VECTOPALM

Vectopalm V42 Feature guide

All controls, tools and commands – browser and Android

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This guide explains every control in Vectopalm V42 – what a short tap does and what a long press does. It applies to the browser and the Android version alike.

1. Screen layout

Vectopalm works with two windows stacked on top of each other: you trace at the top and draw and edit vectors at the bottom.

Area	Label	Purpose
Top window	Template · Draw	Shows the template image. Trace contours here (the algorithms follow the image edges), select areas with the magic wand or draw with the freehand pencil.

Area	Label	Purpose
Bottom window	SVG · Trim / Nodes	Shows the vector curves. Draw shapes, select, move, trim and edit nodes here.
Splitter	between the windows	Top row with the fixed switches (node mode, snapping, freehand …). Drag it to share the space between the windows.
Tool row	below the splitter	All drawing and editing tools. Below it, optionally, the colour bar.
Ruler	above the lower window, optionally also to its left	Scale in true millimetres of the page: 0 is at the left page edge. A fine mark follows the pointer. A second, vertical ruler (0 = top page edge) is switched on under ⚙ Settings → View with “Vertical ruler too (Y axis)”; the window title at the bottom left then moves next to it.
Top bar	at the very top	File, Image and Effects menus, undo/redo, info, settings, stroke, copy/paste, artwork search.
Side columns	left and right (tablet landscape, desktop)	Object manager and pages on the left, the properties panel on the right. On smartphones they appear as pop-up panels.

Moving the view: zoom with two fingers or the mouse wheel; pan with two fingers or by holding the space bar. Template and drawing always move together. The zoom display is a button: fit, 100 %, to selection, + and −.

General rule: tapping selects a tool (it is highlighted). Tapping it again leaves it. A long press opens extra functions; a blinking switch shows that a long-press function is active. At startup Vectopalm reopens the last state with the same view and splitter position you left it with.

2. Top bar

The top bar holds the menus and the controls that apply to the whole project.

Control	Function
File	New, Load project, Save project, Save as …, 3D mode, Save 3D object (only with a 3D model) / Load 3D object (section 14), import SVG / PDF / DXF, save SVG / PDF / PNG, Export … (export dialog), Delete all (removes all curves, the template stays). “New” asks whether to save first if there are unsaved changes.
Image	Load …, Edit …, Crop …, Adjust …, Remove, Export … (see section 10).
Effects	List of all effects with icon and shortcut; the gear opens the settings for visibility and shortcuts (see section 8).
↶ / ↷	Undo / redo. Inside an open command they step through the command’s own steps, otherwise through the drawing.
✦ AI assistant	Opens the AI panel with the slots MCP 1–3 (any AI per slot): per slot connection on/off, pairing code, mode, pause/stop/take over, activity and notes (section 15). A dot on the button shows the state: grey = waiting for pairing, green = at least one AI connected, orange = server not reachable; the button pulses while an AI is working.
⚙ Settings	At the top right of the window ⓘ opens the in-app manual (settings close). Language, drawing, page, snapping & grid, view, editing, interface, tool row (order, visibility), effects, shortcuts, license, reset.

Control	Function
Stroke width	Tap the value for an exact number; next to it three presets (0.5 · 1 · 2). With a selection it applies to the selected objects, without one to all new lines.
Dash style	Solid, dashed, dotted, dash-dot – also for the selection or new lines.
Copy	Copies the selection to the internal clipboard. If only nodes are selected in the upper node mode, only that connected section is copied. Nothing reaches the device clipboard.
Paste	Pastes the most recent copy: the internal one or something copied outside Vectopalm afterwards (SVG source → vector curves, image → image editing). A long press opens a field for pasting from the device in case direct access is not allowed (section 11).
Magnifier	Opens the artwork search in the Free SVG Library (section 11), in 3D mode the 3D library (section 14). A long press opens command search (section 13).

3. Tool row

Every tool has a short tap, most of them also a long press. Set order and visibility under ⚙ Settings → Tool row; if a button has a second task in 3D mode, its icon is shown there next to the usual one.

