

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 certified according to the Machinery Directive 2006/42/EC for weights up to 1.5 tonnes.

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.



FIELDS OF USE

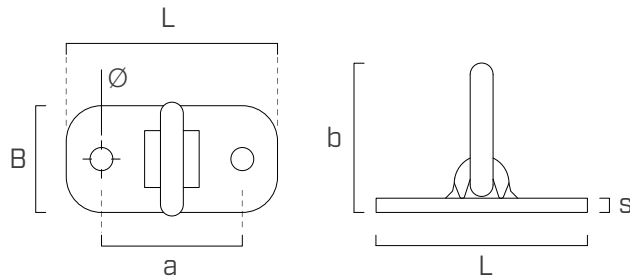
- Prefabricated timber frame walls
- Solid timber or glulam beams
- CLT panels for floor or wall
- Timber supports and columns
- Lightweight constructions for prefabricated roofs

CODE

CODE	plate sizes	max. capacity	suitable screws	pcs
RAPMINI	60 x 120 mm 2 5/16" x 4 3/4"	1500 kg 3300 lbs	VGS PLATE Ø11 mm 0.44 in HBS PLATE/HBS PLATE EVO Ø10 mm 0.40 in VGS Ø11 mm 0.44 in (+ HUS10)	1

DIMENSIONS

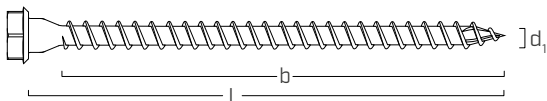
CODE	B	L	s	Ø	a	b	B	L	s	Ø	a	b
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[in]	[in]	[in]	[in]	[in]	[in]
RAPMINI	60	120	8	13	80	84	2 5/16	4 3/4	5/16	1/2	3 1/8	3 5/16



COMPATIBLE SCREWS

VGS PLATE

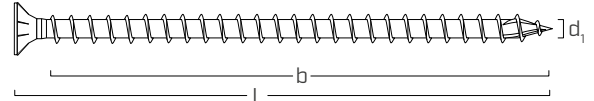
pan head screw for lifting



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

VGS

full thread screw with countersunk head

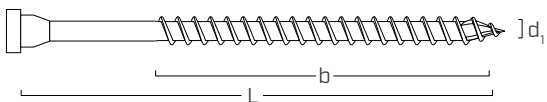


d ₁	CODE	L	b	L	b	pcs
[mm] [in]		[mm]	[mm]	[in]	[in]	
11 0.44 TX 50	VGS1180	80	70	3 1/8	2 3/4	25
	VGS11100	100	90	4	3 1/2	25
	VGS11125	125	115	4 15/16	4 1/2	25
	VGS11150	150	140	6	5 1/2	25
	VGS11175	175	165	6 7/8	6 1/2	25
	VGS11200	200	190	8	7 1/2	25
	VGS11225	225	215	8 7/8	8 7/16	25
	VGS11250	250	240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

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

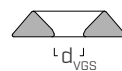
HBS PLATE - HBS PLATE EVO

pan head screw for plates



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

HUS - turned washer

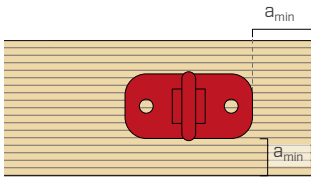


CODE	d _{VGS}	pcs
	[mm] [in]	
HUS10	11 0.44	50

RAPTOR MINI INSTALLATION



HBSP L Ø10 $M_{ins,max} = 35 \text{ Nm}$
VGS | VSGPL Ø11 $M_{ins,max} = 30 \text{ Nm}$



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.

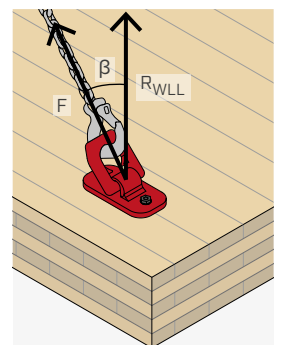
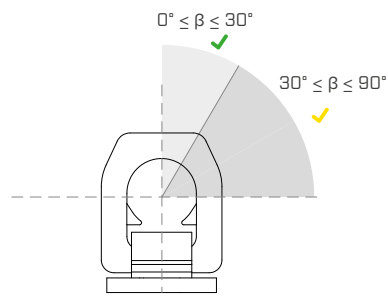
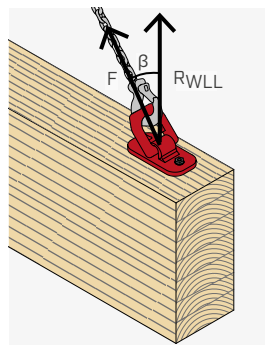
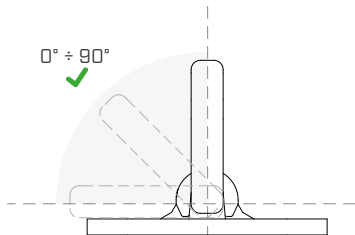
3

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

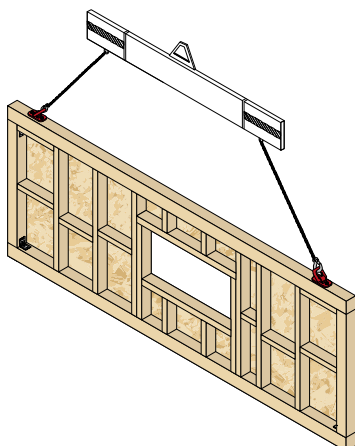
When lifting is complete, remove the screws and dispose of them. They can be used for a single lifting operation, except the VGS PL, which is reusable for transport under specific conditions. See the instructions.

