

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

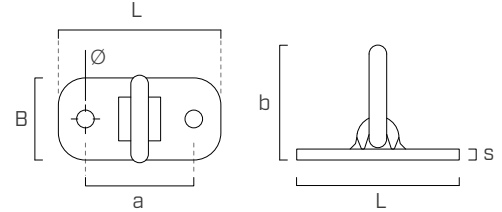
- Prefabricated timber frame walls
- Solid timber or glulam beams
- CLT panels for floor or wall
- Timber supports and columns
- Lightweight constructions for prefabricated roofs

CODE

| CODE | plate sizes | max. capacity | suitable screws | pcs |
|---------|-------------|---------------|--|-----|
| RAPMINI | 60 x 120 mm | 1500 kg | VGS PLATE Ø11 mm HBS PLATE/HBS PLATE EVO Ø10 mm VGS Ø11 mm (+ HUS10) | 1 |

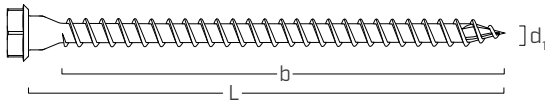
DIMENSIONS

| CODE | B | L | s | Ø | a | b |
|---------|------|------|------|------|------|------|
| | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |
| RAPMINI | 60 | 120 | 8 | 13 | 80 | 84 |



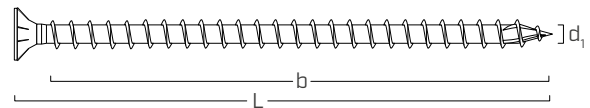
COMPATIBLE SCREWS

VGS PLATE
pan head screw for lifting



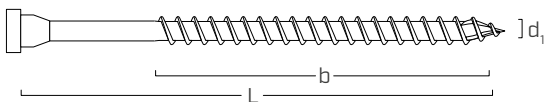
| d ₁ | CODE | L | b | pcs |
|--------------------|------------|------|------|-----|
| [mm] | | [mm] | [mm] | |
| 11 SW17 TX50 | VGSPL1160 | 60 | 50 | 25 |
| | VGSPL1180 | 80 | 70 | 25 |
| | VGSPL11100 | 100 | 90 | 25 |
| | VGSPL11120 | 120 | 110 | 25 |
| | VGSPL11140 | 140 | 130 | 25 |
| | VGSPL11160 | 160 | 150 | 25 |
| | VGSPL11180 | 180 | 170 | 25 |
| | VGSPL11200 | 200 | 190 | 25 |
| | VGSPL11240 | 240 | 230 | 25 |
| | VGSPL11280 | 280 | 270 | 25 |

VGS
full thread screw with countersunk head



| d ₁ | CODE | L | b | pcs |
|----------------|----------|------|------|-----|
| [mm] | | [mm] | [mm] | |
| 11 TX 50 | VGS1180 | 80 | 70 | 25 |
| | VGS11100 | 100 | 90 | 25 |
| | VGS11125 | 125 | 115 | 25 |
| | VGS11150 | 150 | 140 | 25 |
| | VGS11175 | 175 | 165 | 25 |
| | VGS11200 | 200 | 190 | 25 |
| | VGS11225 | 225 | 215 | 25 |
| | VGS11250 | 250 | 240 | 25 |
| | VGS11275 | 275 | 265 | 25 |
| | VGS11300 | 300 | 290 | 25 |
| | VGS11325 | 325 | 315 | 25 |
| | VGS11350 | 350 | 340 | 25 |
| | VGS11375 | 375 | 365 | 25 |
| | VGS11400 | 400 | 390 | 25 |

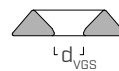
HBS PLATE - HBS PLATE EVO
pan head screw for plates



| d ₁ | CODE | L | b | pcs |
|----------------|--------------|------|------|-----|
| [mm] | | [mm] | [mm] | |
| 10 TX 40 | HBSPLEVO1060 | 60 | 52 | 50 |
| | HBSPL1080 | 80 | 60 | 50 |
| | HBSPL10100 | 100 | 75 | 50 |
| | HBSPL10120 | 120 | 95 | 50 |
| | HBSPL10140 | 140 | 110 | 50 |
| | HBSPL10160 | 160 | 130 | 50 |
| | HBSPL10180 | 180 | 150 | 50 |

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

HUS - turned washer

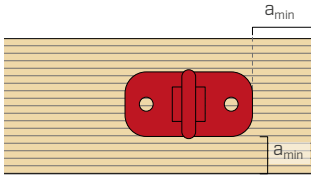


| CODE | d _{VGS} | pcs |
|-------|------------------|-----|
| | [mm] | |
| HUS10 | 11 | 50 |

RAPTOR MINI INSTALLATION



HBSPL 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.

