Manual · Version V1.3 · 13 Nov 2026

# Eurorack Generator

The Eurorack Generator by Römhold Modular builds a 3D-printable Eurorack case from parameters: width, rows, tilt, depth, joints and extras. It splits the case to fit your print bed, arranges the parts on plates and exports them as STL or as a 3MF for Bambu Studio. This manual starts with a quickstart and then explains every setting.

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## Quickstart

From an empty browser to a finished set of print files in ten minutes. Use of the generator is subject to the terms and conditions (AGB) of Römhold Modular, with the licence terms in § 12 (see Terms and licence).

**1** **Open the generator**

Open the Eurorack Generator in Chrome, Edge or Firefox. On start-up the generator loads its 3D and geometry libraries from the internet; until then the preview shows a loading message. Use **DE / EN** next to the version number to switch the language.

**2** **Start the guided setup**

The **Start guided setup** button at the top of the panel asks in nine steps for width, rows (for 1U rows also where each one sits), tilt, depth, rail mounting, power socket and ventilation, pattern and logo position, and printer and print bed. At the appearance step the preview shows the whole case. Every answer shows up in the preview straight away. **×** cancels and restores the previous values.

Alternatively: open tab **1 Template** and pick a ready-made format such as “84 HP · 2 × 3U”.

**3** **Check that your modules fit**

Tab **2 Case**: Is the **Inner depth** right for your deepest module (including the power cable)? The default is 60 mm. The rails are set up for nuts in a nut channel, like Doepfer profile rails.

**4** **Enter your print bed**

Tab **9 Printer**: the size of your print bed (default 256 mm), the filament and, if you print with Bambu Studio, your Bambu printer. Parts larger than 246 mm are split automatically.

**5** **Read the messages**

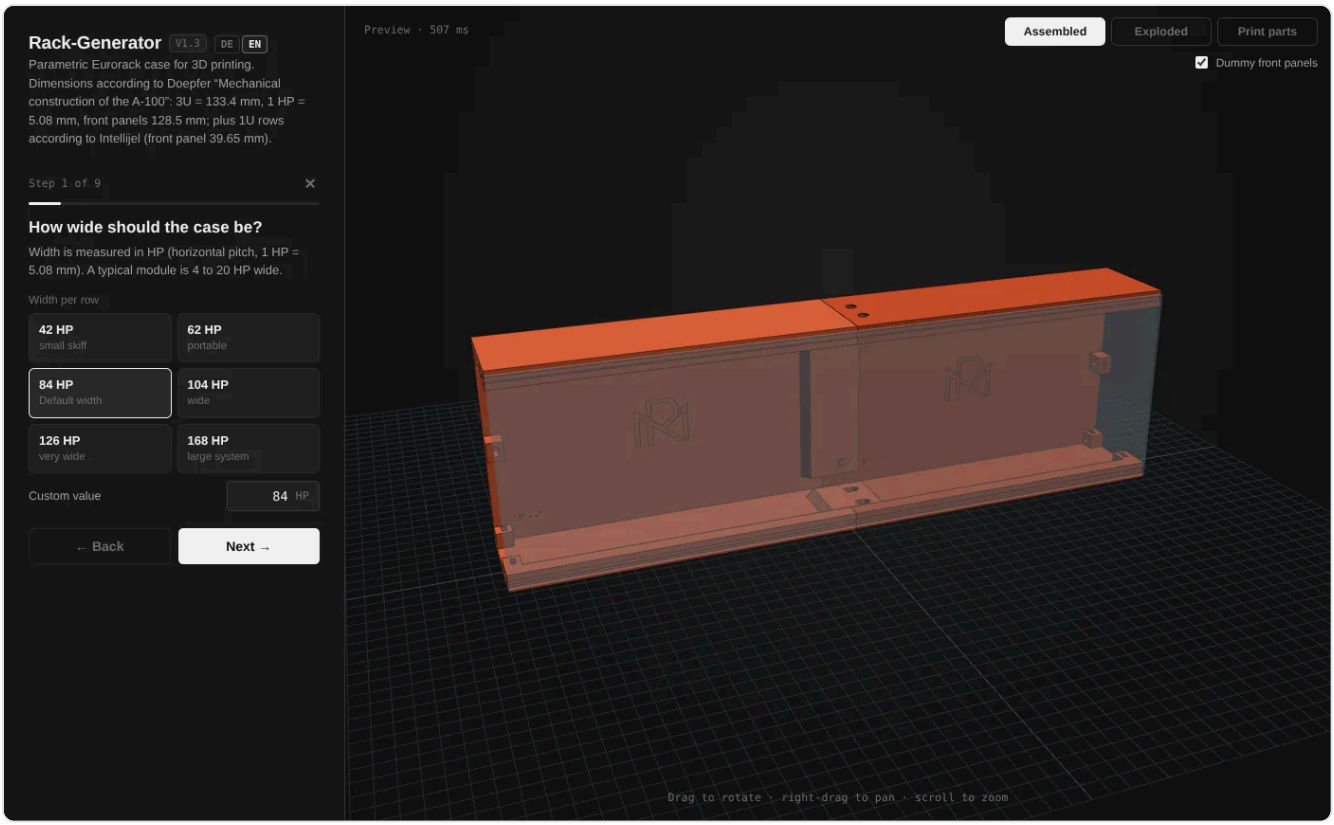
Yellow boxes above the parameters are warnings (for example “Watermark: not everywhere is there space for …”), red boxes are errors that block the export. Messages with an arrow at the end are clickable and jump straight to the field that causes them. Tab **10** collects all assembly notes.

**6** **Export**

Tab **10 Overview & export**: **All parts as 3MF (plates for Bambu Studio)** gives you a finished project with the plates already filled; **All parts as ZIP (STL)** downloads every part separately plus an info file with all settings. Tip: print the **Test print: 30 mm rail** first and screw a front panel onto it as a trial.

**7** **Save your settings**

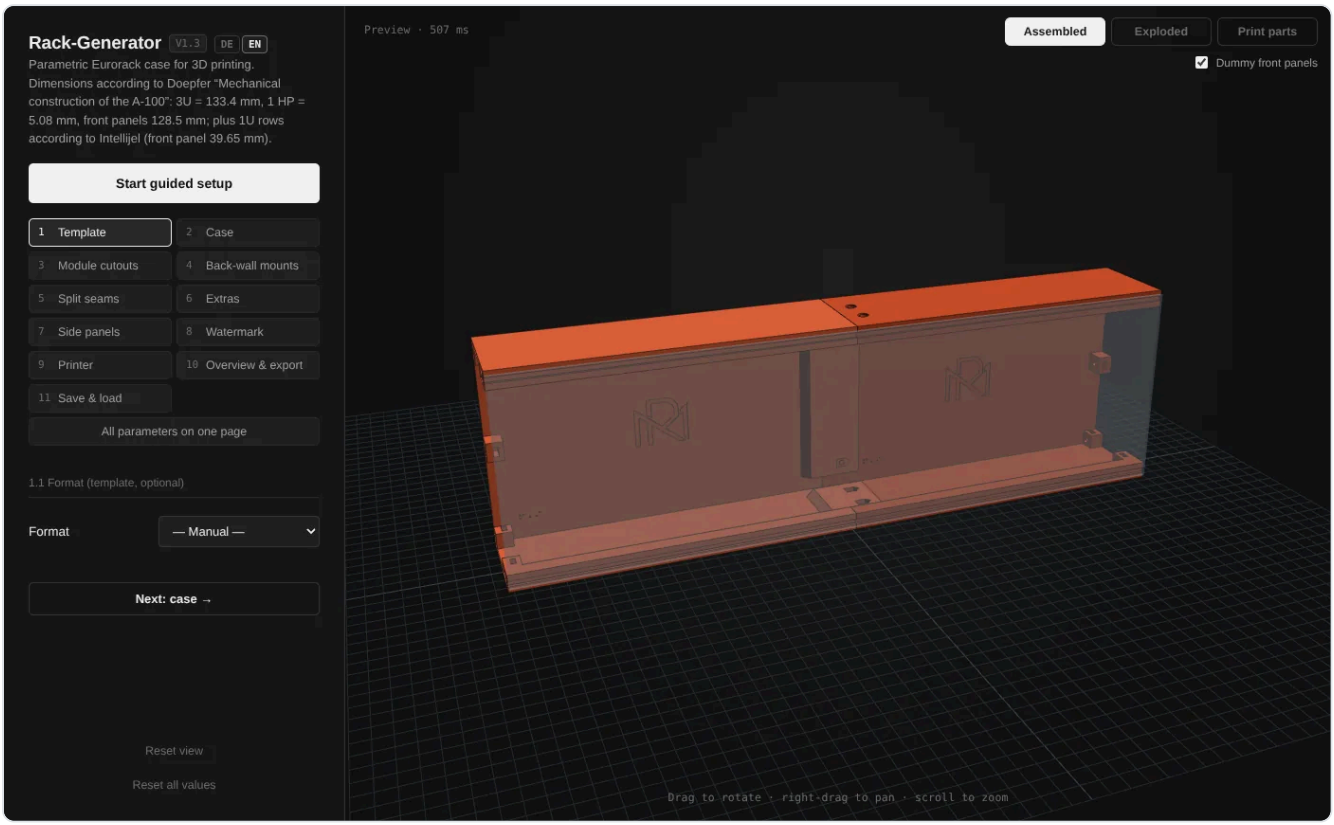
Tab **11 Save & load**: **Save settings as file** stores a `.rackgen.json` file you can use to open and change the case later.




The guided setup: click a tile or enter your own value, then “Next →”.

# The interface

The panel with all settings is on the left, the 3D preview on the right. Every change rebuilds the case after a short pause; the top left of the preview shows how long the calculation took (for example “Preview · 506 ms”). Large cases with a pattern and relief can take a few seconds.




Initial state: 84 HP, one 3U row, 60 mm deep. The case is split into two segments because 84 HP is wider than the print bed.

## Language

The **DE / EN** switch to the right of the version number translates the interface, notes, guided setup and messages. On first use the language follows your browser; after that the generator remembers your choice. Part names and file names stay in German.

## Tabs

The settings are spread over eleven tabs, in the order in which you plan a case. At the end of each tab, **Next: …** takes you to the next one. **All parameters on one page** shows all tabs one below the other; the generator remembers this view for next time.

For each tab the preview shows only the parts that matter there: in tabs 1, 2, 4 and 6 the rows without side panels, in tab 7 only the side panels, in tab 3 the rows plus the side panel if it has a cutout. Tab 5 switches to the exploded view, tab 9 to the print parts.

## Messages

Notes (grey), warnings (yellow) and errors (red) appear above the parameters. If a message belongs to a field, it ends with an arrow and the mouse pointer turns into a hand: a click opens the matching tab, scrolls to the field, cutout or mount, puts the cursor in it and briefly highlights it.

## Using the preview

- **Rotate:** drag with the left mouse button
- **Pan:** drag with the right mouse button
- **Zoom:** mouse wheel
- **Assembled / Exploded / Print parts** (top right): the finished case, all parts pulled apart, or all parts arranged on print plates. In the print parts view you can move and rotate parts by hand (see tab 9).
- **Dummy front panels:** shows grey placeholders for modules so you can check the hole pattern and cutouts

At the bottom of the panel, **Reset view** resets the camera and **Reset all values** sets every parameter back to default and deletes all cutouts and mounts. This cannot be undone; save first if you want to keep your current state.

# Terms and dimensions

The dimensions follow Doepfer’s “A-100 mechanical details”; the 1U rows follow the Intellijel format.

| | | |
|---|---|---|
| 1 HP<br>5.08 mm | 3U, row height<br>133.4 mm | Front panel 3U<br>128.5 mm |
| Vertical hole spacing<br>122.5 mm | 1U, row height<br>44.45 mm | Front panel 1U<br>39.65 mm |
| 4U / 5U, row height<br>177.8 / 222.25 mm | Horizontal hole grid<br>7.5 + N × 5.08 | Fastening<br>M3, hole Ø 3.2 |

**Row** One storey of the case with two rails, floor, ceiling and back wall. There are 3U rows (A-100), 4U and 5U rows, and 1U rows (Intellijel). Rows are counted from the bottom (row 1 = bottom); all formats count.

**Segment** If the case is wider than the print bed, each row is split into segments. Segments are counted from the left, seen from the front.