LOAD DIRECTIONS ALLOWED

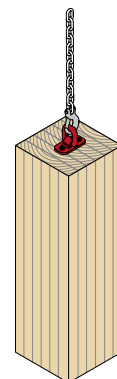


APPLICATION EXAMPLES

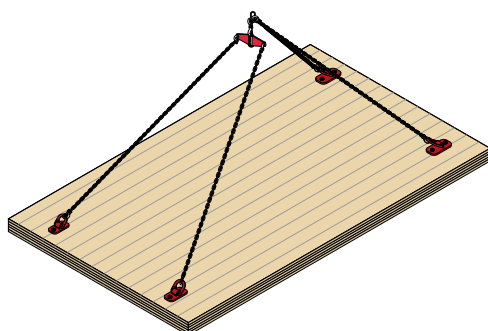
FRAME WALL



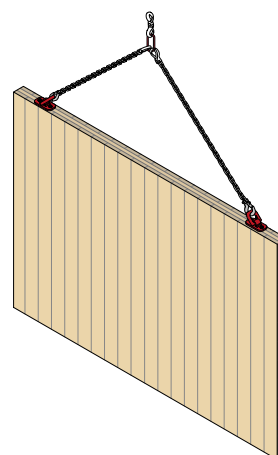
VERTICAL COLUMN



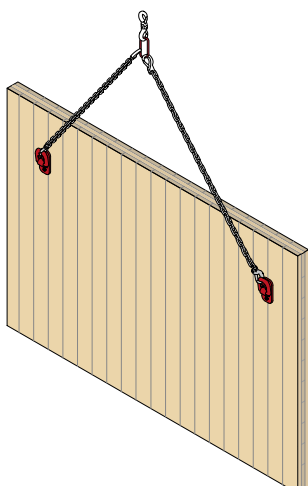
HORIZONTAL CLT PANEL



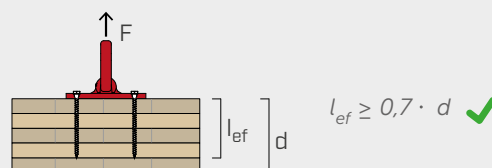
VERTICAL CLT PANEL - NARROW FACE



VERTICAL CLT PANEL - LATERAL FACE



INFLUENCE OF THE RATIO OF SCREW LENGTH TO THE ELEMENT THICKNESS



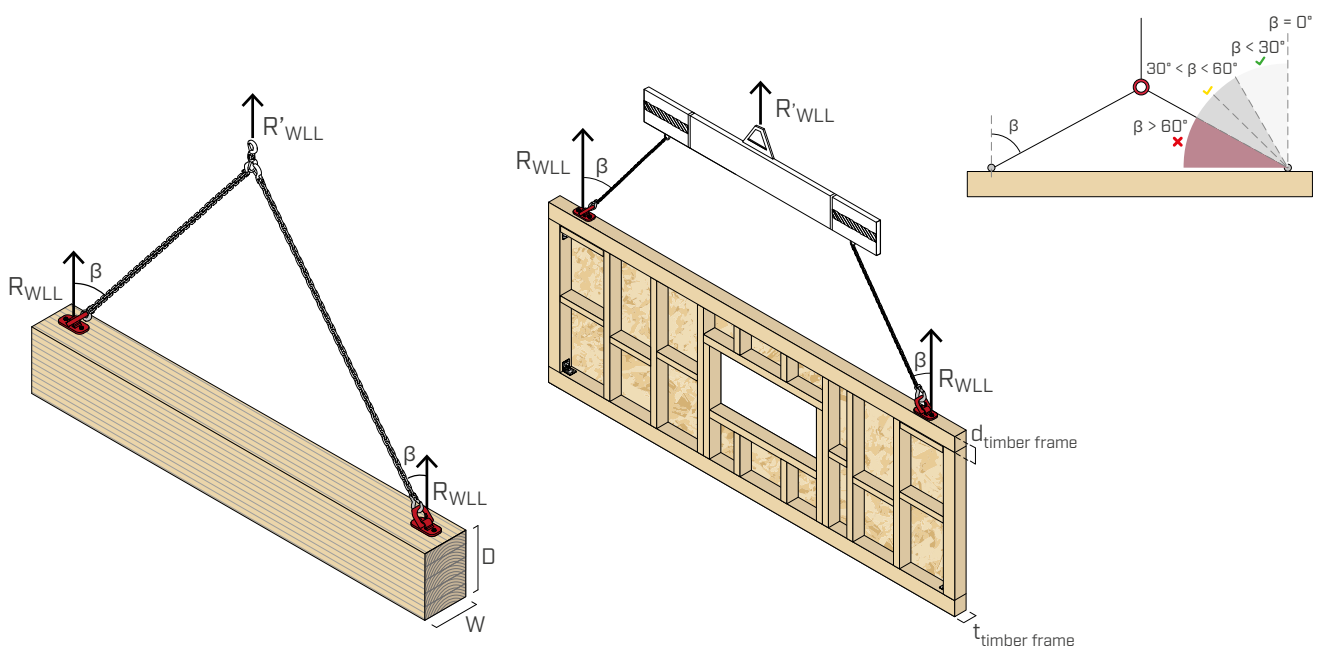
For lifting applications with the load component perpendicular to the timber grain, in order to reach the maximum capacity of the lifting system, it is recommended to use screws longer than $0.7 \cdot d$ (d = depth of the timber element) to avoid cracking. In the event that the ratio is not fulfilled, brittle fracture checks can be carried out according to DIN EN 1995-1-1/NA.