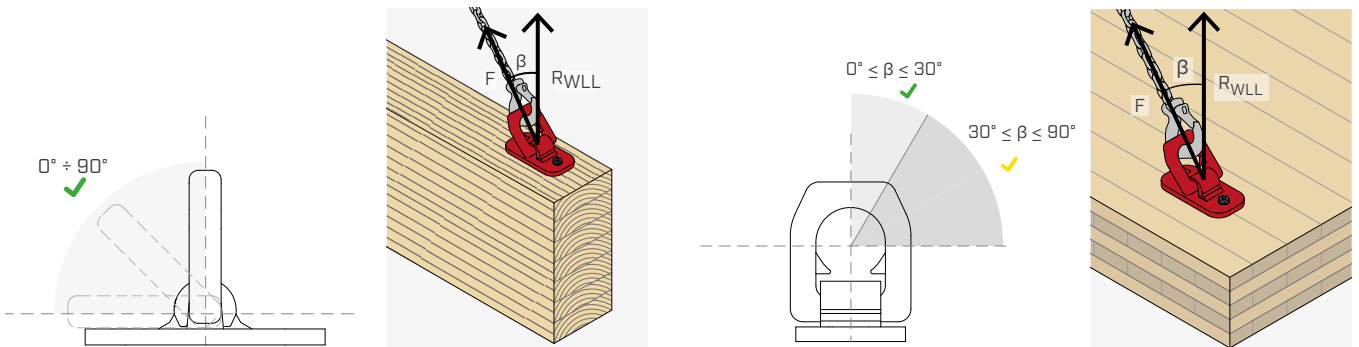
3

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

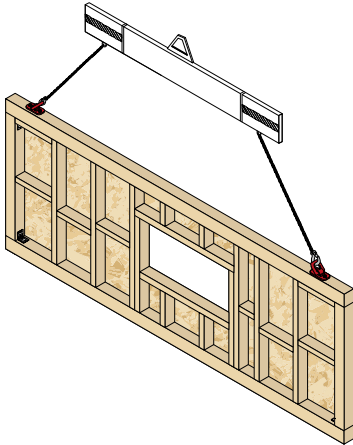
When lifting is complete, remove the screws and dispose of them. They can be used for a single lifting operation, except the VGS PL, which is reusable for transport under specific conditions. See the instructions.