**Split seam** The vertical joint between two segments. Joined with tabs and screws or with butterfly keys.

**Row joint** The horizontal joint where two stacked rows sit on each other. Joined with vertical screws at the corners.

**Side panel** The cheek on the left and right. It carries the tilt of the case and is also split if necessary.

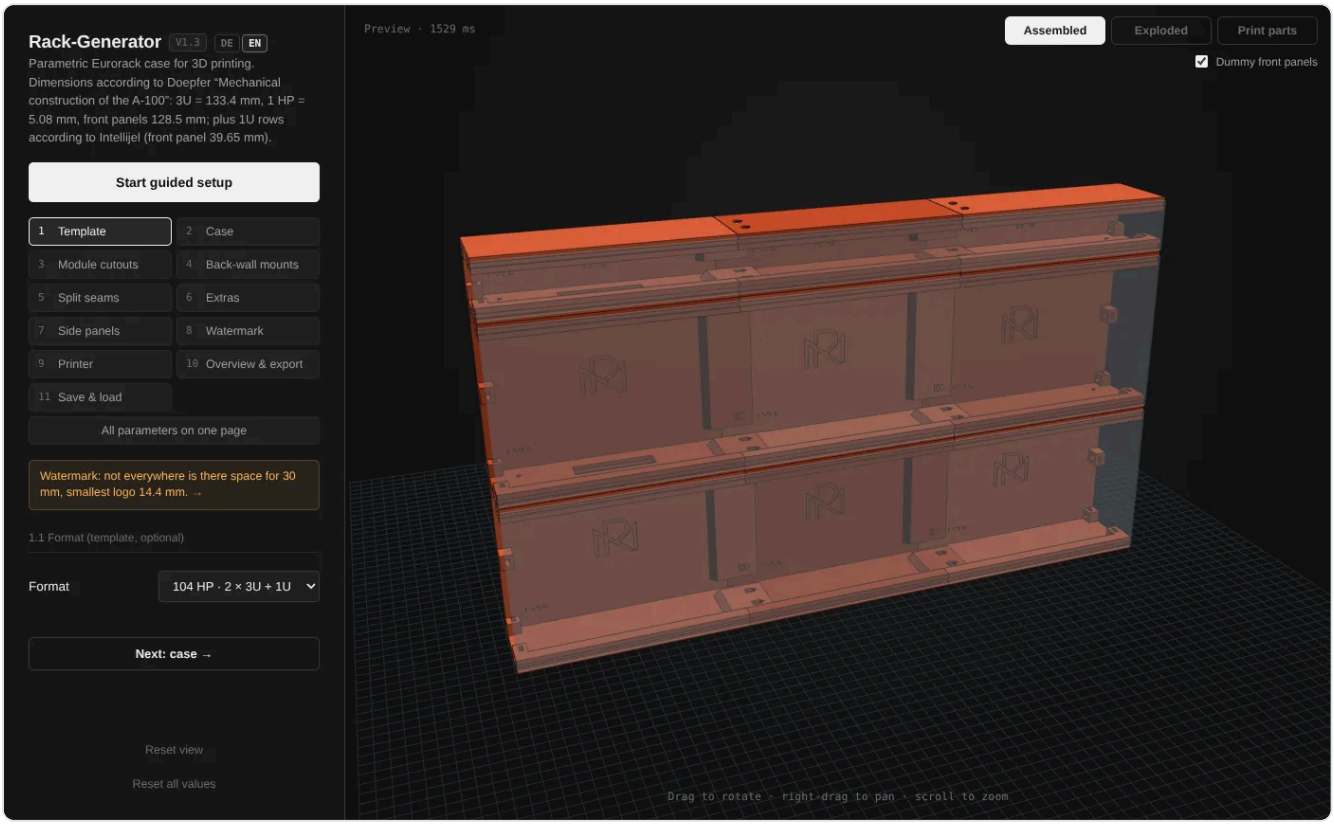
**Corner block** Reinforcement at the back of the row that holds the side panel screw.

**Rib** A block behind the rail (and optionally on the back wall) that holds the nut for the side panel screw in the “Rib with nut” style.

# 1 Template

A template sets width, number of 3U rows, number of 1U rows and, for some entries, the depth in one step. All other settings stay as they are. As soon as you change a field afterwards, the selection switches to “— Manual —”, but the values are kept.

| GROUP | FORMATS |
|---|---|
| **Standard** | 42, 84 or 104 HP with one row; 84 and 104 HP with 2 × 3U; 126 HP with 3 × 3U; 84 HP 3U + 1U (4U); 104 HP 2 × 3U + 1U (7U); 84 HP 1U only |
| **Well-known configurations** | Compact cases with 34, 48, 64 and 104 HP; 6U skiff with 2 × 42 HP; 4U portable (62 HP, 45.5 mm deep); 7U with 45.5 mm depth; 84 HP as basic system, skiff (50 mm) and deep (140 mm); 104 HP double row and travel case; travel case 84 HP × 3; large system 168 HP × 2 (100 mm); 21U studio (84 HP × 7) and large studio system (126 HP × 8) |




Template “104 HP · 2 × 3U + 1U (7U)”: three rows, each split into three segments.

# 2 Case

This is where you set size, rails and walls. The groups are numbered as in the tool.

## 2.1 Format

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Width** | `84 HP` | Usable width of each row in HP (2 to 400). 84 HP equals 426.72 mm. |
| **3U rows (A-100)** | `1` | Number of normal Eurorack rows, 0 to 8. |
| **4U rows** | `0` | Rows for 4U modules, 0 to 4. Row height 177.8 mm (4 × 44.45 mm), width on the same HP grid. |
| **4U rows position** | `top` | Appears as soon as there is a 4U row. Options: *bottom*, *above the n-th 3U row* or *top*. Several 4U rows are stacked. |
| **5U rows** | `0` | Rows for 5U modules, 0 to 4. Row height 222.25 mm (5 × 44.45 mm). |
| **5U rows position** | `top` | As for 4U. If 5U, 4U and 1U rows share the same position, they are stacked from bottom to top in this order: 5U, 4U, 1U. |
| **1U rows (Intellijel)** | `0` | Additional flat rows for 1U modules, 0 to 6. Not compatible with Pulp Logic tiles. |
| **1st … 6th 1U row sits** | `top` | Appears for each 1U row. Options: *bottom*, *above the n-th 3U row* or *top*. The same position for several 1U rows means they are stacked. |

## 2.2 Inner depth

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Inner depth** | `60 mm` | From the back of the front panel to the inside of the back wall. Guide values: 45.5 mm skiff, 60 mm standard, 100 mm deep, 140 mm for DIY or large modules. |

## 2.3 Total width clearance

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Total width clearance** | `0.6 mm` | Added to the usable width so the last front panel does not jam. |

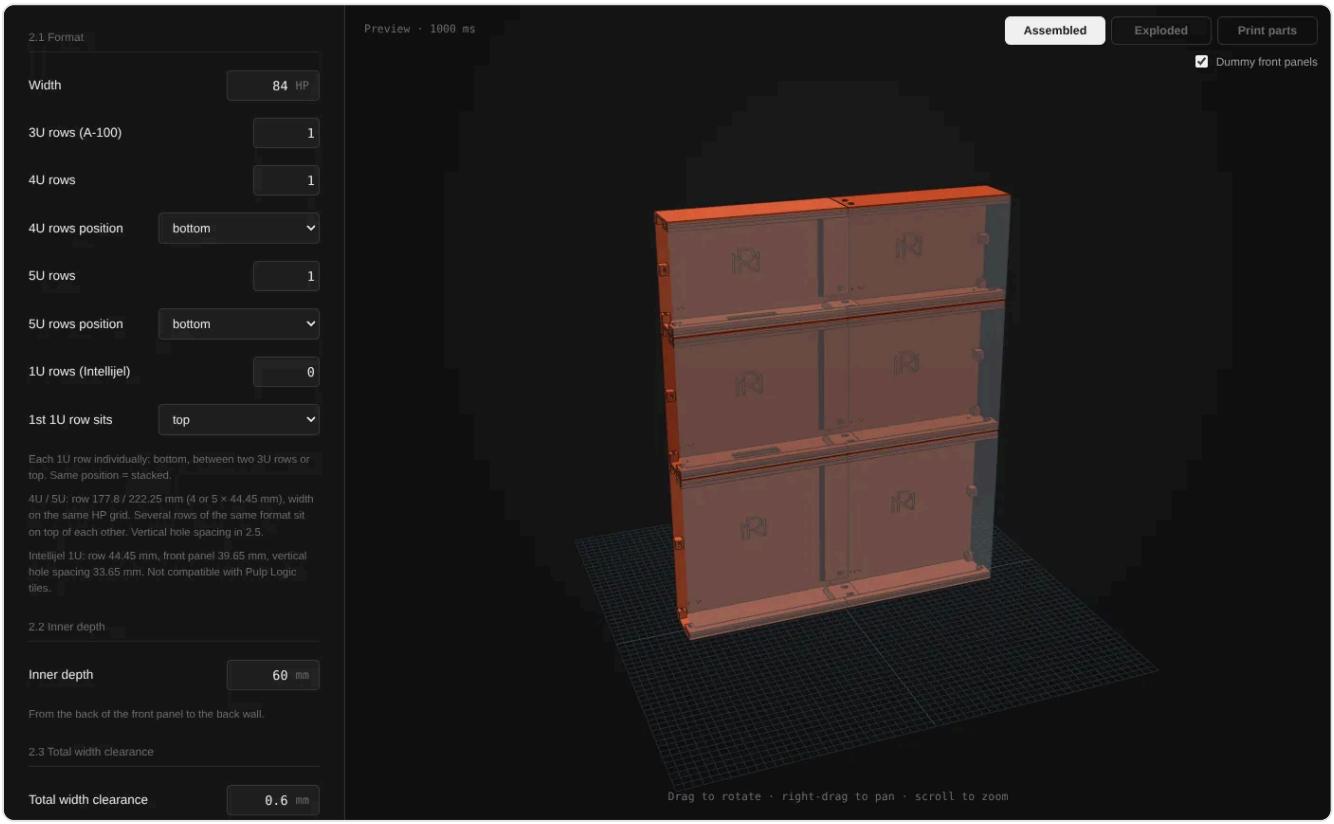
## 2.4 Rails

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Front panel mounting** | `Slot + nut channel` | How the front panel screws are held.<br>**Slot + nut channel:** like Doepfer profile rails; slide in M3 nuts or threaded strips from the side, modules can be moved freely.<br>**M3 heat-set inserts:** fixed holes on the 7.5 mm + N × 5.08 mm grid, very sturdy.<br>**Pilot hole (tap thread):** fixed holes, you cut the thread yourself.<br>**without holes:** drill them yourself. |
| **Front lip** | `1.8 mm` | Slot only: material thickness in front of the nut channel that the front panel rests on. |
| **Slot width** | `3.4 mm` | Slot only: width of the slot for the screw shank. |
| **Channel height (nut AF)** | `5.9 mm` | Slot only: matches the nut's width across flats (M3 = 5.5 mm) plus clearance. |
| **Channel depth (nut thickness)** | `2.7 mm` | Slot only: matches the nut height (M3 = 2.4 mm) plus clearance. |
| **Hole Ø heat-set insert** | `4.0 mm` | Heat-set inserts only. |
| **Pilot hole Ø** | `2.5 mm` | Pilot hole only. |
| **Hole depth** | `5 mm` | For heat-set inserts and pilot holes. |
| **Rail height** | `11 mm` | Height of the rail. Determines the clear height between the rails (111.4 mm for 3U at default). |
| **Rail depth** | `10 mm` | How far the rail reaches back from the front panel. |

> **Tip**
> The slot and channel dimensions depend a lot on your printer. In tab 10 you can export a 30 mm piece of rail as a test print; use it to check nut and screw before you print the whole case.