R_{WLL} = reference rigging capacity for a single anchor system

R'_{WLL} = total system rigging capacity

β = lifting angle (angle between vertical axis and chain)

LOAD VALUES | HORIZONTAL BEAM AND FRAME WALL

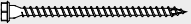


TOTAL RIGGING CAPACITY CALCULATION

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

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.

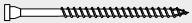
MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

CODE VGS PLATE screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGSP1160 11 x 60	2 	330	280	225	155
VGSP1180 11 x 80	2 	460	380	300	205
VGSP11100 11 x 100	2 	590	475	365	245
VGSP11120 11 x 120	2 	725	555	410	270
VGSP11140 11 x 140	2 	855	630	455	290
VGSP11160 11 x 160	2 	990	700	495	315
VGSP11180 11 x 180	2 	1120	770	535	335
VGSP11200 11 x 200	2 	1255	835	575	360
VGSP11240 11 x 240	2 	1500	960	650	400
VGSP11280 11 x 280	2 	1500	1010	700	435

β = lifting angle

LOAD VALUES | HORIZONTAL BEAM AND FRAME WALL

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

CODE HBS PLATE/ HBS PLATE EVO screw d x L [mm]	no. of screws 	capacity R _{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
HBSPLEVO1060 10 x 60	2 	310	265	210	145
HBSPL1080 10 x 80	2 	360	310	250	175
HBSPL10100 10 x 100	2 	450	380	300	205
HBSPL10120 10 x 120	2 	570	455	350	235
HBSPL10140 10 x 140	2 	660	510	380	250
HBSPL10160 10 x 160	2 	780	580	425	270
HBSPL10180 10 x 180	2 	900	645	460	295

β = lifting angle

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

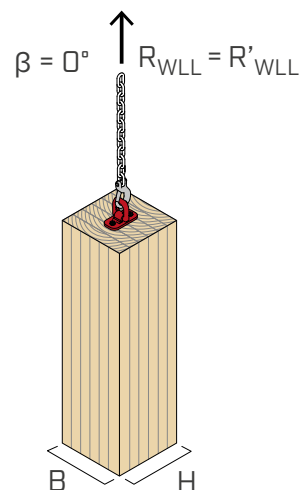
CODE VGS screw d x L [mm]	no. of screws 	capacity R _{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGS1180 11 x 80	2 	405	340	270	185
VGS11100 11 x 100	2 	540	440	345	230
VGS11125 11 x 125	2 	705	545	405	265
VGS11150 11 x 150	2 	870	640	460	295
VGS11175 11 x 175	2 	1035	725	510	320
VGS11200 11 x 200	2 	1200	810	560	350
VGS11225 11 x 225	2 	1365	890	610	375
VGS11250 11 x 250	2 	1500	960	650	400
VGS11275 11 x 275	2 	1500	995	685	425
VGS11300 11 x 300	2 	1500	1015	705	440
VGS11325 11 x 325	2 	1500	1015	705	440
VGS11350 11 x 350	2 	1500	1015	705	440
VGS11375 11 x 375	2 	1500	1015	705	440
VGS11400 11 x 400	2 	1500	1015	705	440

β = 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 characteristic density $\rho_k = 385 \text{ kg/m}^3$ has been considered.
- Minimum beam base $W \geq 100 \text{ mm}$.
- Minimum beam base $D \geq 80 \text{ mm}$.
- Minimum width of Timber Frame structure $t_{\text{timber frame}} \geq 100 \text{ mm}$.
- Minimum thickness of Timber Frame structure $d_{\text{timber frame}} \geq 80 \text{ mm}$.

LOAD VALUES | VERTICAL COLUMN



MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

CODE VGS PLATE screw d x L [mm]	no. of screws	capacity R_{WLL} [kg] $\beta = 0^\circ$
VGSPL11100 11 x 100	2	175 ^(*)
VGSPL11120 11 x 120	2	215 ^(*)
VGSPL11140 11 x 140	2	255 ^(*)
VGSPL11160 11 x 160	2	295 ^(*)
VGSPL11180 11 x 180	2	335 ^(*)
VGSPL11200 11 x 200	2	375 ^(*)
VGSPL11240 11 x 240	2	455
VGSPL11280 11 x 280	2	535

β = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH HBS PLATE SCREWS

CODE HBS PLATE/ HBS PLATE EVO screw d x L [mm]	no. of screws	capacity R_{WLL} [kg] $\beta = 0^\circ$
HBSPL10100 10 x 100	2	135 ^(*)
HBSPL10120 10 x 120	2	170 ^(*)
HBSPL10140 10 x 140	2	195 ^(*)
HBSPL10160 10 x 160	2	230 ^(*)
HBSPL10180 10 x 180	2	270 ^(*)

β = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS SCREWS

CODE VGS screw d x L [mm]	no. of screws	capacity R_{WLL} [kg] $\beta = 0^\circ$
VGS11100 11 x 100	2	160 ^(*)
VGS11125 11 x 125	2	210 ^(*)
VGS11150 11 x 150	2	260 ^(*)
VGS11175 11 x 175	2	310 ^(*)
VGS11200 11 x 200	2	360 ^(*)
VGS11225 11 x 225	2	410 ^(*)
VGS11250 11 x 250	2	455

CODE VGS screw d x L [mm]	no. of screws	capacity R_{WLL} [kg] $\beta = 0^\circ$
VGS11275 11 x 275	2	505
VGS11300 11 x 300	2	555
VGS11325 11 x 325	2	605
VGS11350 11 x 350	2	655
VGS11375 11 x 375	2	705
VGS11400 11 x 400	2	755

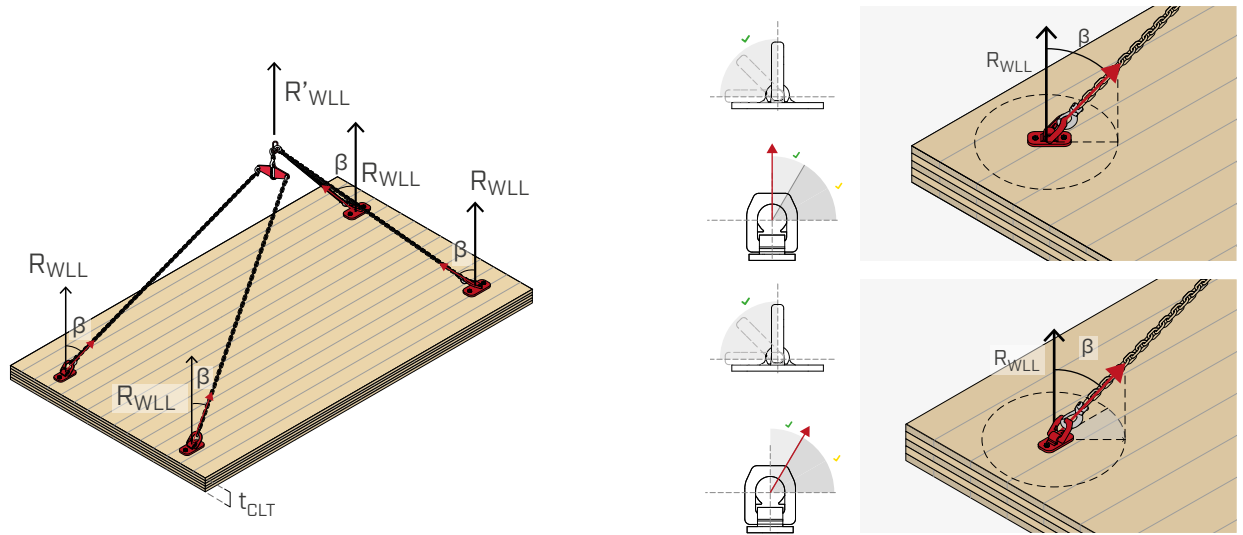
β = lifting angle

NOTES:

- (*) In the marked configurations, the minimum screw length is shorter than that specified in ETA-11/0030. However, load-bearing capacity and compliance with safety requirements have been verified through specific testing.

- Minimum column cross-section (B x H) 100x160 mm.

RIGGING CAPACITY | HORIZONTAL CLT PANEL

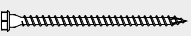


TOTAL RIGGING CAPACITY CALCULATION

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

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.

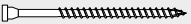
MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

CODE VGS PLATE screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGSP1160 11 x 60	2 	305	260	210	145
VGSP1180 11 x 80	2 	425	355	275	190
VGSP11100 11 x 100	2 	550	445	340	230
VGSP11120 11 x 120	2 	670	520	385	250
VGSP11140 11 x 140	2 	795	590	425	275
VGSP11160 11 x 160	2 	915	655	465	295
VGSP11180 11 x 180	2 	1040	720	505	315
VGSP11200 11 x 200	2 	1160	780	540	335
VGSP11240 11 x 240	2 	1405	900	610	375
VGSP11280 11 x 280	2 	1500	975	665	410

β = lifting angle

RIGGING CAPACITY | HORIZONTAL CLT PANEL

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

CODE HBS PLATE/HBS PLATE EVO screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
HBSPLEVO1060 10 x 60	2 	285	245	195	135
HBSPL1080 10 x 80	2 	330	285	230	160
HBSPL10100 10 x 100	2 	415	350	280	195
HBSPL10120 10 x 120	2 	525	425	325	220
HBSPL10140 10 x 140	2 	610	475	360	235
HBSPL10160 10 x 160	2 	720	540	395	255
HBSPL10180 10 x 180	2 	830	605	430	275