LOAD DIRECTIONS ALLOWED

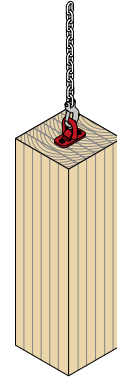


APPLICATION EXAMPLES

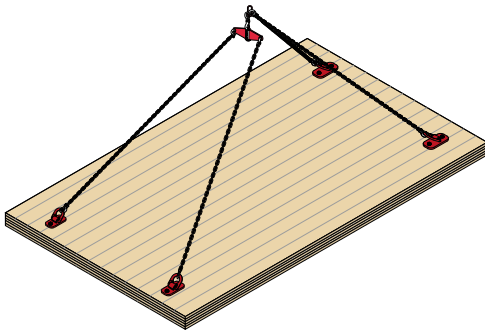
FRAME WALL



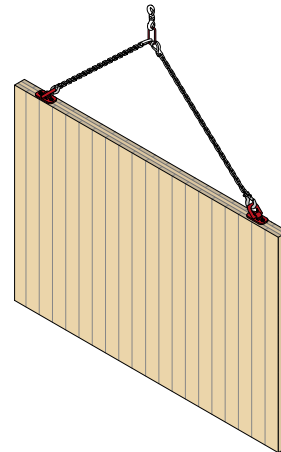
VERTICAL COLUMN



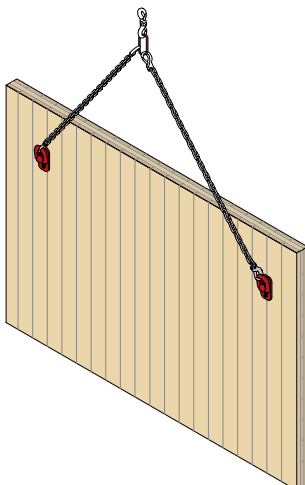
HORIZONTAL CLT PANEL



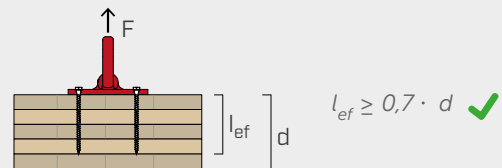
VERTICAL CLT PANEL - NARROW FACE



VERTICAL CLT PANEL - LATERAL FACE



INFLUENCE OF THE RATIO OF SCREW LENGTH TO THE ELEMENT THICKNESS



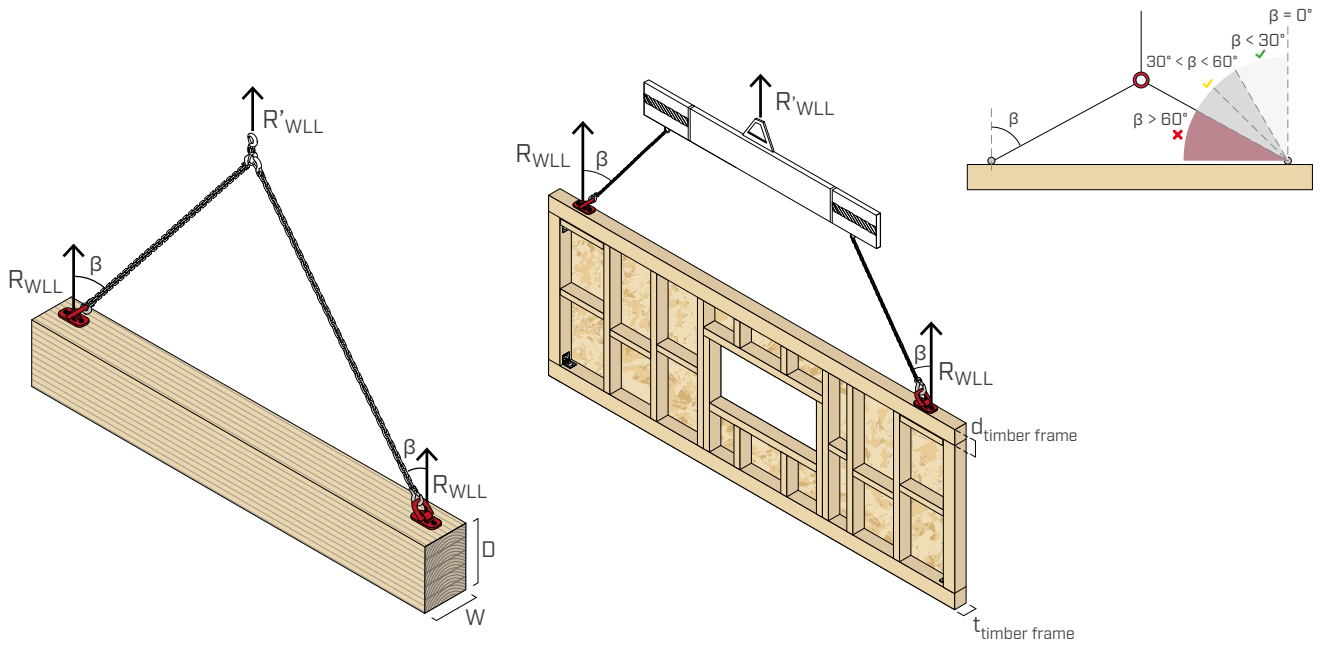
For lifting applications with the load component perpendicular to the timber grain, in order to reach the maximum capacity of the lifting system, it is recommended to use screws longer than $0.7 \cdot d$ (d = depth of the timber element) to avoid cracking. In the event that the ratio is not fulfilled, 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

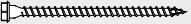














$$R'_{WLL} = R_{WLL} \cdot n$$

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.