## 2.5 Walls

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Back wall** | 3 mm | Thickness of the back wall. |
| **Floor / ceiling** | 3 mm | Thickness of floor and ceiling of each row. |
| **Rear corner block** | 10 mm | Size of the reinforcement in the rear corners that holds the rear side panel screw. |
| **Row pitch 3U** | 133.4 mm | Grid of the 3U rows. Larger means a gap between the rows. |
| **Row pitch 1U** | 44.45 mm | Grid of the 1U rows. |
| **Row pitch 4U** | 177.8 mm | Grid of the 4U rows. |
| **Vertical hole spacing 4U** | 166.9 mm | Distance between the top and bottom front panel holes for 4U. The front panel height is this plus 2 × 3 mm hole margin (172.9 mm). Adjust it to your modules. |
| **Row pitch 5U** | 222.25 mm | Grid of the 5U rows. |
| **Vertical hole spacing 5U** | 211.35 mm | As for 4U; the front panel is then 217.35 mm high. |

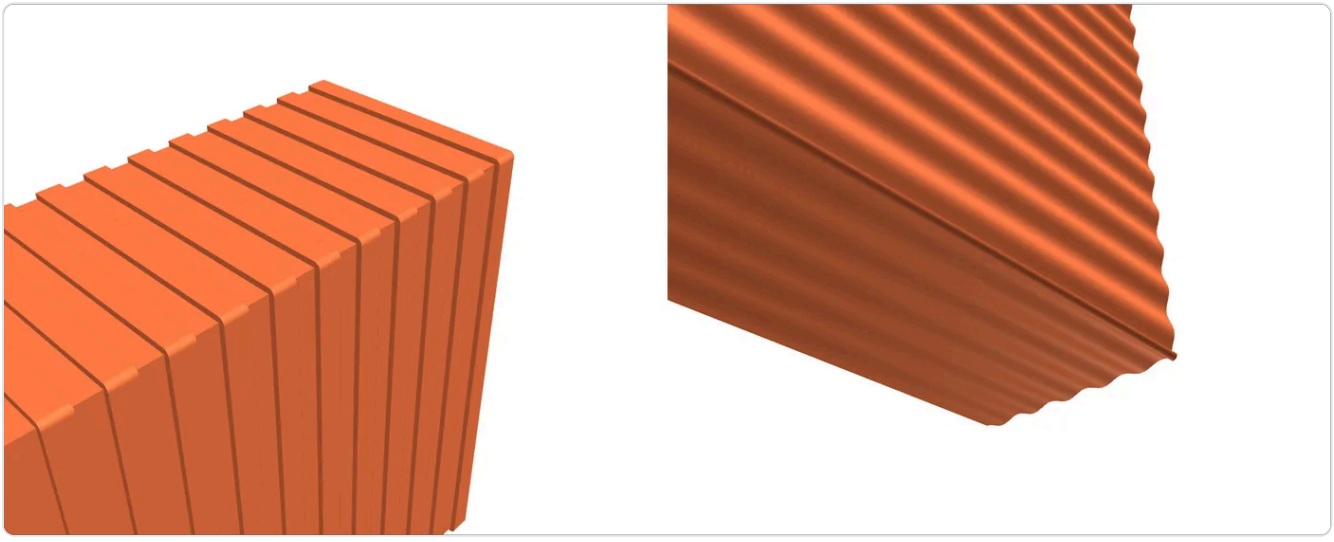



A 5U row at the bottom, above it a 4U and a 3U row.

## 2.6 Outer wall shape

A relief on the outside of the back wall, optionally also on the ceiling and floor. The inside of the wall stays the same; the relief is only added on top. Holes, vents, cutouts and the power socket go through the relief; countersinks are cut deeper by the relief height so the screw heads stay clear.

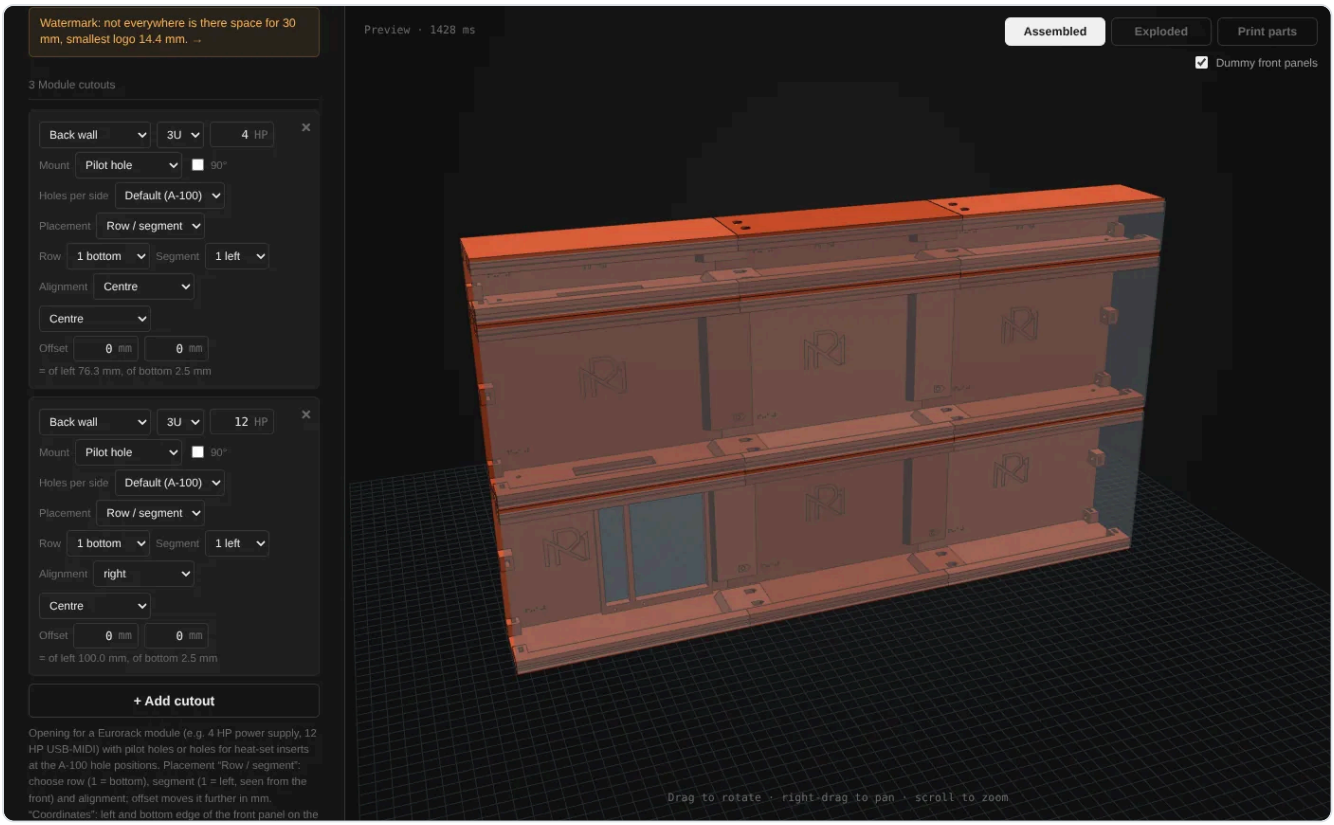
| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Outer wall shape** | `flat` | flat, Waves, Ribs, Sawtooth or Zigzag. |
| **Groove direction** | `horizontal` | Horizontal grooves print cleanest because the rows are printed standing up. Vertical grooves wrap rounded around the edge to the ceiling. |
| **Relief height** | `1.5 mm` | 0.2 to 5 mm. |
| **Pitch (spacing)** | `12 mm` | Spacing of the grooves. Adjusted slightly so the pattern ends in a valley at every edge. |
| **also on top of the ceiling** | `off` | Relief on the ceiling too. |
| **also underneath the floor** | `off` | Relief on the floor too. |



Vertical ribs with a rounded edge (left), horizontal waves (right).

# 3 Module cutouts

A cutout is an opening for a Eurorack module with the matching mounting holes, for example a 4 HP power entry or a USB-MIDI module in the back wall. **+ Add cutout** adds as many as you like; **×** removes one.




Two cutouts in the back wall: 4 HP centred and 12 HP right-aligned in segment 1 of the bottom row. Below each entry is its calculated position in mm.

## Fields per cutout

| FIELD | WHEN ADDED | EFFECT |
|---|---|---|
| **Face** | `Back wall` | Back wall, Top side, Bottom side, Side panel left or Side panel right. |
| **Format** | `3U` | 3U, 1U, 4U or 5U; sets the height of the opening and the vertical hole spacing. |
| **Width** | `4 HP` | Width of the front panel in HP. |
| **Mounting** | `Pilot hole` | Pilot hole (screw straight in) or Heat-set insert. |
| **90°** | `off` | Rotates the opening, for example for a module lying on its side. |
| **Holes per side** | `Default (A-100)` | Default: one hole at top and bottom, two from 10 HP. Alternatively a fixed number (1 to 12) or *every HP*. All holes sit on the 5.08 mm grid starting at 7.5 mm. |
| **Placement** | `Row / segment` | See Placing by row and segment. With *Coordinates* you enter the left and bottom edge of the front panel in mm. |

### Cutout hole dimensions

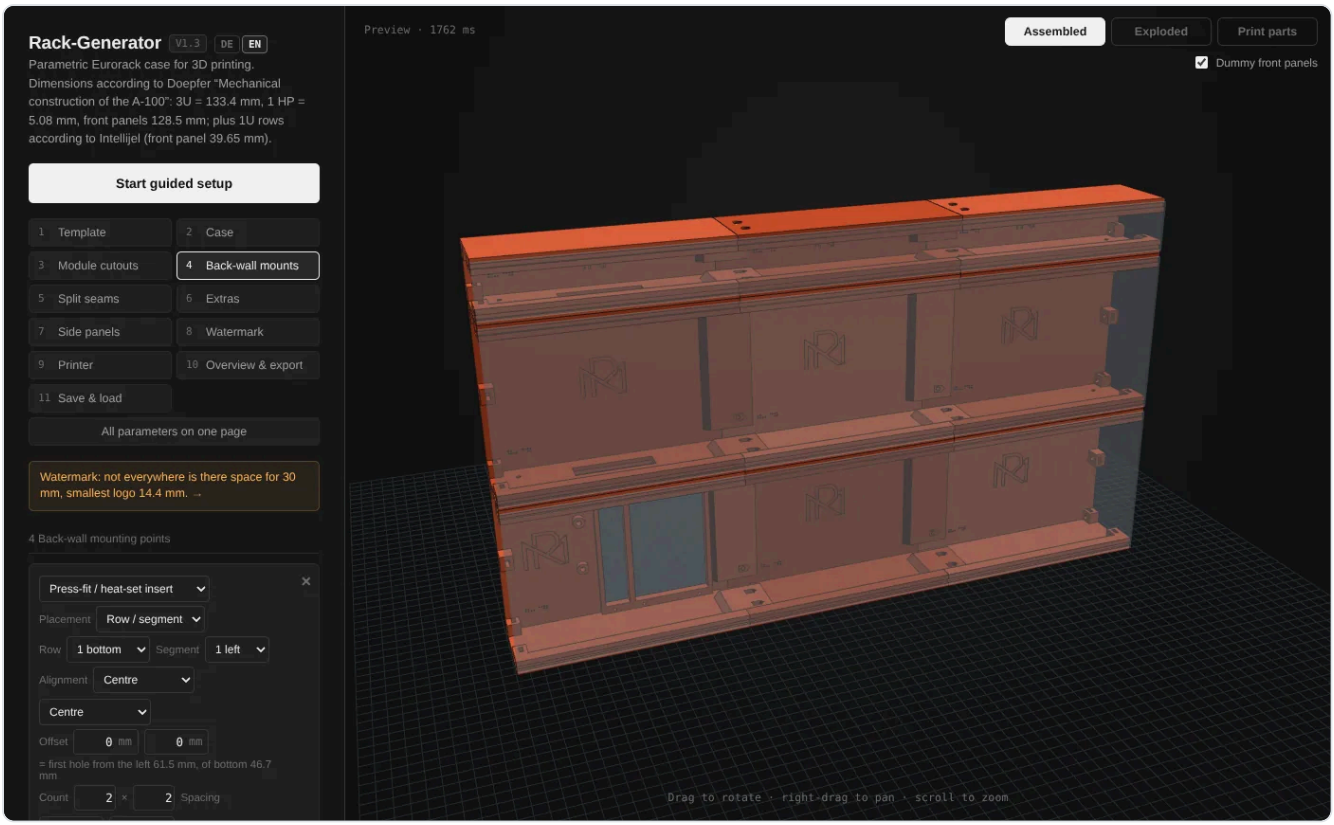
These values apply to all cutouts together.