β = lifting angle

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

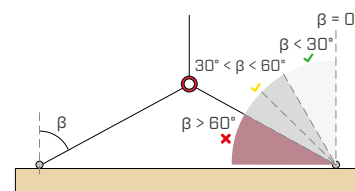
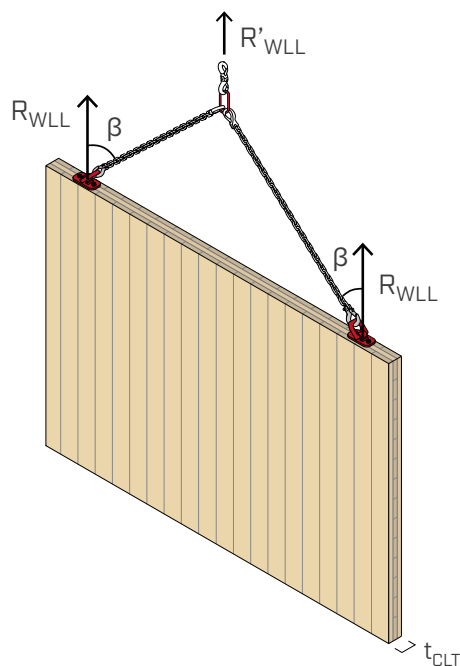
CODE VGS screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGS1180 11 x 80	2 	375	315	250	170
VGS11100 11 x 100	2 	500	410	320	215
VGS11125 11 x 125	2 	650	510	380	250
VGS11150 11 x 150	2 	805	595	430	275
VGS11175 11 x 175	2 	960	680	480	300
VGS11200 11 x 200	2 	1110	755	525	330
VGS11225 11 x 225	2 	1265	830	570	350
VGS11250 11 x 250	2 	1415	905	610	375
VGS11275 11 x 275	2 	1500	960	650	400
VGS11300 11 x 300	2 	1500	990	680	420
VGS11325 11 x 325	2 	1500	1005	695	430
VGS11350 11 x 350	2 	1500	1005	695	430
VGS11375 11 x 375	2 	1500	1005	695	430
VGS11400 11 x 400	2 	1500	1005	695	430

β = 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: $t_{CLT} \geq 100$ mm.

RIGGING CAPACITY | VERTICAL CLT PANEL - NARROW FACE

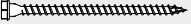


TOTAL RIGGING CAPACITY CALCULATION

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

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

CODE VGS PLATE screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGSP1160 11 x 60	2 	215	170	130	85
VGSP1180 11 x 80	2 	295	230	170	110
VGSP11100 11 x 100	2 	370	280	205	135
VGSP11120 11 x 120	2 	445	335	245	155
VGSP11140 11 x 140	2 	515	385	280	180
VGSP11160 11 x 160	2 	585	420	300	190
VGSP11180 11 x 180	2 	655	460	320	200
VGSP11200 11 x 200	2 	725	495	345	215
VGSP11240 11 x 240	2 	860	560	380	235
VGSP11280 11 x 280	2 	995 ^(*)	625	420	255

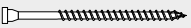
β = lifting angle

NOTES:

- Minimum wall thickness: $t_{CLT} \geq 100$ mm.
- Be careful not to insert the screw into the glue of the CLT panel.

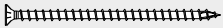
RIGGING CAPACITY | VERTICAL CLT PANEL - NARROW FACE

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

CODE HBS PLATE / HBS PLATE EVO screw VGS PLATE screw d x L [mm]	no. of screws 	capacity R _{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
HBSPLEVO1060 10 x 60	2 	210	165	120	80
HBSPL1080 10 x 80	2 	235	190	145	100
HBSPL10100 10 x 100	2 	290	230	175	115
HBSPL10120 10 x 120	2 	360	280	210	135
HBSPL10140 10 x 140	2 	410	320	240	155
HBSPL10160 10 x 160	2 	475	360	260	170
HBSPL10180 10 x 180	2 	545	395	285	180