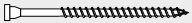











MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

| 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

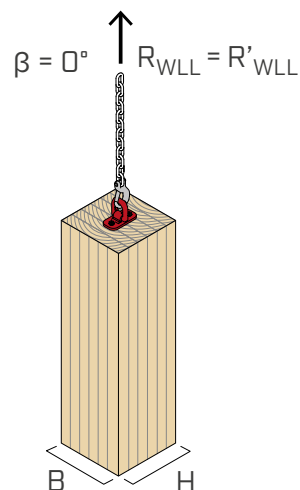
| CODE VGS screw d x L [mm] | no. of screws  | capacity R _{WLL} [kg] | | | |
|---------------------------------|--|---|---|--|--|
| | | $\beta = 0^\circ$  | $0^\circ < \beta \leq 30^\circ$  | $30^\circ < \beta \leq 45^\circ$  | $45^\circ < \beta \leq 60^\circ$  |
| VGS1180 11 x 80 | 2  | 405 | 340 | 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 | no. of screws | capacity R_{WLL} [kg] |
|--------------------------------------|---------------|-------------------------|
| VGS PLATE screw d x L [mm] | | $\beta = 0^\circ$ |
| VGSP11100 11 x 100 | 2 | 175 ^(*) |
| VGSP11120 11 x 120 | 2 | 215 ^(*) |
| VGSP11140 11 x 140 | 2 | 255 ^(*) |
| VGSP11160 11 x 160 | 2 | 295 ^(*) |
| VGSP11180 11 x 180 | 2 | 335 ^(*) |
| VGSP11200 11 x 200 | 2 | 375 ^(*) |
| VGSP11240 11 x 240 | 2 | 455 |
| VGSP11280 11 x 280 | 2 | 535 |

β = lifting angle

MAXIMUM CAPACITY PER ANCHOR POINT WITH HBS PLATE SCREWS

| CODE | no. of screws | capacity R_{WLL} [kg] |
|---|---------------|-------------------------|
| HBS PLATE/ HBS PLATE EVO screw d x L [mm] | | $\beta = 0^\circ$ |
| 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 | no. of screws | capacity R_{WLL} [kg] |
|--------------------------------|---------------|-------------------------|
| VGS screw d x L [mm] | | $\beta = 0^\circ$ |
| 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 | no. of screws | capacity R_{WLL} [kg] |
|--------------------------------|---------------|-------------------------|
| VGS screw d x L [mm] | | $\beta = 0^\circ$ |
| 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 |