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Cutout: pilot hole Ø** | 2.5 mm | For M3 screws directly into the plastic. |
| **Cutout: heat-set insert Ø** | 4.0 mm | Hole diameter for M3 heat-set inserts. |
| **Heat-set insert length** | 5.7 mm | Length of the insert. If wall plus reinforcement is thinner, you get a warning. |
| **Cutout: inner reinforcement** | 4 mm | Frame around the opening on the inside so the holes have enough material. Does not apply to side panels. |

> **Caution**
> If a cutout lies on a split seam, in the tab area or on a row joint, a warning appears. On side panels the opening must lie entirely inside a row, otherwise it cuts into rails, floor or corner blocks.

## 4 Back-wall mounts

Mounts are hole patterns in the back wall for a power supply, bus board or similar. **+ Add mount** adds as many as you like. A new entry is a 2 × 2 grid with 50 × 40 mm spacing, centred in the first segment of the bottom row.




A 2 × 2 hole pattern for a bus board, centred in segment 1 of the bottom row.

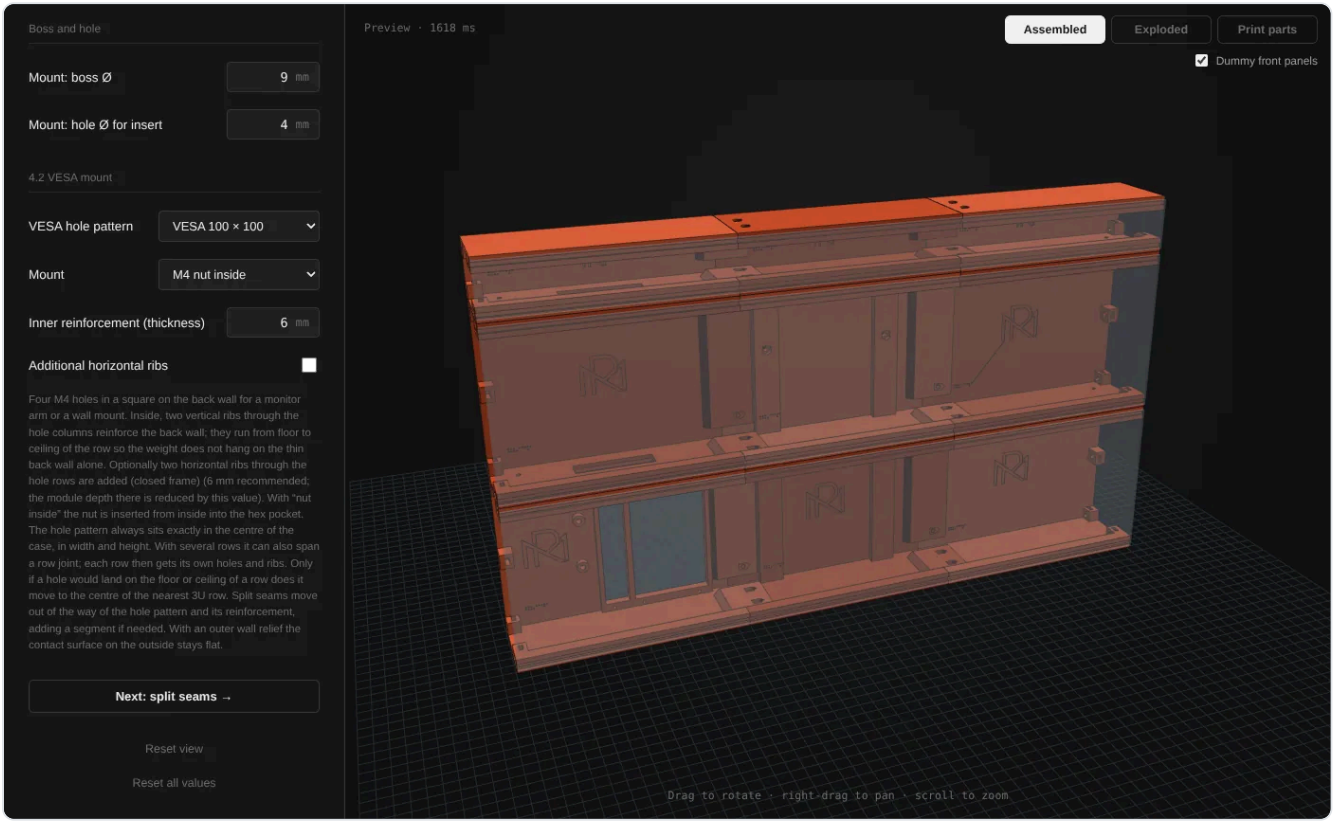
| FIELD | WHEN ADDED | EFFECT |
|---|---|---|
| **Type** | `Press-fit / heat-set insert` | Press-fit / heat-set insert, Pilot hole (screw) or Through hole + countersink from the outside. |
| **Placement** | `Row / segment` | The whole hole pattern is aligned within the free area of the row and segment. With *Coordinates*: first hole from the left (from the inner edge) and from the bottom (from the bottom edge of the case). |
| **Count** | `2 × 2` | Holes horizontal × vertical. |
| **Spacing** | `50 / 40 mm` | Hole spacing horizontal / vertical. |
| **Boss height** | `5 mm` | Standoff towards the inside so the PCB does not sit on the wall. 0 = no boss. |

## Boss and hole

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Mount: boss Ø** | 9 mm | Outer diameter of the bosses. |
| **Mount: hole Ø for insert** | 4.0 mm | Hole diameter for press-fit or heat-set inserts. |

## 4.2 VESA mount

Four M4 holes in a square on the back wall for a monitor arm or a wall mount. The hole pattern always sits exactly in the centre of the case, in width and height; there is no placement setting for it. Inside, two vertical ribs from floor to ceiling reinforce the back wall so the weight does not hang on the thin wall alone.




VESA 100 × 100 with M4 nuts inside in a 7U case.

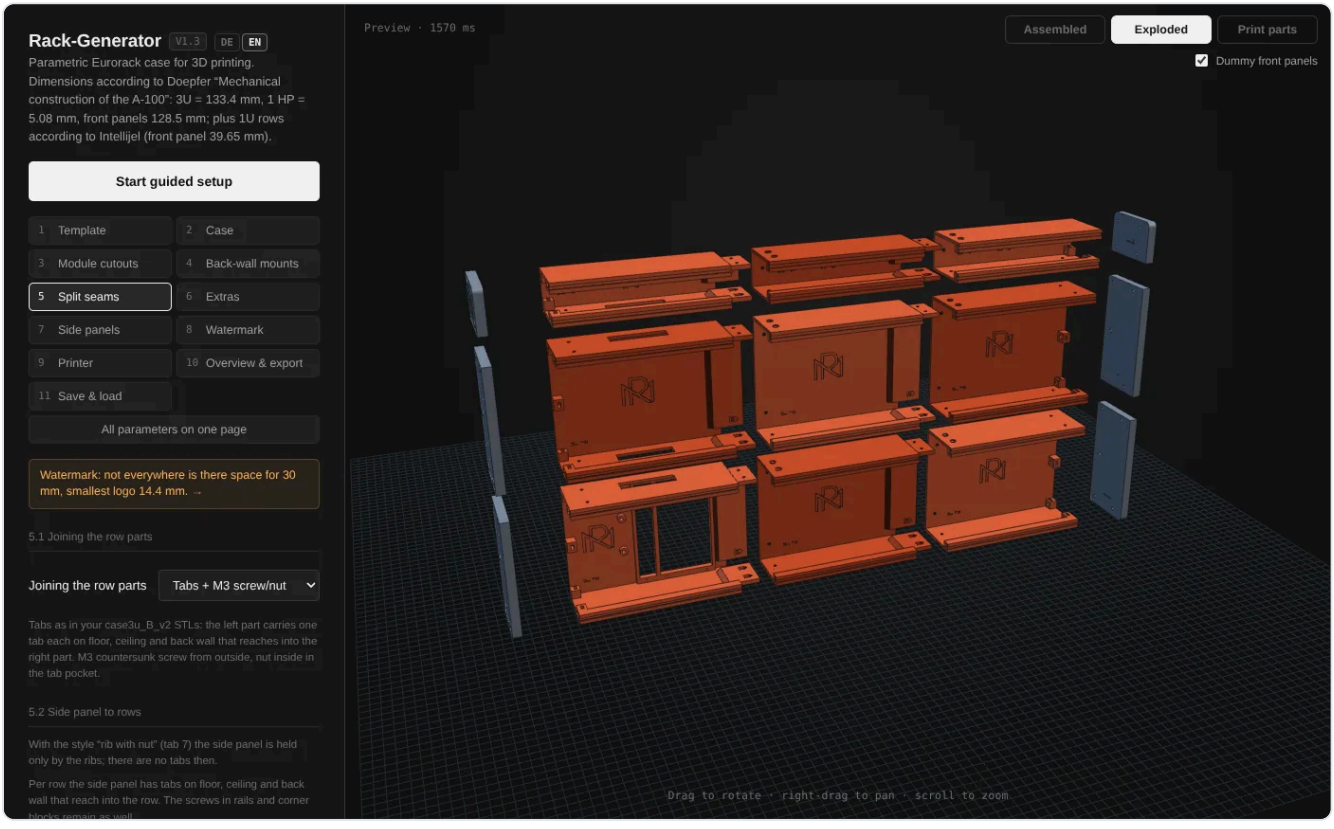
| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **VESA hole pattern** | none | none, VESA 75 × 75 or VESA 100 × 100. |
| **Mounting** | M4 nut inside | **M4 nut inside:** the nut is pushed into a hex pocket from the inside.<br>**M4 heat-set insert outside:** heat-set insert fitted from the outside. |

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Inner reinforcement (thickness)** | `6 mm` | Thickness of the reinforcement frame. 6 mm recommended; the module depth at this spot is reduced by this value. |
| **Additional horizontal ribs** | `off` | Adds two cross ribs through the hole rows to form a closed frame. |

- With several rows the hole pattern can also span a row joint; each row then gets its own holes and ribs. Only if a hole would land on a floor or ceiling does it move to the centre of the nearest 3U row.
- The VESA mount never adds segments. If a split seam falls within the VESA area, it moves together with its tabs between the two vertical ribs; then two holes sit on each part and the tab joint helps carry the load. The horizontal ribs leave room for the tab at the seam. If that does not fit on the print bed, the seam moves next to the hole pattern; if that is not possible either, it stays where it is with a warning.
- With an outer wall relief the contact surface on the outside stays flat.

## 5 Split seams

If a part is larger than the print bed, the generator splits it. In this tab you choose how the pieces are joined. The preview switches to the exploded view here.




Exploded view: each left segment has tabs on floor, ceiling and back wall that reach into the right segment.