β = lifting angle

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

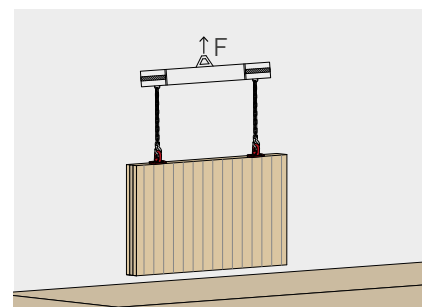
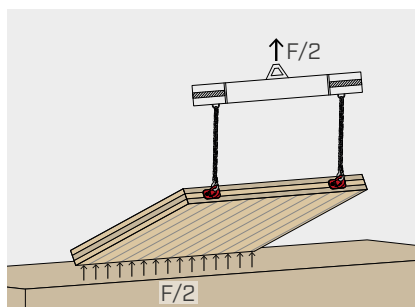
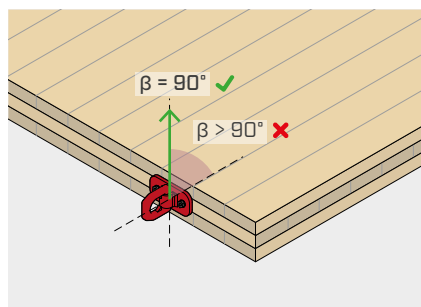
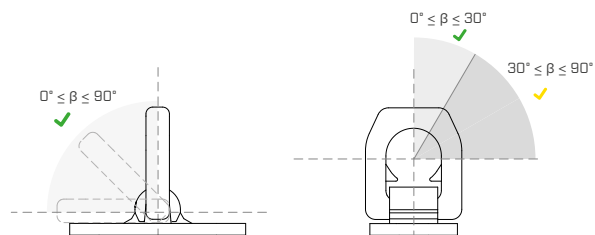
CODE VGS screw d x L [mm]	no. of screws 	capacity R _{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGS1180 11 x 80	2 	265	210	155	105
VGS11100 11 x 100	2 	340	260	190	125
VGS11125 11 x 125	2 	430	325	235	155
VGS11150 11 x 150	2 	520	385	280	180
VGS11175 11 x 175	2 	610	435	310	195
VGS11200 11 x 200	2 	700	480	335	210
VGS11225 11 x 225	2 	785	525	360	225
VGS11250 11 x 250	2 	870 ^(*)	565	385	235
VGS11275 11 x 275	2 	955 ^(*)	605	405	250
VGS11300 11 x 300	2 	1035 ^(*)	645	430	265
VGS11325 11 x 325	2 	1120 ^(*)	680	455	275
VGS11350 11 x 350	2 	1200 ^(*)	720	475	290
VGS11375 11 x 375	2 	1280 ^(*)	755	495	300
VGS11400 11 x 400	2 	1365 ^(*)	790	520	315

β = 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



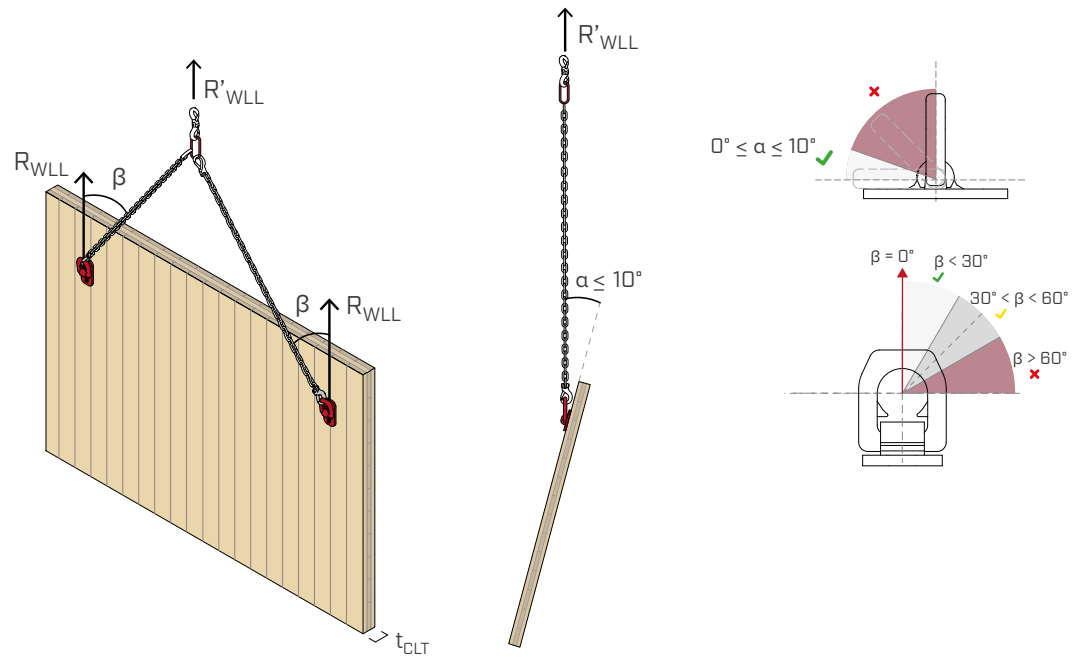
WASP

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



rothoblaas.it

RIGGING CAPACITY | VERTICAL CLT PANEL - LATERAL FACE

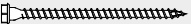


TOTAL RIGGING CAPACITY CALCULATION

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

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.

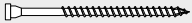
MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

CODE VGS PLATE screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGSPL1160 11 x 60	2 	285	155	100	60
VGSPL1180 11 x 80	2 	365	210	135	80
VGSPL11100 11 x 100	2 	435	260	175	105
VGSPL11120 11 x 120	2 	475	300	205	125
VGSPL11140 11 x 140	2 	510	340	230	145
VGSPL11160 11 x 160	2 	540	370	260	160
VGSPL11180 11 x 180	2 	575	405	285	180
VGSPL11200 11 x 200	2 	610	435	310	195
VGSPL11240 11 x 240	2 	675	495	355	230
VGSPL11280 11 x 280	2 	740	555	405	260

β = lifting angle

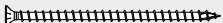
RIGGING CAPACITY | VERTICAL CLT PANEL - LATERAL FACE

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

CODE HBS PLATE/ HBS PLATE EVO screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
HBSPLEVO1060 10 x 60	2 	270	145	95	55
HBSPL1080 10 x 80	2 	325	175	110	65
HBSPL10100 10 x 100	2 	385	210	135	80
HBSPL10120 10 x 120	2 	420	250	165	100
HBSPL10140 10 x 140	2 	445	280	185	115
HBSPL10160 10 x 160	2 	475	310	215	130
HBSPL10180 10 x 180	2 	505	345	240	150

