	2 	653	463	298	176
HBSPL10120	10 x 120 0.4 x 4 3/4	2 	681	551	364	220
HBSPL10140	10 x 140 0.4 x 5 1/2	2 	681	590	408	254
HBSPL10160	10 x 160 0.4 x 6 1/4	2 	681	590	474	287
HBSPL10180	10 x 180 0.4 x 7 1/8	2 	681	590	482	331

θ = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS SCREWS

CODE		no. of screws 	capacity R _{WLL} [lbs]			
VGS screw			$\theta = 90^\circ$	$90^\circ \geq \theta > 60^\circ$	$60^\circ \geq \theta > 45^\circ$	$45^\circ \geq \theta > 30^\circ$
d x L [mm]						
VGS1180	11 x 80 0.44 x 3 1/8	2 	599	419	265	165
VGS11100	11 x 100 0.44 x 4	2 	685	540	353	209
VGS11125	11 x 125 0.44 x 4 15/16	2 	685	594	441	265
VGS11150	11 x 150 0.44 x 6	2 	685	594	485	320
VGS11175	11 x 175 0.44 x 6 7/8	2 	685	594	485	343
VGS11200	11 x 200 0.44 x 8	2 	685	594	485	343
VGS11225	11 x 225 0.44 x 8 7/8	2 	685	594	485	343
VGS11250	11 x 250 0.44 x 10	2 	685	594	485	343

θ = lifting angle

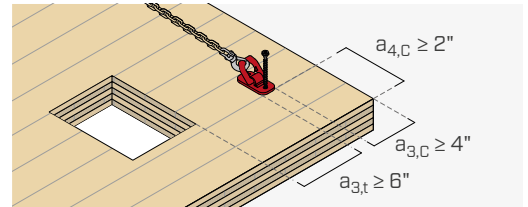
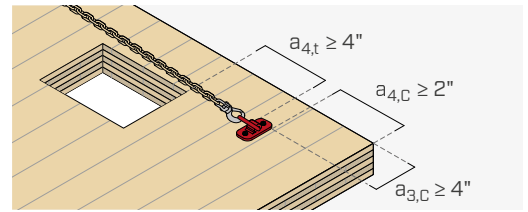
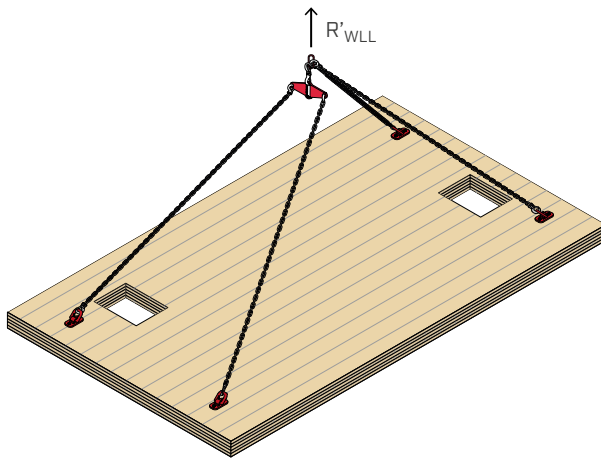
NOTES:

- Minimum wall thickness: $t_{CLT} \geq 2 \frac{1}{2}"$.
- Due to the single-sided fastening, the wall will tilt slightly. It is advisable to fix the transport plates as high as possible, maintaining minimum distances

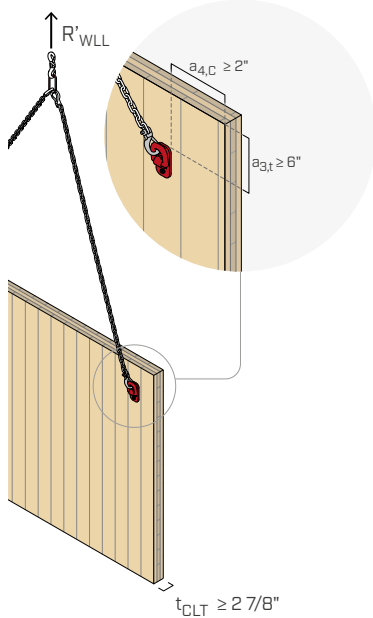
from the ends, in order to limit this phenomenon. It is suggested to limit the tilt angle within 10° of the vertical.