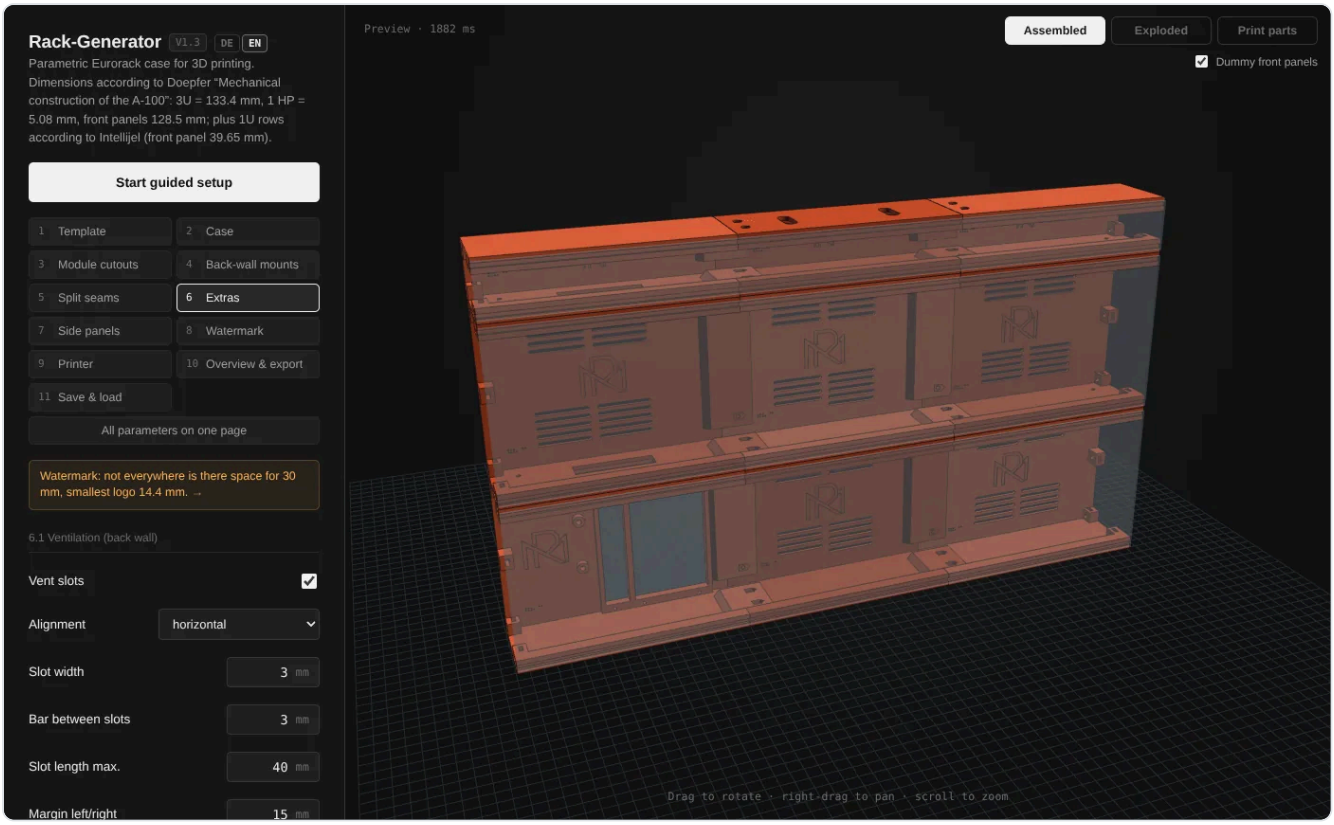
| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **5.1 Joining the row parts** | `Tabs + M3` | **Tabs + M3 screw/nut:** the left part has one tab each on floor, ceiling and back wall that reaches into the right part; M3 countersunk screw from the outside, nut inside in the tab pocket.<br>**Butterfly key:** printed keys in pockets of both parts, no screws. |
| **5.2 Side panel to rows** | `Tabs + M3` | Only with the side panel style “Countersunk screws” (tab 7). Tabs on the side panel that reach into the row, or only screws in rails and corner blocks. With the style “Rib with nut” the side panel is held only by the ribs. |
| **5.3 Split side panels** | `no connection` | Only if side panels are split at the row joints. *No connection:* each piece hangs on its own row. Alternatively butterfly keys or tabs + M3 (tab inside between rail and corner block). |

## Tab dimensions (for all tabs)

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Tab length** | `24 mm` | How far the tab reaches into the neighbouring part. |
| **Tab root in its own part** | `15 mm` | How far the tab is anchored in its own part. |
| **Tab thickness** | `5 mm` | Material thickness of the tab. |
| **Clearance tab / wall** | `0.2 mm` | Gap between tab and pocket. |
| **Screw from seam** | `12 mm` | Distance of the screw from the seam. |
| **Nut pocket AF** | `5.7 mm` | Width across flats of the nut pocket (M3 nut 5.5 mm). |
| **Nut pocket depth** | `2.8 mm` | Depth of the nut pocket. |

You set the countersink and through hole of the tab screws in tab 7. Butterfly keys are created automatically: with the joining method “Butterfly key”, and on the back between stacked rows if they are not bolted together at the corners (tab 6.5).

# 6 Extras




Horizontal vent slots and handle slots on top switched on. Slots leave out seams, cutouts and the power socket.

## 6.1 Ventilation (back wall)

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Vent slots** | `off` | Slots with rounded ends in all back walls. |
| **Alignment** | `horizontal` | Horizontal is print-friendly: the rows stand on their cut face when printed, so the slots run vertically and need no bridging. |
| **Slot width** | `3 mm` | |
| **Bar between slots** | `3 mm` | |
| **Slot length max.** | `40 mm` | Maximum length of a single slot. |
| **Margin left/right** | `15 mm` | Distance to the edges of the back wall. |

## 6.2 Power socket

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Power socket Ø** | `0 mm` | Round hole on the right in the back wall of the bottom row. 0 = no socket (default). Common values: 8 mm small DC jack, 11 mm large DC jack, 12.5 mm mini XLR / 4-pin. |

## 6.3 Cable pass-through between rows

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Cable pass-through between rows** | `on` | With several rows, a 60 mm wide opening in ceiling and floor between the rows, at the back in front of the corner block, for ribbon cables and power distribution. |

## 6.4 Pins between side panel pieces

This setting is in tab 7 (7.6).

## 6.5 Bolt rows together at the corners

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Bolt rows together at the corners** | `on` | Four vertical M3 screws per row joint through ceiling and floor, at the front behind the rail, at the back in front of the corner block. Head inside at the top, nut inside at the bottom. At angled joints (different angles per row) these screws are left out. |

## 6.6 Handle slots on top

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Handle slots on top** | `off` | Two elongated holes centred in the ceiling of the top row, between rail and corner block. A loop of webbing or cord goes down through one slot, along the inside under the ceiling and back out through the other. |
| **Slot width** | `10 mm` | |
| **Slot length (in depth)** | `25 mm` | |

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Slot spacing (centre to centre)** | 80 mm | If a slot lies on a split seam, you get a warning. |

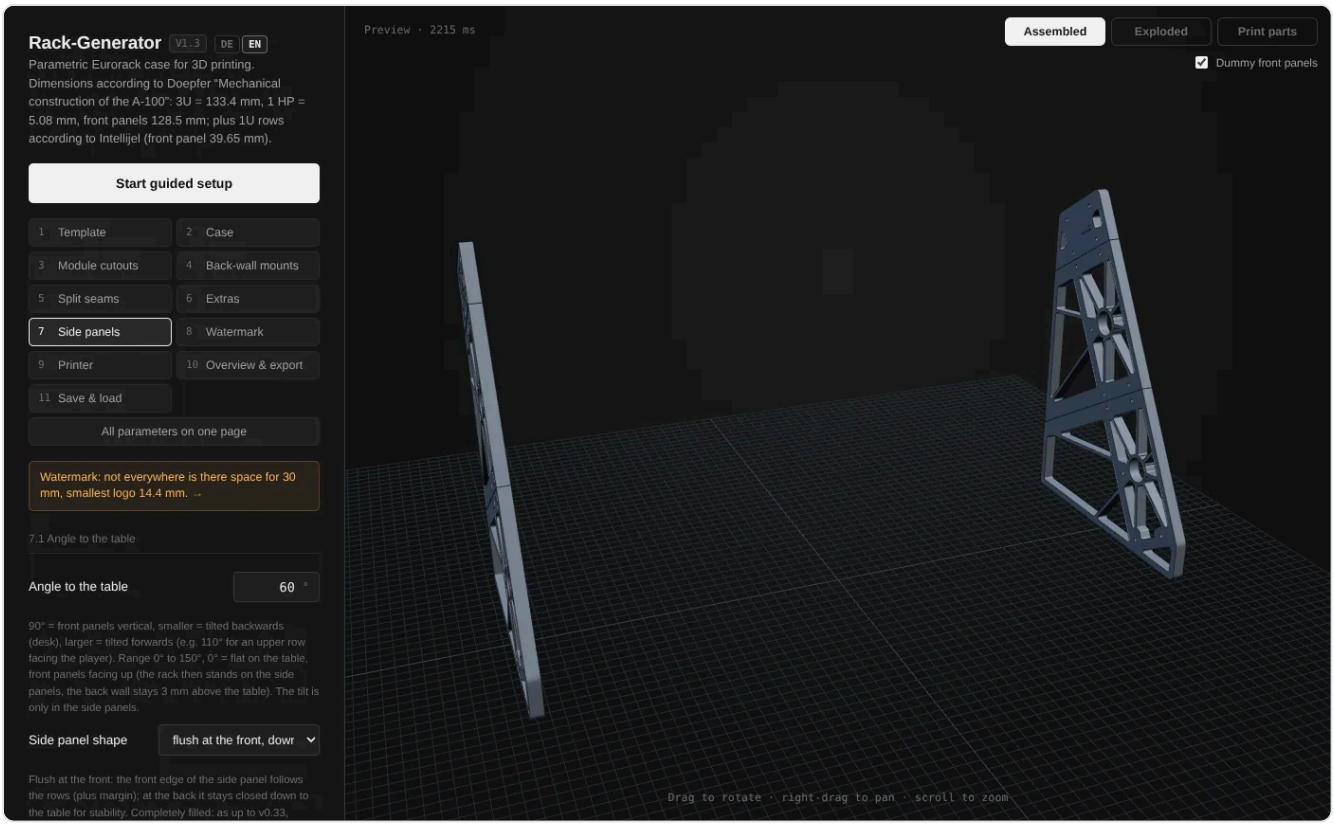
### 6.7 Position dots

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Position dots (order of the parts)** | on | Small dots show where each part belongs. They are counted on continuously, row by row from bottom to top, and within each row from left to right (seen from the front): left side panel, row parts, right side panel. If row 1 ends with 4, the left side panel of the next row starts with 5. |

How to read the dots: the top line has one half circle (flat side down) per ten, the line below has one full dot per unit, with a small gap after the fifth. So 24 is two half circles and four dots; round tens like 10 or 20 only have the top line. On the row parts the dots sit inside on the back wall at the top left; on the side panels they sit on the inside of each row, at the bottom in the middle of the depth.

## 7 Side panels

The side panels carry the tilt of the case and hold the rows together. In this tab the preview shows only the side panels.




60° tilt with spoke pattern: one hub with ribs per row.

## 7.1 Angle to the table

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Angle to the table** | `90°` | 90° = front panels vertical. Smaller = tilted backwards (desk), larger = tilted forwards (for example 110° for an upper row that faces the player). 0° = flat on the table, front panels facing up; the rack then stands on its side panels and the back wall stays 3 mm above the table. Range 0° to 150°. |
| **Side panel shape** | `flush at the front` | **flush at the front, down to the table at the back:** the front edge follows the rows (plus margin); at the back the side panel stays closed down to the table for stability.<br>**filled down to the table:** also closed at the front underneath overhanging rows. |
| **Row 1 (bottom) … Row 8** | `0°` | Only with several rows: a separate angle per row, counted from the bottom, 1U rows included. 0 = same as the angle above. If a row is tilted further forward than the one below, the front panels touch at the front and a wedge opens at the back; the side panel closes it at the sides. |

**Example: desk with a steeper top row**
Angle 60°, row 3 at 75°: the two lower rows lie flatter, the top one stands steeper and is easier to read from your seat.

## 7.2 – 7.4 Style, dimensions and screws

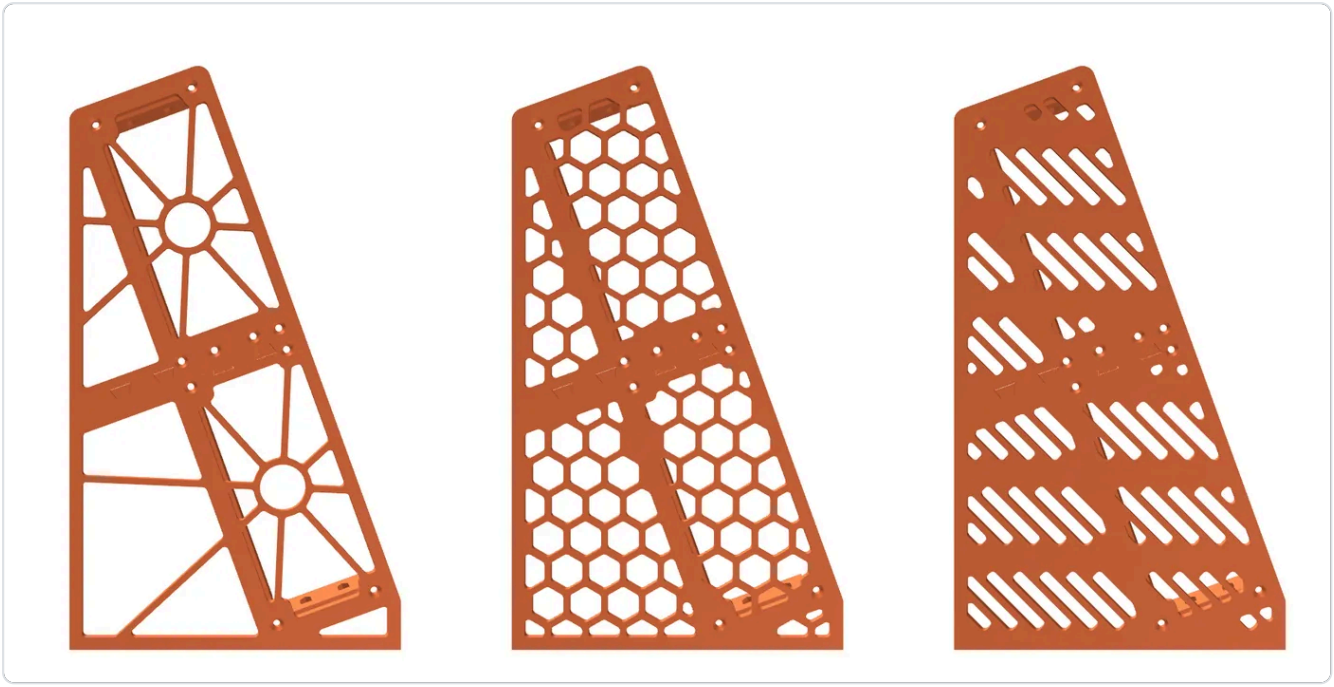
There are two styles. Which fields are visible depends on the style you choose.