Tool	Key	Tap	Long press
Select (arrow)	V	Select and move curves, drag nodes and handles (upper node mode). Tapping the active arrow again clears the selection.	–
Properties	–	Show or hide the properties panel	–
Eyedropper	I	Takes over colour or style of an object – fill or stroke, depending on the colour target. In the template it picks the image colour.	Save and apply object styles
Magic wand	W	A tap in the template selects connected pixels of similar colour and creates their outline as a curve	Tolerance and mode (plus/minus, holes, smoothing, grow)
Colour box	–	Switches whether colours apply to fill or stroke	Show or hide the colour bar
Rectangle	R	Rectangle by dragging	Square
Ellipse	E	Ellipse by dragging	Circle
Polygon	Y	Polygon by dragging	Number of corners
Star	S	Star by dragging	Number of points, inner radius
Spiral	U	Spiral by dragging	Turns
Line	L	Straight line	Tangent mode on/off: line ends slide along curves to the tangent point (Alt while drawing = once without)

Tool	Key	Tap	Long press
Bézier pen	P	Tap = corner point, drag = smooth curve, tap the first point = close, Enter or double tap = done, Esc = discard; Ctrl+Z removes single points	–
Freehand pencil	F	Free line, converted into a few smooth Bézier curves. In the top window it draws without edge guidance.	Calligraphy on/off (brush width, angle, pen pressure)
Text	T	Opens the text window: text, font, size, spacing, alignment, bold, italic	–
Scissors	C	Cuts a curve at the tapped spot	Divide path: into equal parts or distribute nodes evenly
Eraser	X	Dragging over objects deletes them	–
Circular pattern	O	Copies around a pivot (section 8)	Step and repeat: copies with offset, rotation and scale per step
Blend	B	Intermediate steps between two or more objects, optionally along a guide curve	–
Chamfer / fillet	K	Bevel or round corners, with live preview	–
Group	Ctrl+G	Group several objects or ungroup a group	Combine paths or release a combination
Mirror	–	Mirror left/right	Mirror top/bottom
Rotate	–	Rotate by 90°	Enter an angle
Dimension	–	Drag a dimension line or tap points (section 9)	Unit, decimals, text size, lock for new dimensions

Drawing shapes: shapes are only created by dragging in the bottom window; a simple click ends the shape tool. Shift creates a square or circle or snaps angles, Alt draws from the centre.

4. Tracing the template: algorithms and sliders

In the top window you trace a contour with a finger, mouse or pen; the active algorithms guide the curve along the image edges.

Switch / slider	Function
Algorithm 1–4	Tap to switch the algorithm on or off. Its colour marks its curves. The switches always stay switchable, even without a template.
Indicator bottom left (top window)	Shows the active algorithms as filled circles. It turns grey when there is no template, all algorithms are off or the freehand pencil is selected – then no algorithm draws at the top.
Sliders ⌕ radius, ⊹ edge, ≏ smooth	Fine control of edge guidance and of the smoothing after release.
Slider ⌀ stroke width	Scales the stroke widths of all curves relative to each other (2 and 4 stay 1 : 2).

Switch / slider	Function
Slider ◐ threshold	Creates a threshold preview from the brightness of the template. It is rebuilt on release. Without a template the slider has no effect (a hint appears when tapped).
+ (apply threshold curves)	Turns the threshold preview into permanent curves. Gaps at the edge of a zoomed-in, recalculated section are closed automatically.
✍ **Freehand**	Draw without edge guidance.
Fit	Fits the view.
Blur	Blur of the template on/off.
⚑ **Isolate curves**	Turns algorithm curves into independent vector curves (afterwards black instead of the algorithm colour).

Long press while tracing: the long-press algorithm smooths the curve after release. All algorithms then convert their curves into a few precise Bézier sections; corners stay sharp. Set the precision (1 = coarse, 10 = fine) under ⚙ Settings → Drawing.

Without a template image the top window only draws with the freehand pencil (or a shape).

5. Node editing

Vectopalm has two node modes: the upper one (select tool) for curves and single nodes, and the lower one (☍) for one curve with a frame and handles. If nodes are marked when you switch, only the curves with marked nodes come along into the lower mode; a curve that touches fully marked curves only with an end node stays out. Back again, the marking is exactly as before – so you can switch back and forth freely without the marking changing.