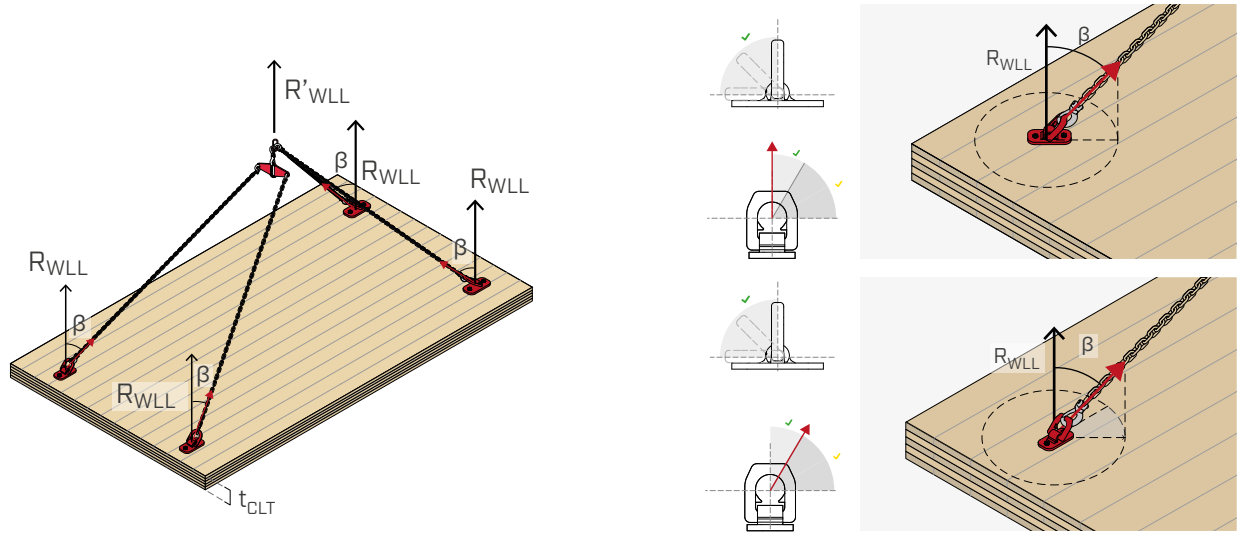
β = lifting angle

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

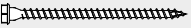
















TOTAL RIGGING CAPACITY CALCULATION

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

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.

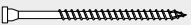











MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

| 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

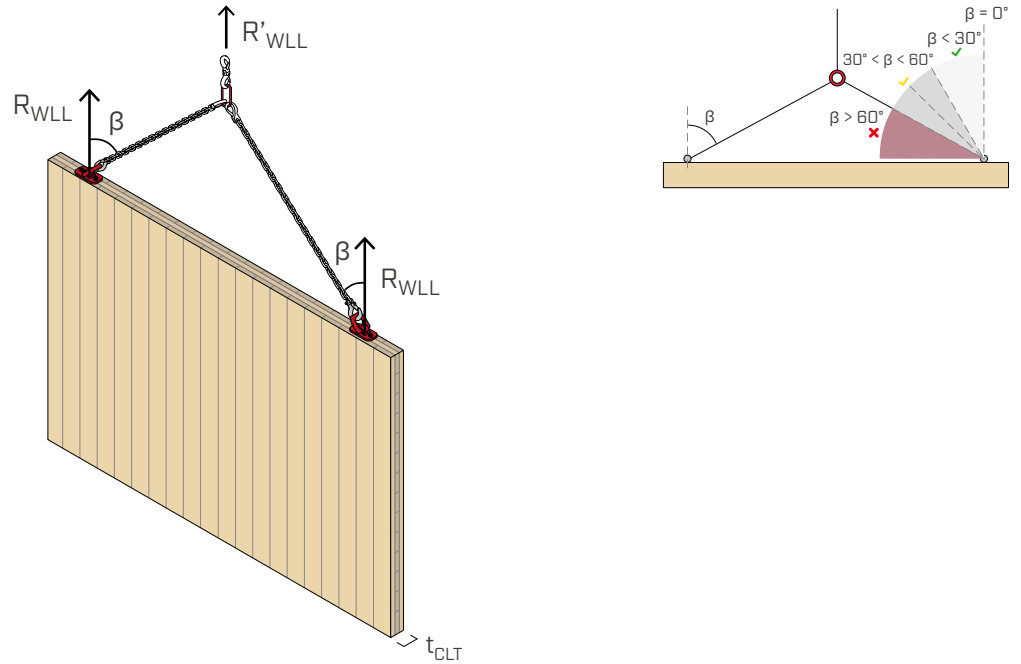
| CODE VGS screw d x L [mm] | no. of screws  | capacity R _{WLL} [kg] | | | |
|-------------------------------------|--|---|---|--|--|
| | | $\beta = 0^\circ$  | $0^\circ < \beta \leq 30^\circ$  | $30^\circ < \beta \leq 45^\circ$  | $45^\circ < \beta \leq 60^\circ$  |
| VGS1180 11 x 80 | 2  | 375 | 315 | 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

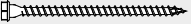



















































TOTAL RIGGING CAPACITY CALCULATION

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

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 | 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  |  215 |  170 |  130 |  85 |
| VGSPL1180 11 x 80 | 2  |  295 |  230 |  170 |  110 |
| VGSPL11100 11 x 100 | 2  |  370 |  280 |  205 |  135 |
| VGSPL11120 11 x 120 | 2  |  445 |  335 |  245 |  155 |
| VGSPL11140 11 x 140 | 2  |  515 |  385 |  280 |  180 |
| VGSPL11160 11 x 160 | 2  |  585 |  420 |  300 |  190 |
| VGSPL11180 11 x 180 | 2  |  655 |  460 |  320 |  200 |
| VGSPL11200 11 x 200 | 2  |  725 |  495 |  345 |  215 |
| VGSPL11240 11 x 240 | 2  |  860 |  560 |  380 |  235 |
| VGSPL11280 11 x 280 | 2  |  995 ^(*) |  625 |  420 |  255 |