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Style** | `Rib with nut` | **Rib with nut, head deeply recessed:** based on the EndCap design. 10 mm thick side panel, socket head screw deeply recessed. The nut sits in the row, at the front in a rib behind the rail and at the back in the corner block, each inserted from the interior. The rear corner blocks exist only at the ends.<br>**Countersunk screws:** flat plate with M3 countersunk screws into rail ends and corner blocks (style up to v0.36). |
| **“Rib with nut” only** | | |
| **Thickness** | `10 mm` | Thickness of the side panel. |
| **Material under the screw head** | `3 mm` | How much material remains between the head and the inside. |
| **Countersink head Ø** | `6.2 mm` | Bore for the socket head (M3: head 5.5 mm). |
| **Rib length (depth)** | `12 mm` | Length of the rib behind the rail. |
| **Rib thickness** | `10 mm` | Width of the rib. |
| **Nut from row end** | `4 mm` | Distance of the nut pocket from the end of the row. |
| **Rib with nut in the middle of the back wall (3U rows only)** | `on` | A fifth, small block per row and side on the back wall, with a hole and nut pocket. The 4U and 5U rows get it too. 1U rows never have it; they are held by four screws per side. |
| **“Countersunk screws” only** | | |
| **Thickness** | `4 mm` | Thickness of the side panel. |
| **Screw pilot hole (in row)** | `2.6 mm` | Pilot hole in rail ends and corner blocks. |

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Countersink Ø** | 6.9 mm | Diameter of the countersink for the countersunk head. |
| **Both styles** | | |
| **Front overhang** | 3 mm | How far the side panel extends in front of the front panel plane. |
| **Margin top/bottom/back** | 3 mm | Margin of the side panel around the rows. |
| **Corner radius** | 6 mm | Rounding of the side panel corners. |
| **Inner transition radius** | 100 mm | Rounds off the inward corners of the side panel outline with a fillet, for example where a row projects beyond the one below or two rows are tilted differently. Straight edges and outer corners stay unchanged. 0 = sharp inner corners. |
| **Screw through hole** | 3.4 mm | Through hole for M3. |
| **Screw head recessed by** | 1 mm | Applies to all countersunk screws from the outside (side panels, tabs on floor, ceiling and back wall, through holes of the mounts). The head sits deep enough that nothing sticks out. Where the material is too thin, the recess is reduced automatically. |

## 7.5 Pattern (side panels)

Patterns save material and print time. The seats of floor, ceiling, back wall and rails, all screw holes and the cut edges of split side panels stay solid.



Spokes, honeycomb and diagonal slots, each cut through.

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Pattern** | none | none, Spokes (like EndCap), Honeycomb, Circles, Diamonds, Triangles, Diagonal slots. |
| **Type** | cut through | cut through, Pockets inside or Pockets outside. For pockets make the side panel thicker (for example 6 mm with 4 mm pocket depth). |
| **Pocket depth** | 2 mm | Pockets only. |
| **Cell size** | 18 mm | Size of the pattern cells. Does not apply to spokes. |
| **Rib** | 3 mm | Width of the bars that remain. |
| **Margin** | 6 mm | Solid border around the outer edge. |
| **Cell corner radius** | 2 mm | Rounding of the corners inside the cells. |
| **Spokes per row** | 8 | Spokes only. |
| **Hub radius** | 14 mm | Spokes only. |

### 7.6 Pins between side panel pieces

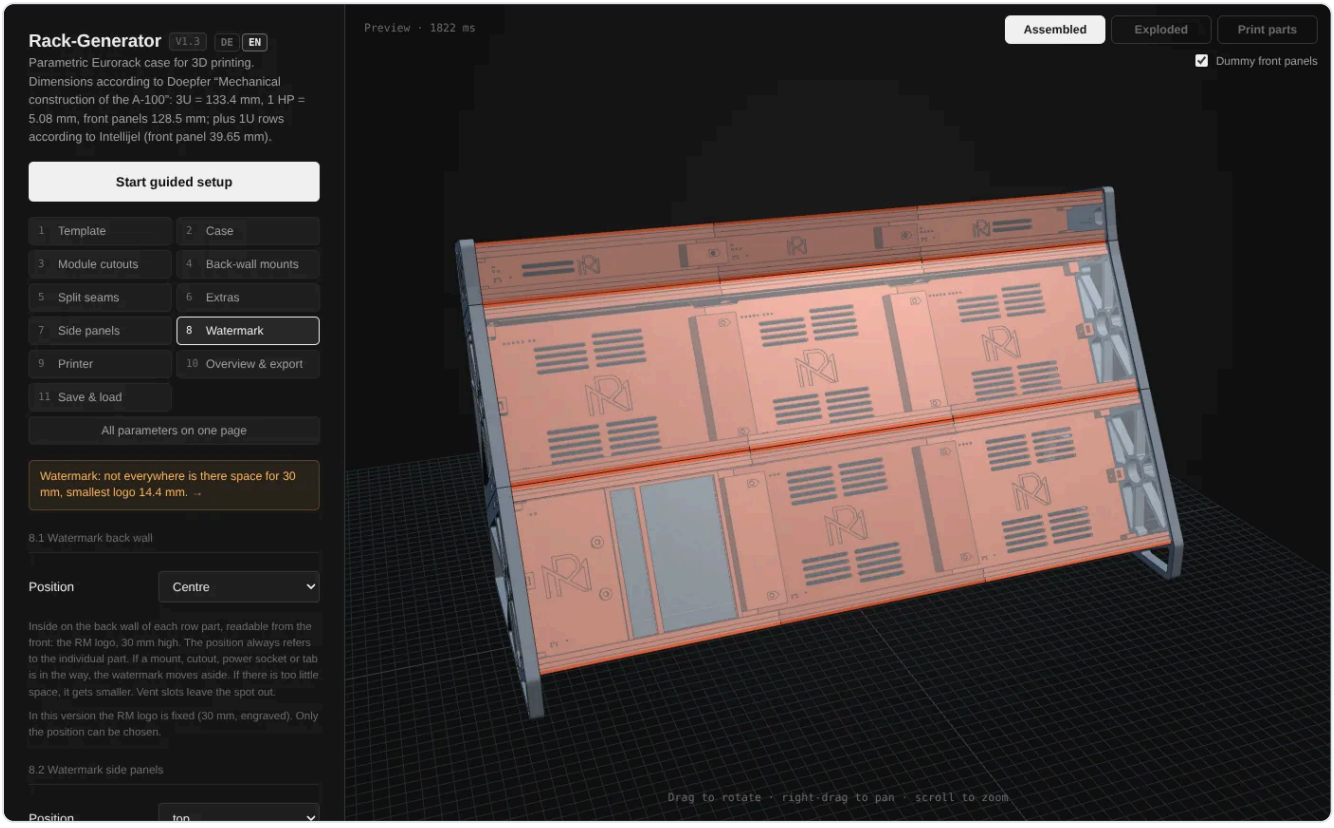
| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Pins between side panel pieces** | `off` | Only for split side panels: dovetail pins along the cut edge. The pieces are slid together from the side. Off by default because the pins can cause printing problems. |

## 8 Watermark

The RM logo of Römhold Modular appears on every row part and every side panel. In this version it is fixed: 30 mm high and engraved 0.4 mm deep. Only the position and, on the side panels, the orientation can be set. If a mount, cutout, power socket or tab is in the way, the logo moves aside; if there is too little space it gets smaller, and a message states the size.

### 8.1 Watermark back wall

Inside on the back wall of each row part, readable from the front. The position always refers to the individual part. Vent slots leave the spot out.

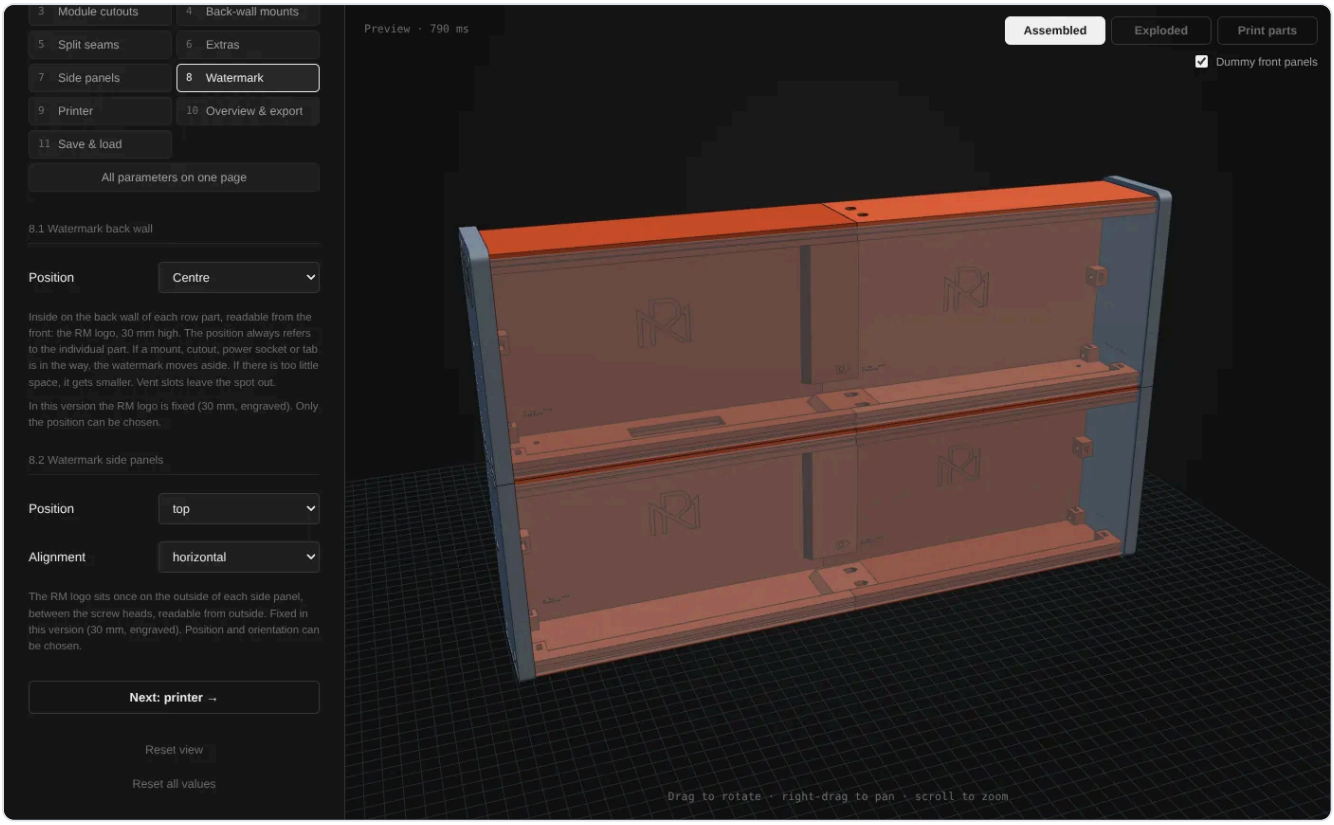



Logo centred on each row part. The yellow message says where it had to be made smaller.