MINIMUM DISTANCES

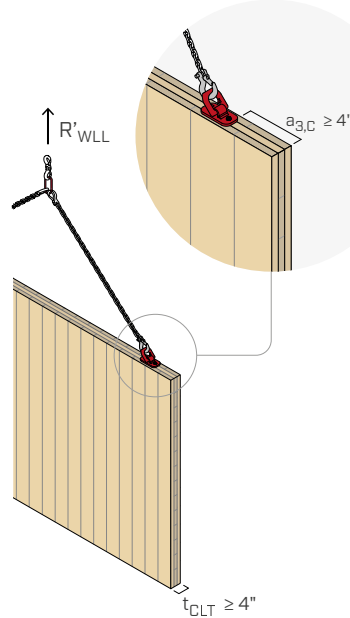
CLT FLOOR



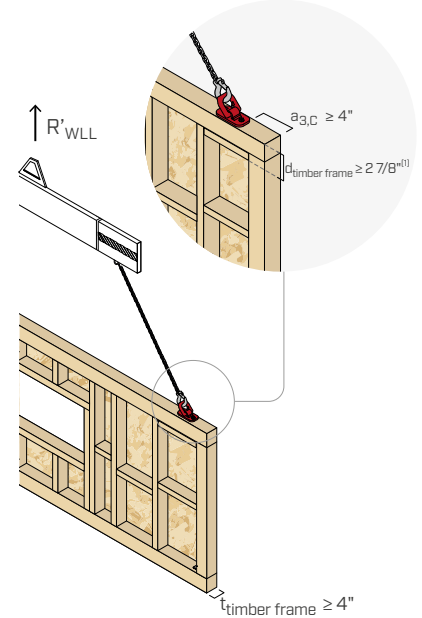
VERTICAL CLT WALL LATERAL FACE



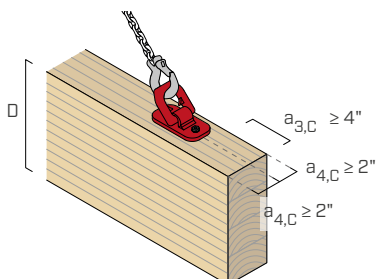
VERTICAL CLT WALL NARROW FACE



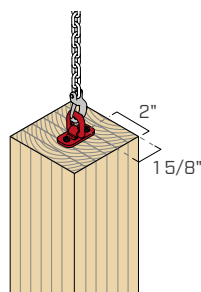
FRAME WALL



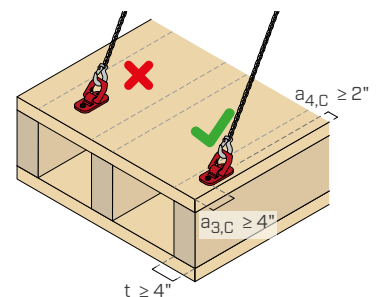
HORIZONTAL BEAM



VERTICAL COLUMN



RIBBED FLOORS



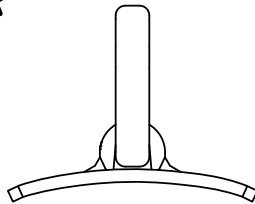
NOTES:

- ⁽¹⁾ For beams of reduced thickness, consider inserting a reinforcing timber element such that the minimum thickness of fixture is achieved.
- Minimum Distance in accordance with ICC Evaluation Report ESR-4645.
 - The minimum distances shown are valid for screws inserted without pre-drilling hole.
 - Minimum distances must be adjusted for wood species with a specific gravity exceeding 0.48.

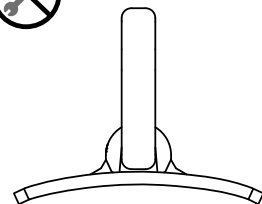
MAINTENANCE



Always follow the instructions in the manual.