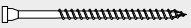











β = lifting angle

NOTES:

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

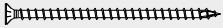


















RIGGING CAPACITY | VERTICAL CLT PANEL - NARROW FACE

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

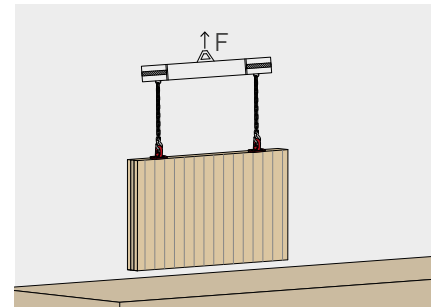
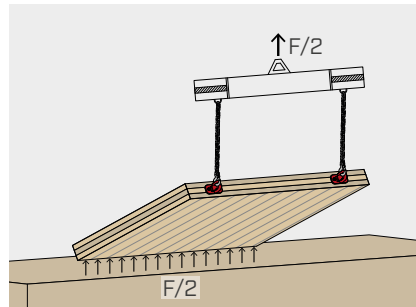
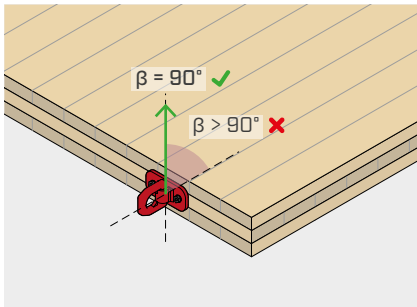
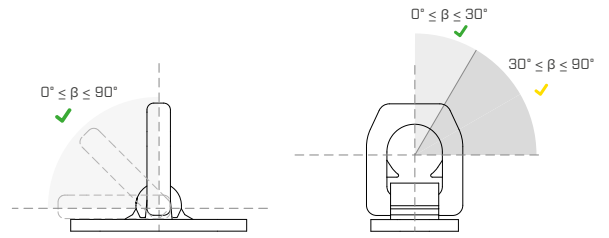
| CODE VGS screw d x L [mm] | no. of screws  | capacity R _{WLL} [kg] | | | |
|-------------------------------------|--|--|--|---|---|
| | | $\beta = 0^\circ$  | $0^\circ < \beta \leq 30^\circ$  | $30^\circ < \beta \leq 45^\circ$  | $45^\circ < \beta \leq 60^\circ$  |
| VGS1180 11 x 80 | 2  | 265 | 210 | 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