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Position** | `Centre` | Nine positions from top left to bottom right. |

## 8.2 Watermark side panels

Once on the outside of each side panel, between the screw heads of rib and corner block, readable from the outside.

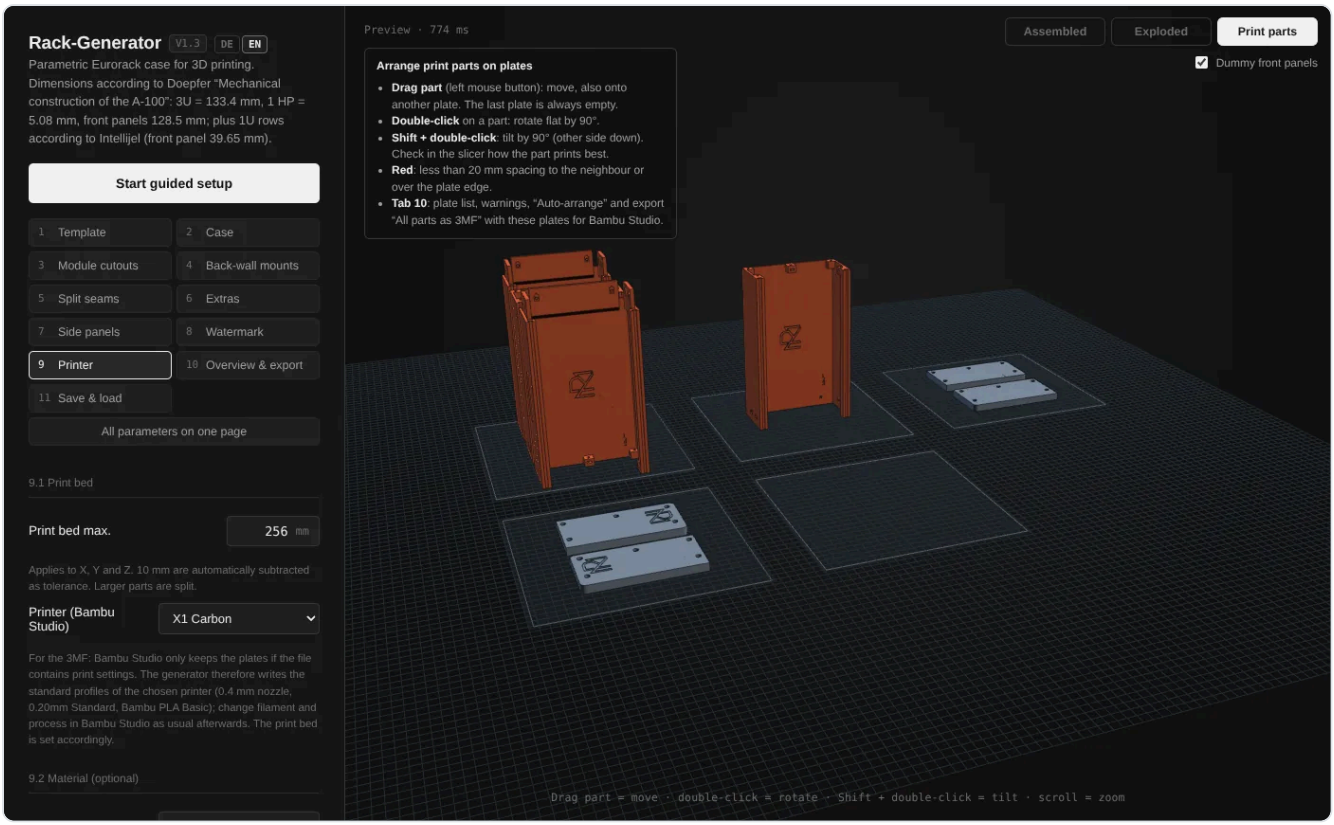



Settings for the logo on the side panels.

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **Position** | `top` | top, centre or bottom of the side panel. |
| **Alignment** | `horizontal` | horizontal, vertical, bottom to top or vertical, top to bottom. Vertically the logo may use the full height of the row; the width is still the space between the screw heads. |

# 9 Printer

In this tab the preview switches to **Print parts**: all parts arranged on print plates. Row parts and side panels each go on their own plates, at least 20 mm apart. Exactly this arrangement ends up in the 3MF.



84 HP with 2 × 3U: two plates with row parts, two with side panels; the last plate is empty.

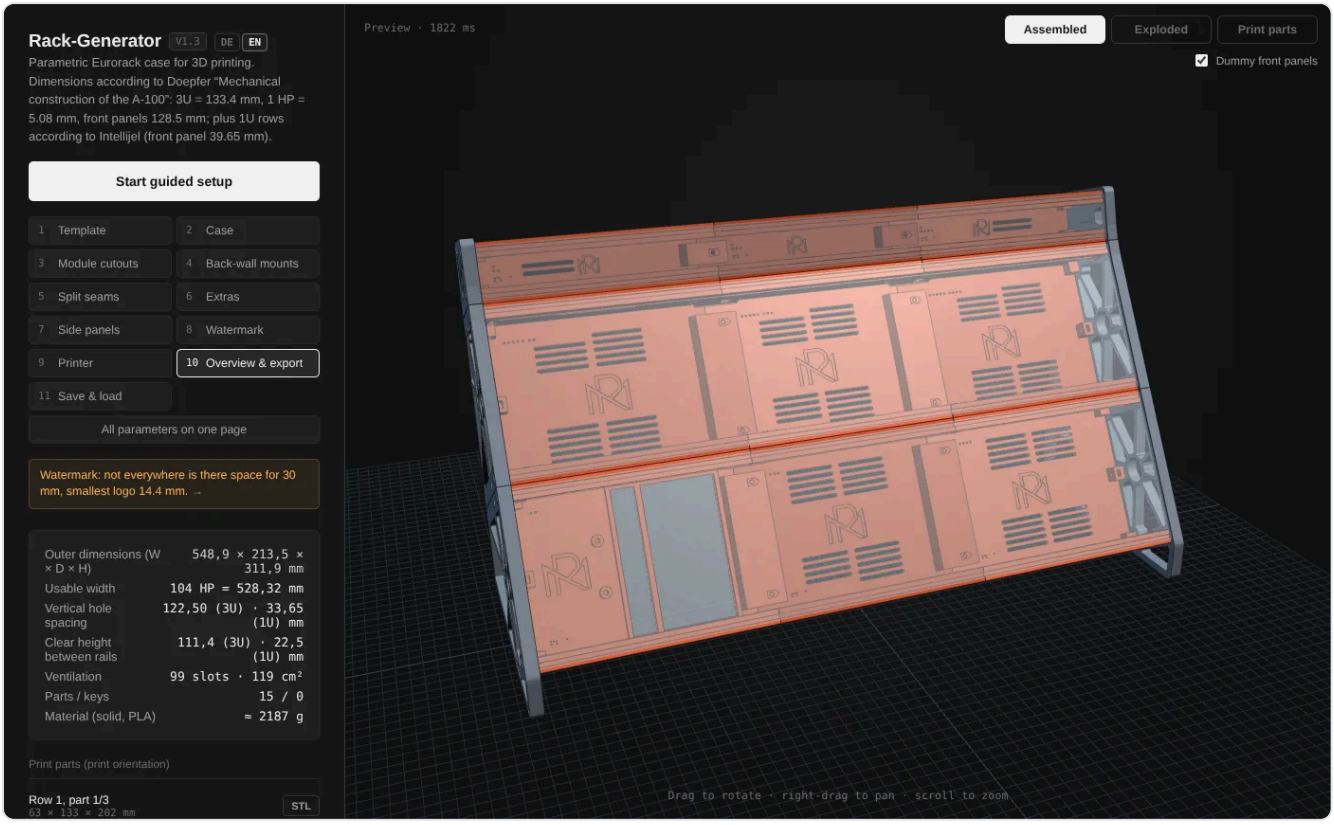
## Arranging parts by hand

- **Drag a part** (left mouse button): move it, also onto another plate. The last plate is always empty.
- **Double-click** a part: rotate it flat by 90°.
- **Shift + double-click:** tip it over by 90°, so a different side faces down. Check in the slicer how the part prints best.
- Parts marked **red** are less than 20 mm from a neighbour or stick out over the plate edge.
- **Auto-arrange** in tab 10 restores the initial layout.

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **9.1 Print bed max.** | `256 mm` | Applies to X, Y and Z. 10 mm tolerance is subtracted; larger parts are split. Typical: 256 mm for X1, P1 and A1, 180 mm for A1 mini. |
| **Printer (Bambu Studio)** | `X1 Carbon` | none, X1 Carbon, X1, X1E, P1S, P1P, P2S, A1, A1 mini. Bambu Studio only keeps the plates of a 3MF if it contains print settings. For this the generator writes the standard profiles of the chosen printer (0.4 mm nozzle, 0.20mm Standard, Bambu PLA Basic); you change filament and process afterwards in Bambu Studio. The print bed is set accordingly. |

| FIELD | DEFAULT | EFFECT |
|---|---|---|
| **9.2 Filament type** | PLA (~0.3 %) | Sets the shrinkage compensation: none, PLA 0.3 %, PETG 0.4 %, ABS 0.6 %, ASA 0.6 %, TPU 0.5 %, Nylon 1.2 % or a custom value. |
| **Shrinkage compensation** | 0.3 % | Scales all exported parts up by this value so they have their nominal size after cooling. The preview shows nominal dimensions. The values are guide values; check them for your own filament and printer. |

# 10 Overview & export




Figures for a 7U case with 104 HP and 60° tilt.

## Figures

| | |
|---|---|
| **Outer dimensions (W × D × H)** | Size of the finished case including side panels. |
| **Usable width** | HP and mm between the side panels. |
| **Vertical hole spacing** | 122.50 mm for 3U, 33.65 mm for 1U; for 4U and 5U the value from tab 2.5. |
| **Clear height between rails** | Space for the module PCB between the rails. |
| **Ventilation** | Number of slots and open area. |

| | |
|---|---|
| **Parts / keys** | Number of print parts and butterfly keys. |
| **Material** | Rough estimate for solid PLA. With infill in the slicer it will be much less. |

## Plates for the 3MF (Bambu Studio)

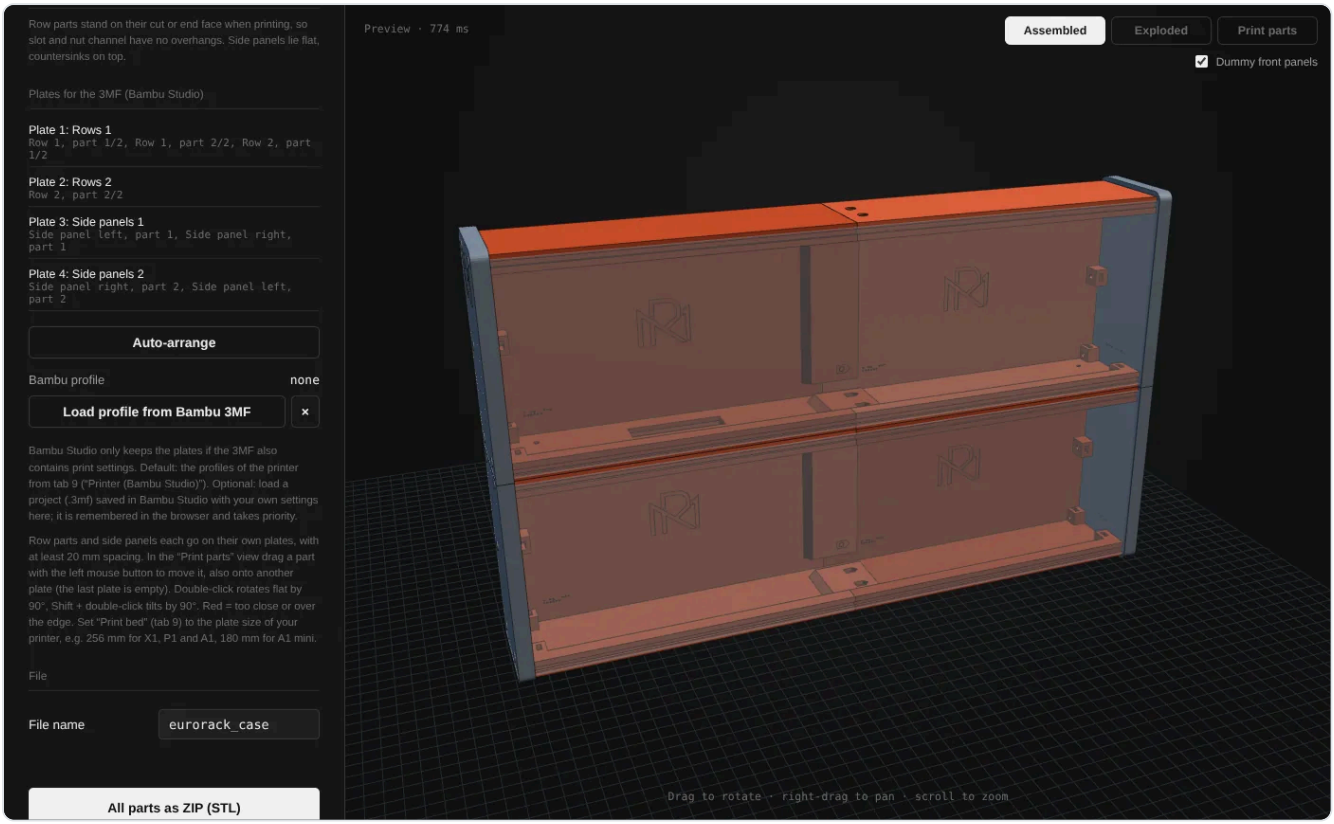



Plate list, “Auto-arrange” and the optional custom Bambu profile.