Upper node mode (arrow, key V)

- Tapping a curve selects it; for groups the whole group is selected.
- A rectangle dragged from top left to bottom right (blue) selects curves and their nodes.
- Inverting rectangle from bottom left to top right (red): selected nodes are deselected, unselected ones are added.
- Drag nodes and Bézier handles. Nodes take priority over handles; for coincident nodes the node of the selected curve is grabbed.
- The splitter switches act on the selected nodes:

Switch	Function
Curve / straight	Sections between selected nodes become curved or straight
Sharp / smooth	Toggle the node type
Symmetry	Align the node’s handles symmetrically
Break / join	Open a contour at the node or join two ends; a closed contour becomes one open path, two nodes produce two arcs
↻ Repeat	Apply the last action (move, rotate, scale, skew, mirror, copy with offset, style) again to the selection, Ctrl+R. Long press = number of repetitions.

Lower node mode (☍, key N)

The selected curve gets a frame around its whole extent. Its handles and buttons:

Handle / button	Function
Corner and side handles	Scale (Shift or the Shift switch = from the centre; aspect ratio per setting)
Double arrows on the sides	Skew
Rotate handle at the top	Rotate around the pivot (Shift = rotate and scale at once, 5° steps)
Pivot	Draggable, snaps to nine reference points of the frame and to smart guides
✛	Move the curve
+	Create a copy
×	Delete the curve
⌒	Smooth
Smooth-curve switch	Toggle non-Bézier sections between straight and curved
Node counter ⌁↓ n	Shows the number of nodes; tap to reduce the nodes
∠ ∥ =	Geometry: equal angles, parallel, equal side lengths

More gestures: Shift+click adds curves to a multi-selection (edited together, shared pivot). A trim line or a lasso removes sections along the true Bézier curve. Double-click on a curve inserts a node. If the frame extends beyond the view, a helper palette with the main functions appears at the bottom right.

Four extra modes (in place of the curve tools in the splitter, only one active at a time, stays on until switched off):

Mode	Function
Scale & rotate	Grab a node and turn it around the pivot – the object rotates and scales from the pivot without changing its shape
Move edge	Grab an edge and move it in parallel; the neighbouring edges stay attached
Point-symmetric	Changes to a node are mirrored through the pivot onto its counterpart; if it is missing, it is inserted
Soft drag	Neighbouring nodes follow with falloff, the curve stays smooth

Snap switches in the splitter (both modes)

Switch	Function
Node snapping (magnet)	Nodes snap to nodes of other curves; coincident nodes move along
⌖ **XY guides**	Alignment lines to nodes, edge and object centres as well as corners, edge midpoints and centre of the page frame
⟟ **Line snap**	Snaps to straight extensions

Switch	Function
Shift mode	Like holding Shift: compress symmetrically, scale from the centre, rotate in 5° steps

Locked and hidden objects are never snap targets. Dimension elements cannot be selected as curves in either node mode – clicking a dimension opens the dimension tool.

6. Properties and colours

With a selection, properties only apply to the selected objects; without one they become the default for all new objects. In the lower node mode they only apply to the selected curve, not to its whole group.

Section of the properties panel	Content
Colours	Colour for fill or stroke, depending on the colour target
Stroke	Colour, width, opacity, dash style, caps, joins, arrowheads at start/end (arrow, open, dot, square, bar) with size, dash pattern symmetric at corners
Fill	Colour, linear or radial gradient with any number of colour stops (+ / ↺) and movable centre, hatching from the gallery (lines, cross, diamond, dots, check, zigzag, waves, bricks, scales, honeycomb, triangles, dashes) with angle, spacing, line width and background, opacity, fill rule
Tool	Options of the selected tool, e.g. corner radius, calligraphy brush
Object, arrange	Layer order forward / backward
Transform, align	Position, size, rotation; align objects to each other. The X / Y / W / H fields work in pixels or millimetres (“Unit” switch).
Path	Unite, subtract, intersect, exclude, combine, break apart, stroke → path, offset, simplify
Grid & snapping	Show the grid and snap to it
Export	Export presets

Colour bar (long press the colour box): target fill or stroke, “None”, palette, recently used colours, custom colour (+) and ⇄ to swap fill and stroke.

7. Object manager and pages

The object manager is the layer list of all objects. On tablets in landscape and on the desktop it sits in the left column; otherwise open it with a long press on the menu button and move it by its title bar.