β = lifting angle

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

CODE VGS screw d x L [mm]	no. of screws 	capacity R_{WLL} [kg]			
		$\beta = 0^\circ$ 	$0^\circ < \beta \leq 30^\circ$ 	$30^\circ < \beta \leq 45^\circ$ 	$45^\circ < \beta \leq 60^\circ$ 
VGS1180 11 x 80	2 	335	190	120	75
VGS11100 11 x 100	2 	415	245	160	95
VGS11125 11 x 125	2 	470	295	200	120
VGS11150 11 x 150	2 	510	340	235	145
VGS11175 11 x 175	2 	555	385	270	165
VGS11200 11 x 200	2 	595	425	300	190
VGS11225 11 x 225	2 	640	460	330	210
VGS11250 11 x 250	2 	680	500	360	230

β = lifting angle

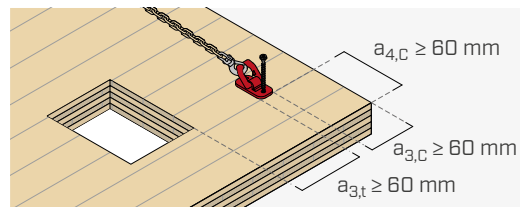
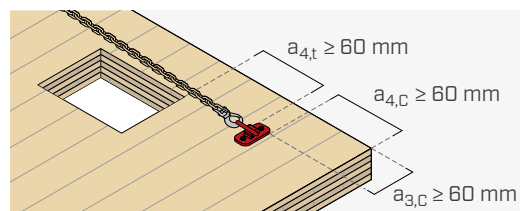
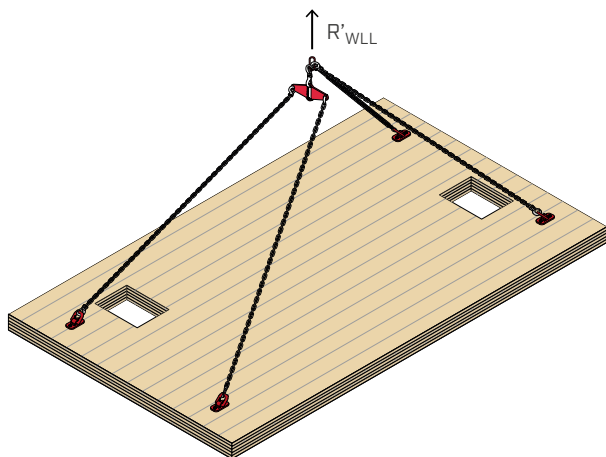
NOTES:

- Minimum wall thickness: $t_{CLT} \geq 80$ mm.
- 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

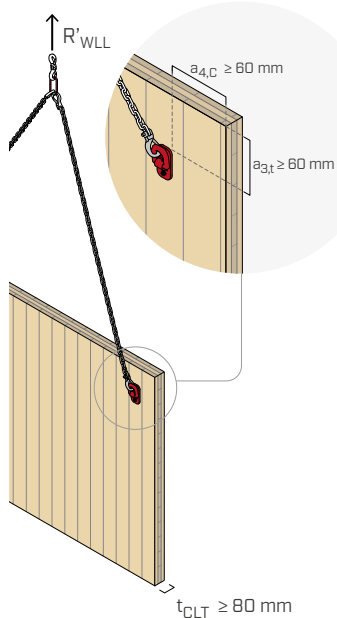
from the ends, in order to limit this phenomenon. It is suggested to limit the tilt angle within 10° of the vertical.