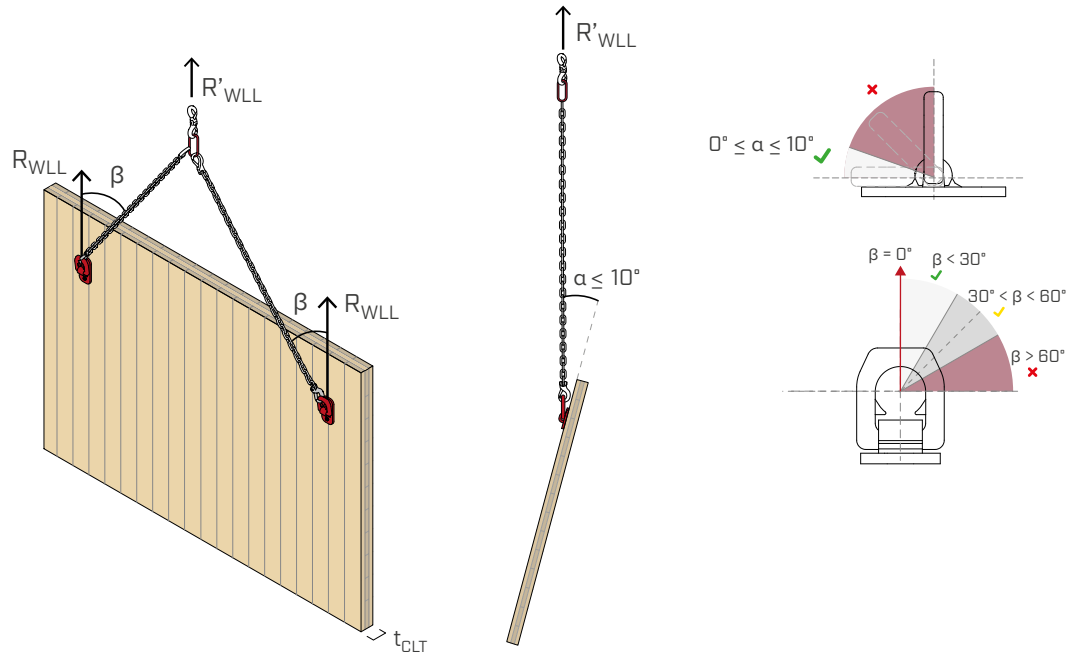
WASP

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



rothoblaas.it

RIGGING CAPACITY | VERTICAL CLT PANEL - LATERAL FACE

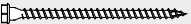
















TOTAL RIGGING CAPACITY CALCULATION

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

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.

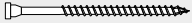











MAXIMUM CAPACITY PER ANCHOR POINT WITH VGS PLATE SCREWS

| 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

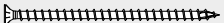












RIGGING CAPACITY | VERTICAL CLT PANEL - LATERAL FACE

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

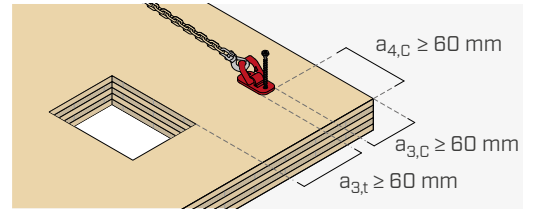
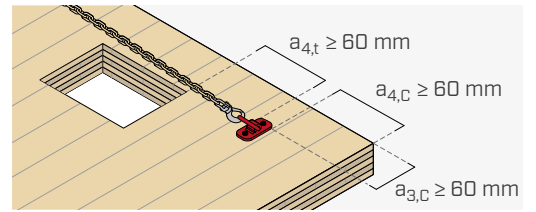
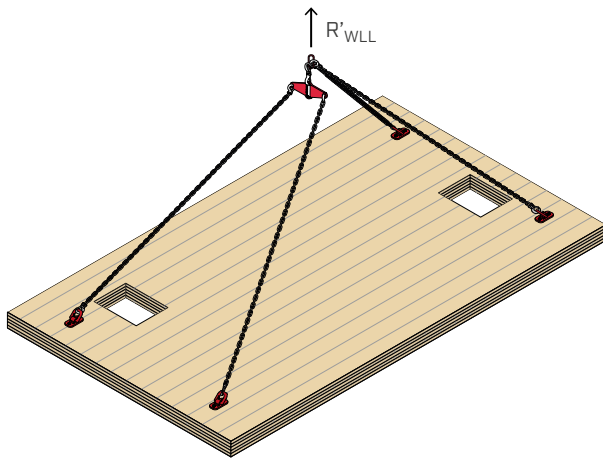
NOTES:

- 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

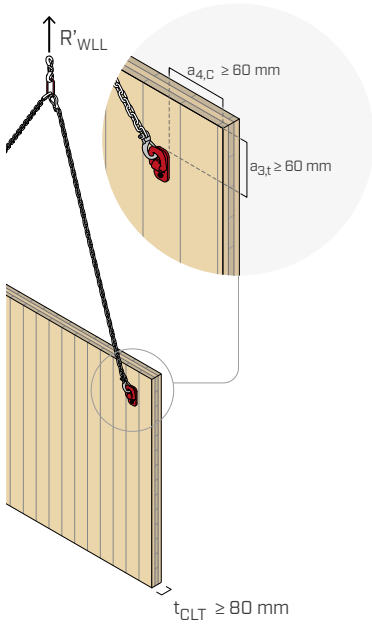
from the ends, in order to limit this phenomenon. It is suggested to limit the tilt angle within 10° of the vertical.