“Objects” tab

Element	Function
Tap a row	Selects the object; with Shift or Ctrl add to or remove from the selection
Drag the handle ⠿	Change the order (layer); groups move as a whole
▸ / ▾	Expand or collapse a group

Element	Function
Tap a group row	Selects the whole group; for a blend it opens blend editing
Row inside a group	Selects only this element – colour, style and editing then apply to it alone
Double tap on the name	Rename
Eye	Show or hide
Lock	Lock: locked objects cannot be selected, deleted or used as snap targets
“Images” section	Select, rename, show/hide, lock and reorder the page’s images; a selected image can be copied, pasted, duplicated and deleted

Symbols in the list: T = text, ∿ = curve, — = straight line, group and blend icons for groups.

“Pages” tab

A project can have several pages, each with its own template, its own curves and its own format.

- Tap a page to switch to it; add and delete pages, reorder them with the handle ⠿, rename by double tap.
- Format chip: paper size per page (A3–A6, B4, B5, Letter, Legal, Tabloid, 1 : 1; portrait or landscape).
- Print switch: only marked pages go into the PDF export.
- The number shows the page’s curves, the image icon an existing template.
- Copy and paste place objects at exactly the same position – also on another page.

“3D” tab

Lists the 3D objects of the page. The pencil opens an object in 3D mode, the eye hides it, the lock locks it, “+” creates a new 3D object and opens 3D mode. In 3D mode the tab shows history, sketches, space curves, planes and bodies of the object, for an assembly also parts and mates (section 14).

8. Effects and commands

Effects act on the selection and show a live preview; ✓ (or Enter) applies, ✕ (or Esc) cancels. The result is grouped with the original – ungrouping separates it again.

Undo inside a command: while a command is open, ↶ / ↷ step through its own steps (corners, pivot, settings …). The preview can neither be selected nor edited until ✓ and never becomes a real object without confirmation.

Effect / command	Shortcut	Use
Contour steps	Ctrl+Alt+K	Offset copies outwards (positive) or inwards (negative); the colour runs to the target colour
Drop shadow	Ctrl+Alt+S	Offset X/Y, colour, opacity, softness (graded rings)
Extrusion	Ctrl+Alt+E	Depth (negative = to the opposite side), direction, shading, colour, back face. The side faces get the object’s stroke colour. The window stays open while you select other objects or change the base contour – the preview follows immediately
Distort	Ctrl+Alt+D	Wave, zigzag, rough, twirl, bulge with strength and frequency

Effect / command	Shortcut	Use
Envelope	Ctrl+Alt+H	12 handles bend the selection; presets arc, bulge, pinch, flag, trapezoid. A tapped closed shape becomes the envelope, the content stays bound to it
Perspective	Ctrl+Alt+P	Drag four corner handles; Shift mirrors the opposite corner; presets for vanishing points left, right, up, down
Text on path	Ctrl+Alt+T	Select text, start the effect, tap a path; offset, letter spacing, alignment, side/direction ⇅
Fit into shape	Ctrl+Alt+F	Select the content, tap a closed shape: the content is clipped to the shape; the shape's outline stays on top
Copy properties	Ctrl+Alt+A	Select target objects, start the effect, tap the source object
Halftone from template	Ctrl+Alt+B	Dots, squares or lines from the brightness of the template
Colour vectorization	Ctrl+Alt+V	Template as colour areas: colours, smoothing, minimum area, omit white, close gaps
3D mode	(freely assignable)	Turns the selected drawing into an object in space: extrude, revolve, sweep, loft, fillet, pattern, section. Starts 3D mode – there the Effects button reads "Exit 3D" and finishes (section 14)

Commands from the tool row

- **Circular pattern (O):** select elements or mark them with a rectangle → drag the pivot (snaps to smart guides) → drag the orange angle handle (15° steps) → enter the number of copies → ✓. At 360° the original and the copies are spread evenly.
- **Step and repeat (long press circular pattern):** copies, offset X/Y, rotation and scale per step, group with the original. Without a selection, tap an object afterwards. Tapping the switch again ends the command; cancel keeps the selection.
- **Blend (B):** select at least two objects, enter the number of steps, ✓. Optionally choose a guide curve; the acceleration point on the guide curve distributes the steps. Blends stay live-editable.
- **Chamfer / fillet (K):** choose fillet or chamfer, enter the value. Without a selection, tap a curve (all corners); with selected corners or a rectangle, only those corners.