MINIMUM DISTANCES

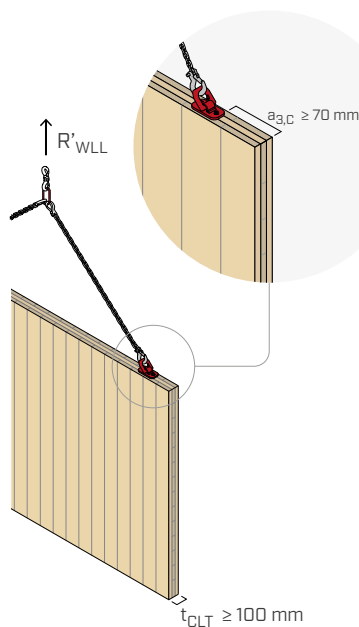
CLT FLOOR



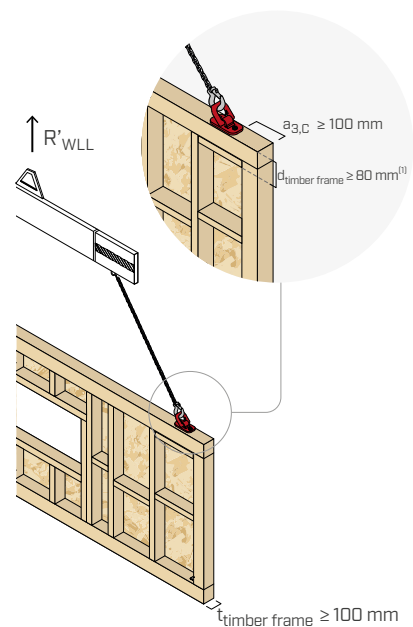
VERTICAL CLT WALL LATERAL FACE



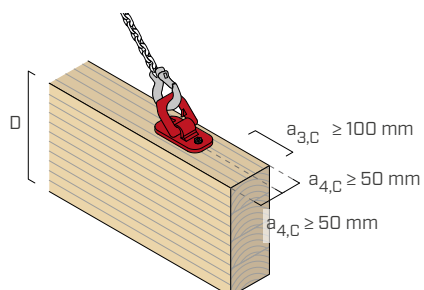
VERTICAL CLT WALL NARROW FACE



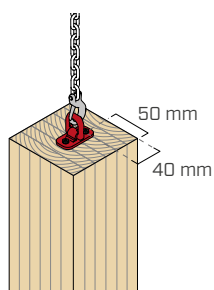
FRAME WALL



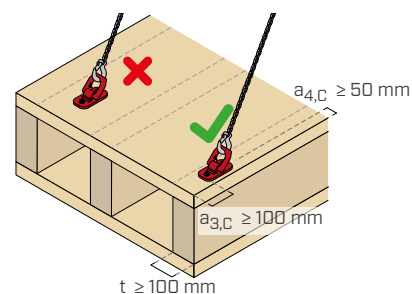
HORIZONTAL BEAM



VERTICAL COLUMN



RIBBED FLOORS



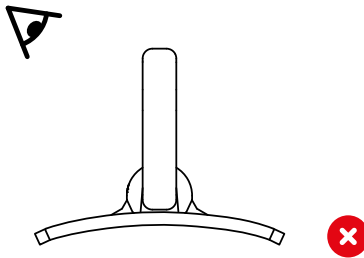
NOTES:

- ⁽¹⁾ For beams of reduced thickness, consider inserting a reinforcing timber element such that the minimum thickness of fixture is achieved.
- Minimum clearances are in accordance with ETA-11/0030 and based on testing. They are valid unless otherwise specified in this data sheet.
 - The minimum distances shown are valid for screws inserted without pre-drilling hole.

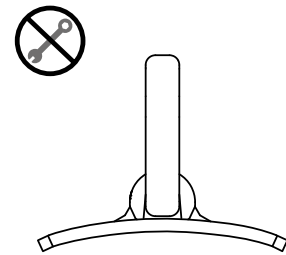
MAINTENANCE



Always follow the instructions in the manual.



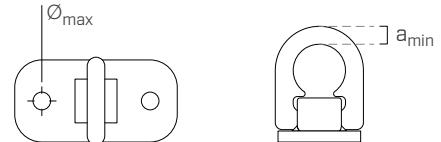
Visual inspection before each use. If there are any defects, the product must not be used again.



Repairs are not permitted!

DIMENSIONS TO BE CHECKED

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



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 the use of connectors that are as long as possible but such that the tip does not protrude from the element to be lifted.
- The rigging capacity values provided are based on calculations made according to EN 1995-1-1/NA in accordance with ETA-11/0030 and the results of tests performed. A safety factor of 4.0 was applied to the values provided in accordance with the Machinery Directive.
- Any checks for potential reductions in strength due to possible brittle failure related to the geometry of the lifted element and the positioning of the plate and connectors must be carried out separately.
- A timber density $\rho_k = 385 \text{ kg/m}^3$, of CLT elements equal to $\rho_k = 350 \text{ kg/m}^3$ was considered in the calculation. For different ρ_k values, the strength values in the table can be converted by the k_{dens} coefficient. The calculated value must never exceed the maximum capacity of the plate of **1500 kg**.

$$R'_{WLL} = \min(k_{\text{dens}} \cdot R'_{WLL}; 1500 \text{ kg})$$

$\rho_{g,k}$ [kg/m ³]	310	330	350	380	385	405	425	430	440
C-GL	C16	C20	C24	C30	GL24h	GL26h	GL28h	GL30h	GL32h
k_{dens}	0,80	0,85	0,90	0,98	1,00	1,02	1,05	1,05	1,07
$\rho_{g,k}$ [kg/m ³]	310	330	350	380	385	405	425	430	440
C-GL	C16	C20	C24	C30	GL24h	GL26h	GL28h	GL30h	GL32h
k_{dens}	0,88	0,94	1,00	1,04	1,05	1,07	1,10	1,11	1,12

Strength values thus determined may differ, for higher safety standards, from those resulting from an exact calculation.

- The lifting plate may only be used by qualified personnel. The user manual (supplied with 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.
- For lifting plate rigging capacity calculation in installation configurations other than those indicated here, contact Rothoblaas Technical Department.
- 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. For the load-bearing capacities of the transport plate fixed with the HBS P screw, refer to the previous version of the data sheet on this website. Alternatively, contact the Technical Office for further support.
- For safety reasons, HBSPL and VGS screws may only be used once. Once lifting operations are complete, the screws must be removed and disposed of correctly. Only the VGS PL screw may be reused for transport. See the specific screw instructions available at www.rothoblaas.com
- 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 load capacities provided are calculated in the case of the plate fixed with screws inserted without pre-drilling hole. In the case of screws inserted with pre-drilling hole, the strength can be considered equivalent.