MINIMUM DISTANCES

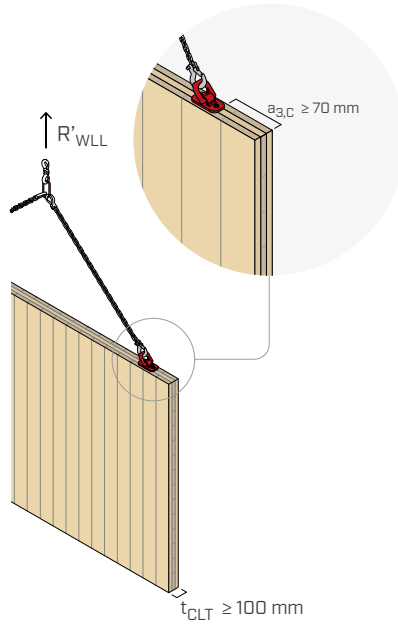
CLT FLOOR



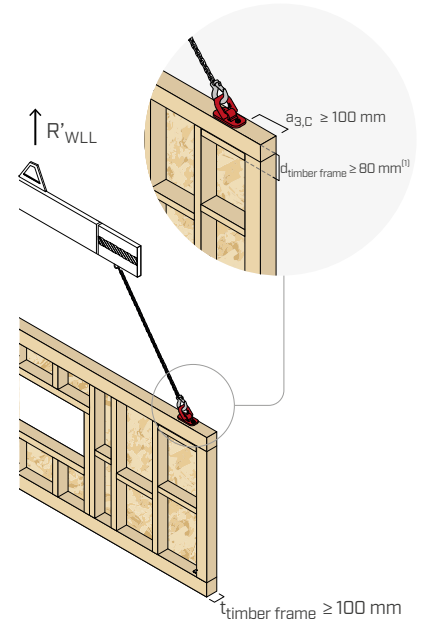
VERTICAL CLT WALL LATERAL FACE



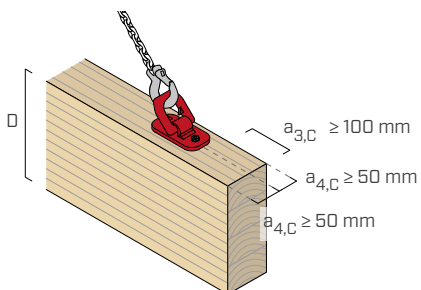
VERTICAL CLT WALL NARROW FACE



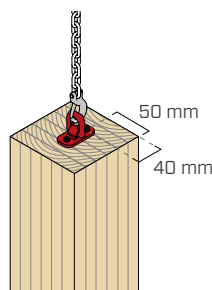
FRAME WALL



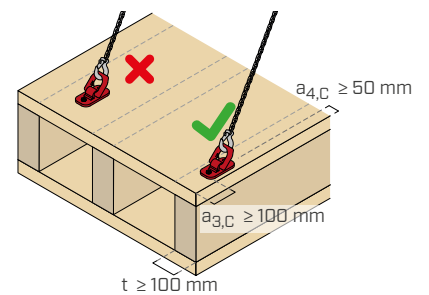
HORIZONTAL BEAM



VERTICAL COLUMN



RIBBED FLOORS



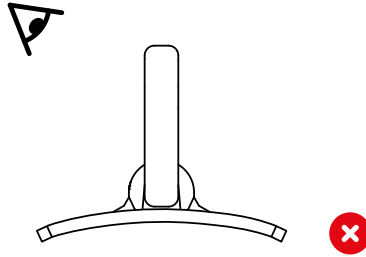
NOTES:

- ⁽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.

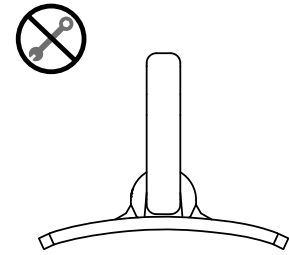
MAINTENANCE



Always follow the instructions in the manual.



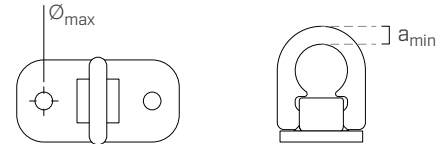
Visual inspection before each use. If there are any defects, the product must not be used again.



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.