9. Dimensions

Dimensions stay attached to their objects and follow every change of the geometry live; conversely, an entered value changes the geometry.

Setting a dimension: drag a dimension line from point to point – or tap: 1st target, 2nd target, a 3rd tap sets the position.

Snapped to	Result
Two nodes, edge or object centres	Length dimension
A point on a curved line (circle, ellipse, Bézier)	Dimension at the tangent point, perpendicular to the curve – as in CAD

Snapped to	Result
Two non-parallel straight edges	Angle dimension
A centre and a point on its arc	Radius dimension (also for rounded corners)

Editing a dimension: a tapped dimension shows handles and a bar – also directly from the select or node mode; a click next to it returns.

Element	Function
Drag measuring points	Snap again, the dimension follows live
Drag the dimension line or value	Move the line in parallel
Value	The first target stays fixed. Between two objects the second moves as a whole; within one object it is stretched – a circle grows evenly from its centre, a radius changes the circle or the rounding tangentially
Alignment	Parallel, horizontal or vertical
🔒 **Lock**	Fixed distance: if a measuring point or its object is moved, the partner moves along; chains move together
✓ / ✗	Keep / delete the dimension (also Delete)

Long press on the dimension switch: unit (mm, cm, in, px), decimals, text size, lock for new dimensions. Only “Ungroup” turns a dimension into ordinary curves.

10. Images: “Image” menu and image editing

Each page can have one or more images as a template; all image actions can be undone.

Menu item	Function
Load …	Replaces the page background with an image, fitted into the page format (the setting “Adapt page to image size automatically” takes the image dimensions instead)
Edit …	Switches on image editing (see below)
Crop …	Frame with handles, rotation, ratios (paper size, free, 1:1, 4:3, 3:4, 3:2, 2:3, 16:9, 9:16), “Whole image” removes the crop. Two fingers or the mouse wheel zoom, a double tap fits again
Adjust …	Brightness, contrast, posterize, invert; tracing uses the adjusted image
Remove	Removes all images of the page; the page returns to its paper size
Export …	Image export: name, PNG/JPG/WebP, dpi or pixels, RGB or greyscale, whole page or selection, with or without template

Image editing: a bar appears in the top window.

Switch / gesture	Function
+	Add more images
Tap and drag an image	Select and move
Handles	Scale (corners keep the aspect ratio)
Opacity	Transparency of the selected image
Forward / backward	Order of the images
Crop	Crop only the selected image
Duplicate, delete (also Delete)	Copy or remove an image
Drag empty area, two fingers	Pan, zoom the view
✓	End image editing

Images can only be clicked in image editing; drawing and trimming are locked meanwhile. An image pasted from outside opens image editing directly.

11. Artwork search and clipboard

Artwork search (Free SVG Library)

The magnifier next to copy/paste searches the Free SVG Library on vectopalm.com; this needs internet.

1. Tap the magnifier and enter a search term in German or English.
2. Drag an artwork onto either work area – with a finger pull it sideways out of the list or hold it briefly, with the mouse simply drag it.
3. The window closes; on release the artwork lands there as an editable group of vector curves.

The bookmark icon keeps an artwork in the lower bar of the window. Bookmarks stay saved and can also be used without internet. The window keeps the last search term. How many artworks appear per row is set under ⚙ Settings → General. The search also works in demo mode.

Copy and paste

What	Behaviour
Copying in Vectopalm	Goes only to the internal clipboard; nothing ever reaches the device clipboard
Paste	Always pastes the most recent copy – the internal one or one made outside Vectopalm afterwards
Copied SVG source (e.g. from an editor)	Becomes editable vector curves, centred and as a group
Copied image	Is taken over as a template and opens image editing directly
Long press on paste	Opens a field you paste into with the device's own paste – in case Vectopalm may not read the clipboard directly

The first time you paste from outside, the device may ask once for permission to read the clipboard, depending on the system.

12. Saving, export, import, demo and license

The current state is saved automatically on the device and reopened with the same view at the next start; in addition you can save projects as a file.