The list shows each plate with the parts on it, with warnings below if parts are too close together or stick out over the edge. **Auto-arrange** packs all parts again and discards your manual changes.

**Load profile from Bambu 3MF** takes the print settings from a project you saved in Bambu Studio. The profile is remembered in the browser, takes priority over the printer from tab 9 and is then included in every exported 3MF; the plate grid and print bed follow it. **×** removes it again.

## Print parts and export

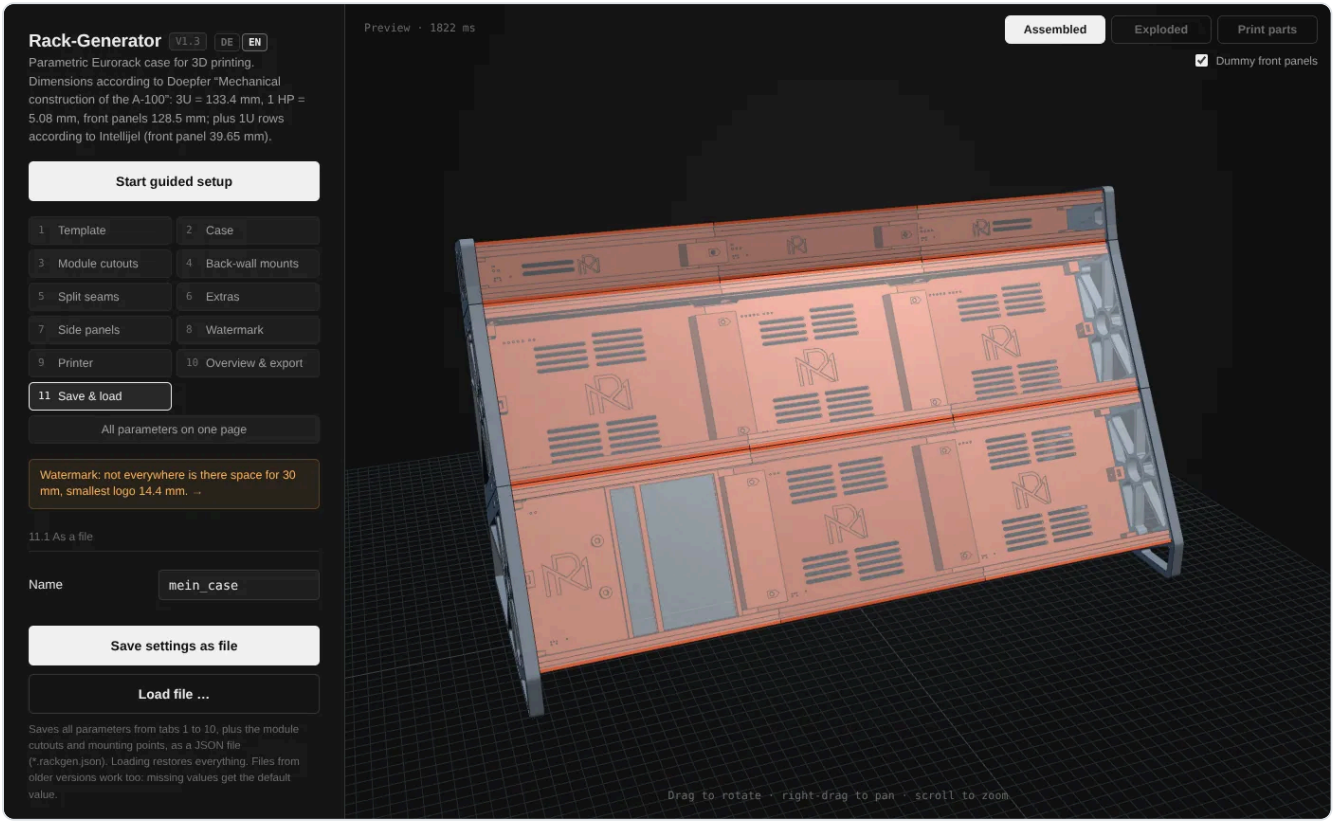
The **Print parts** list names every part with its dimensions and its own **STL** button. Below it you set the **File name** (default `eurorack_case`), which is put in front of every file name.

| BUTTON | RESULT |
|---|---|
| **All parts as ZIP (STL)** | A ZIP with every part as an STL in print orientation, plus `…_info.txt` with all settings, cutouts and mounts. |

| BUTTON | RESULT |
| --- | --- |
| **All parts as 3MF (plates for Bambu Studio)** | A 3MF project with all parts, arranged on the plates from the print parts view, including print settings. Bambu Studio opens it with all plates; other slicers read the geometry. |
| **Test print: 30 mm rail (STL)** | A 30 mm long piece of the bottom rail to check the slot, nut channel or holes. |

**Assembly notes** collects all of the generator's messages. The export buttons are locked as long as values are invalid or there is an error.

# 11 Save & load




Save as a file or in the browser.

## 11.1 As a file

**Save settings as file** writes all parameters of tabs 1 to 10 plus all cutouts and mounts into a JSON file named after the **Name** field (`my_case.rackgen.json`). **Load file ...** restores everything. Files from older versions work too; missing values get their default.

## 11.2 In the browser

**Save in the browser under the name above** creates a quick save in this browser on this device. The same name overwrites. The list below shows all saved states for loading or deleting. For backups or sharing always use the file: browser storage is lost when site data is cleared.

# Placing by row and segment

The easiest way to place cutouts (tab 3) and mounts (tab 4) is by the structure of the case rather than by millimetres. This is the default for new entries.

1. Choose the **row**: 1 is the bottom one. 1U, 4U and 5U rows are marked “(1U)”, “(4U)” and “(5U)”. On the top and bottom sides there is no row choice; the top or bottom row applies.
2. Choose the **segment**: 1 is the left one, seen from the front. On side panels there is no segment choice.
3. Choose the horizontal and vertical **alignment**, five steps each: *left, left – centre, centre, centre – right, right* (vertically *bottom … top*). The intermediate steps are at ¼ and ¾ of the free range. On the top and bottom sides the second direction is *front … back*; on the side panels it is the first.
4. Fine-tune with the **offset** in mm: positive values move towards the second option, so to the right, up or back.

Below the entry you see the calculated position in mm, for example “= 76.3 mm from left, 2.5 mm from bottom”. If you later change the width or the number of rows, the cutout moves with it.

> **Coordinates instead of structure**
> With *Placement: Coordinates* you enter fixed millimetres. Back wall, top and bottom side count from the left from the inner edge; side panels count from the front from the front panel plane. When you switch to coordinates the generator takes over the last calculated position, so nothing is lost. Saved states from before v0.52 load with coordinates.

# Printing and assembly

## Printing

- All parts come in print orientation. Row parts stand on their cut or end face, so slot and nut channel have no overhangs. Side panels lie flat with the countersinks facing up. If you tip parts over in the print parts view, check the result in the slicer.
- With Bambu Studio the easiest way is to open the 3MF: the plates are already filled, and you adjust filament and process there.
- Print the rail test piece first and check it with a real front panel, screw and nut. If the channel does not fit, adjust it in tab 2.4.
- The shrinkage compensation is already included in the export. Do not scale again in the slicer.

## Hardware

All joints are designed for M3. Which parts you need depends on your settings; the screw length depends on wall and tab thickness.

| FOR | PARTS |
|---|---|
| **Front panels** | M3 × 6 pan head (A-100) and, depending on the rail, M3 nuts or threaded strips, heat-set inserts or nothing (pilot hole). |
| **Tabs (split seams, side panel, split side panels)** | M3 × 6 mm countersunk screw from the outside, plus one M3 nut each in the tab pocket. The info.txt in the ZIP lists this as soon as the case has tabs. |
| **Side panels “Rib with nut”** | M3 socket head screw, nut in the rib or corner block. |
| **Side panels “Countersunk screws”** | M3 countersunk screw into the pilot hole of the rail and the corner block. |
| **Rows at the corners** | Four M3 screws per row joint, head inside at the top, nut inside at the bottom. |
| **Mounts** | Press-fit or heat-set inserts or screws, depending on the type. |
| **VESA mount** | Four M4 screws with M4 nuts inside or M4 heat-set inserts. |

## Order of assembly

1. Sort the parts using the position dots (tab 6.7): within each row from left to right, rows from bottom to top.
2. Fit heat-set inserts while the parts are still separate.

3. Join the segments of each row at the split seams.
4. Bolt the stacked rows together at the corners.
5. Screw on the side panels. With “Rib with nut”, first push the nuts into the ribs and corner blocks from the interior.
6. Mount the power supply and bus board on the mounts, then fit the modules.

# Messages and FAQ

## Why does the preview keep showing the loading message?

The generator needs an internet connection when it opens, to load three.js, JSZip and manifold-3d. Without a connection the preview stays empty.

## “Watermark: not everywhere is there space for …”

On some parts the logo did not fit at full size and was scaled down. The message states the smallest size. This is not an error; change the position if you like.

## “… lies on a split seam”

A cutout, hole pattern or handle slot cuts into the seam or the tabs. Move the element with alignment or offset, or choose another segment.

## “… only x mm of material for the heat-set insert”

Wall plus reinforcement are shorter than the insert. Increase the inner reinforcement in tab 3; on side panels make the side panel thicker or use shorter inserts.

## Why is my case split into segments?

The width is larger than the print bed minus 10 mm. A larger print bed in tab 9 gives fewer parts.

## Can I change a case later?

Yes, if you saved the `.rackgen.json`. The info file in the ZIP also contains all values for reference.

## Which part goes where?

The position dots show this (tab 6.7): half circles are tens, full dots are units. Counting runs from left to right within each row, row by row from bottom to top.

## Bambu Studio shows only one plate

The 3MF needs print settings, otherwise Bambu Studio ignores the plates. Choose a printer in tab 9 (not “none”) or load your own Bambu profile in tab 10.

### Why are parts red in the print parts view?

They are closer than 20 mm to a neighbour or stick out over the plate edge. Move or rotate the part, drag it onto the empty plate, or press “Auto-arrange” in tab 10.

### How do I make a flat case for the table?

Set the angle to the table to 0°. The case then lies on its side panels with the front panels facing up.

# Terms and licence

The Eurorack Generator is offered by Römhold Modular. Use of the generator is subject to the general terms and conditions (AGB) of Römhold Modular: rhm-systems.de/agb

The files created with the generator (STL, 3MF, settings files) and the parts printed from them are subject to the licence terms in **§ 12 of the AGB**. Among other things, they set out what you may use the files and parts for and whether you may pass them on.

> **Please read before use**
> Read the AGB, and especially the licence terms in § 12, at `https://rhm-systems.de/agb/` before you export files or print parts. The AGB page is in German.

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Manual for the Eurorack Generator V1.3 by Römhold Modular. New versions may add fields.