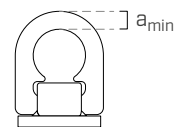
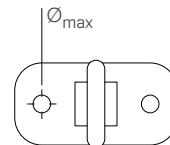
Visual inspection before each use. If there are any defects, the product must not be used again.



Repairs are not permitted!

DIMENSIONS TO BE CHECKED

CODE	$\varnothing_{\max}$		$a_{\min}$	
	[mm]	[in]	[mm]	[in]
RAPMINI	13,5	0.53	12,5	0.49



GENERAL PRINCIPLES:

- The choice of fastener length is to be based each time on the dimensions of the wooden element, on the fastener's positioning, on the lift angle, on the weight of the load to be lifted and the arrangement of the lifting plate. In all cases, it is recommended that the connectors have greater length than the minimum required, but such that the tip does not protrude from the element to be lifted.
- The rigging capacity values (WLL) provided are based on calculations made according to ICC-ES Evaluation Report ESR-4645, the AWC-NDS 2018, AWC Technical Report 12, and the results of tests performed. Values provided in accordance with OSHA section 1926.753(e)(2), design values in accordance with OSHA section 1910.253(c)(26), with a safety factor meeting or exceeding 5.0 to maintain consistency across design approaches.
- A Specific Gravity of $G = 0.42$ was considered in the calculation. For application with different timber species and Specific Gravity the conversion table with the modification factors shall be used. The calculated value must never exceed the maximum capacity of the plate of 3300 lb.

Specific Gravity [G]	Modification Factor
0.35	0.85
0.42	1.00
0.49	1.10
0.55	1.20

- All values of screw capacity are adjusted by a dynamic acceleration factor of 1/1.1, a load duration factor $CD = 1.25$, temperature factor $Ct = 1.0$, and wet service factor $CM = 1.0$, and assume screws are installed on-site directly prior to lifting.
- Checks for potential reductions in strength due to possible brittle failure related to the geometry of the lifted element must be conducted separately in accordance with AWC-NDS, particularly in scenarios where less than 70% of the beam depth is engaged by the fastener.
- All CLT calculations assume a load-to-grain angle of 90° , regardless of orientation, with no dowel length reductions considered for edge-grain lifting.

- For lifting plate rigging capacity calculation in installation configurations other than those indicated here, contact Rothoblaas Technical Department.
- To conform with the fatigue limits of Service Class 0 of ASME BTH01-2023, no RAPTOR MINI lifting device may be used for more than 20,000 load cycles.
- The rigging capacity values provided are calculated in the case of the plate fixed with screws inserted without pre-drilling. In accordance with ICC Evaluation Report ESR-4645. All minimum distance specifications must be increased for specific gravity values greater than 0.48.
- Fasteners must be installed in accordance with their relevant installation guide to avoid damage and maintain full performance in accordance to their design strength parameters.
- The use of pulse screw guns/impact wrenches is not permitted. Respect the insertion angle with the help of a pilot hole and/or installation template. Avoid bending. Ensure correct tightening. We recommend the use of torque-controlled screwdrivers, e.g. with TORQUE LIMITER. Alternatively, tighten with a torque wrench.
- The values indicated in the data sheet for the transport plate fixed with HBS PLATE screws have been calculated considering the geometry and mechanical parameters of the HBS PL version.
- HBS PLATE and VGS screws may only be used once. Once tightened and loaded, the screws must not be loosened and used a second time to secure the transport plate. As soon as the timber element to be transported has been lifted to its final position and the transport plate is no longer needed for this purpose, the screws must be unscrewed and disposed of properly.
- The VGS PLATE is the only fastener eligible for reuse. Refer to the technical data sheets and instruction manuals for VGS PLATE and the corresponding JIG REUSE when using either with the RAPTOR Mini device.
- The lifting plate may only be used by qualified personnel. The user manual (supplied as a QR code on the product and available at www.rothoblaas.com) must be read and understood before use. The information and instructions contained therein must be followed. If in doubt, contact the Rothoblaas Technical Department before use.