Function	Where	Content
Save project / Save as …	File	All pages, templates (original and crop), curves with styles and settings; “Save as” with a chosen file name and optionally without image files
Load project	File	Opens a saved project file
Save SVG	File	All styles: fill incl. gradients, hatching, opacity, stroke, dash style, arrowheads, clippings
Save PDF	File	All pages with the print switch in the matching paper size; in the export dialog crop marks with bleed
Save PNG / image export	File, Image	PNG, JPG or WebP at 1× to 12× the page size or in dpi
DXF	Export dialog	Polylines in mm for cutting plotters and CAD
Import SVG	File	Paths, basic shapes, transforms, colours, fills and dash styles
Import PDF	File	Vector paths become curves, embedded images the template; for multi-page files the pages can be chosen
Import DXF	File	Lines, polylines with arcs, circles, arcs, ellipses, splines, blocks – true to scale, centred on the page

Demo mode

Without a license, start Vectopalm with “Start demo mode”. Everything can be used, including automatic backup, reloading the last state and the artwork search. Saving as a file and all exports are locked. The demo button at the bottom right shows the benefits of the full version and leads to the shop page or directly to entering a license key.

License

Internet is only needed for the one-time activation. Under ⚙ Settings → License you find “Sign out on this device” and “Sign out and delete local data”. At startup Vectopalm looks for a new version and updates itself automatically; without a connection the existing version starts.

13. Pro tools

Command search

Ctrl+K, a long press on the magnifier (artwork search) or – in the side-column layout (tablet landscape, desktop) – the button with list and magnifier at the top right next to copy and paste opens command search. Type a name – German or English, for example “union”, “mirror”, “pdf” or “same fill” – and run the command with Enter or a tap. It finds all tools, commands and effects, the File and Image menus and the functions of

the Transform, Align, Path and Export panels. Recently used commands come first; every entry shows its icon and – if it has one – its shortcut. ↑ ↓ choose, Esc closes.

Select same

In the properties panel under **Object** (and in command search) you select, starting from the current selection, every object with the same property:

Button	Selects
Fill	All objects with the same fill (type and colour)
Stroke	All objects with the same stroke colour
Width	All objects with the same stroke width
Style	All objects with the same fill, stroke, width, dash and opacity
Invert	Everything that is not selected right now
Deselect	Clears the selection

Locked and hidden objects are never selected. Each of these commands can get its own shortcut in ⚙ Settings → Shortcuts.

Info display

At the bottom right of the lower window a small display shows the pointer position (X / Y from the top left page corner) and the selection size in mm – with the mouse while hovering, with finger or pen while drawing. While drawing and editing the measures of the operation are added: width × height for rectangle, ellipse and the selection frame, length and angle for the line, the radius for polygon, star and spiral, the offset Δ while moving and the angle ∠ while rotating. While zooming and panning the view with two fingers the display stays quiet. When exactly one node is marked in the upper node mode it shows its position: tap it to open two fields, type X and Y, Enter places the node exactly (undoable), Esc cancels. On small screens the display makes way for the node bar, the properties drawer and the window title and shows only the measurements when space is tight; the input fields appear above the on-screen keyboard.

Shape recognition for the freehand pencil

Hold still for a moment (about half a second) at the end of a freehand line before you release. Vectopalm recognises the shape and shows it as a blue preview:

Drawn	Result
Straight stroke	Line; nearly horizontal, vertical or 45° becomes exact
Three corners	Triangle; nearly equal sides become equilateral
Four right angles	Rectangle, nearly equal sides give a square; nearly axis-aligned becomes exact
Five or six clear corners	Polygon; nearly regular ones become regular (with even more corners a circle is more likely – exact polygons are drawn with the polygon tool)
Round closed oval	Circle or ellipse
Open zigzag with corners	Angular polyline

Releasing applies the recognised shape, drawing on discards it and you continue freehand. Without holding the pencil works as before. Shape recognition can be switched off in the “Tool” panel of the freehand pencil.

Entering sizes in millimetres

In the properties panel under **Transform** the **Unit** switch sets the unit of the X / Y (position) and W / H (size) fields: **px** as before or **mm**. In mm you type, for example, 50 into the W field and the object becomes exactly 50 mm wide (with “Keep proportions” the aspect ratio is kept). The calculation uses 96 dpi, i.e. 25.4 mm = 96 px – the same millimetres as in the rulers, the info display and the export. The choice is saved.

Context menu (right-click)

A right-click with the mouse on the canvas opens a menu with the most common commands for the selection:

Entry	Effect
Cut · copy · paste · duplicate · delete	Like Ctrl+X, Ctrl+C, Ctrl+V, Ctrl+D and Delete
Group · ungroup	Appear when several objects or a group are selected
Arrange (four buttons)	Bring to front, one layer forward, one layer backward, send to back
Mirror (two buttons)	Left/right and top/bottom
Zoom to selection · properties on/off	Fit the view to the selection · open or close the properties panel
Command search …	Opens command search

Without a selection the menu offers paste, select all, undo, redo, fit and 100 %. With the selection tool an object under the pointer that is not selected yet is selected first. Esc or a click next to it closes the menu, ↑ ↓ and Enter operate it from the keyboard. Dragging with the right mouse button still draws a trim line, and in the lower node mode a right-click on a handle still belongs to the frame. There is no such menu for finger and pen – the same commands are in the properties panel and in command search.

Mouse: pre-selection, pointer and hints

With the mouse Vectopalm shows what will happen before you click. With the selection tool the curve under the pointer is highlighted in blue – this is the curve a click selects – and the pointer becomes a hand; over a node or tangent handle, which dragging moves, it shows the move cross. In the lower node mode the pointer shows on the frame handles what dragging does there: double arrows for scaling and shearing, a rotation arrow on the rotation handle, the move cross on the move handle. When the pointer rests on a button for a moment, its name appears with the shortcut. The File and Image menus show an icon in front of every entry and the shortcut next to it. To keep work fluid, the pre-selection follows the pointer with a slight delay in larger drawings and, in very large ones, only appears when the pointer rests for a moment; from about 1500 curves on it stays off.

Workspaces

Under ⚙ Settings the last section is **Workspace**. Each workspace arranges the existing tools, panels and bars differently and has its own look:

Workspace	Layout
Vectopalm Standard	The familiar interface: all tools in their default order.
Professional	All tools in two rows, colour bar, both rulers, properties panel with Transform and Align, no short hints.
Classic	Selection and shapes first, colour palette always visible, rulers on two sides, short hints on.

Workspace	Layout
Modern	The essential tools in one row, soft shapes; everything else via the command search.
Open Workspace	The largest possible canvas: few tools, panel and colour bar folded away.
Design Studio	Drawing and text first, colours and eyedropper next to them, colour bar and panel with fill and stroke open.

Hidden tools stay available via their shortcut, the command search and ⚙ Settings → Tool row. Whatever you change in a workspace – order and visibility of tools, colour bar, panel and its sections, rulers, hints – stays saved for that workspace, even when you switch in between or restart Vectopalm; changed workspaces are marked “customised”. The **Reset to its original** button restores the active workspace. On narrow screens switching never opens the properties panel by itself.

Saving and loading settings

Under ⚙ Settings → **Settings backup**, **Save settings** writes all settings of this device to a JSON file: the workspaces with your changes, tool row, panels, shortcuts, drawing and export settings. **Load settings** reads such a file back – also on another device. The file is checked: project files and foreign files are rejected, unknown or unsuitable entries (for example from a newer version) are skipped. Your drawing is not touched; a changed language applies from the next start.

Project and interface are separate: when loaded, a project file only brings its project-related settings – drawing style, export options, page format, grid and dimensioning. Workspace, tool row, shortcuts, language and the size of the controls stay as you set them.

14. 3D mode

In 3D mode a drawing becomes a body in space – without a second program and without new toolbars. The upper window shows the model, the lower one stays the familiar drawing area: there you always see how the object lies on the page, and you draw and edit as usual. In the end the object lies on the page as a drawing. 1 mm in space is 1 mm on the page.

Starting and finishing

- **Start:** select a drawing → **Effects → 3D mode** (or **File → 3D mode**). The selected curves immediately lie in space as lines; a body only appears with the first command. Without a selection an empty object begins. If several 3D objects are selected, they open together as an **assembly**. The 3D window starts in the **ISO** view (true isometric: all three axes equally foreshortened).
- **Finish:** in 3D mode the Effects button reads **Exit 3D**. It applies an open command, closes an open sketch and places the object in the drawing as a group, replacing the source curves. Afterwards the 2D interface is exactly as before (sliders, algorithms, tool, drawing style, view). Undo restores the drawing from before 3D mode.
- **Undo across 3D mode:** there is only one history. Even after “Exit 3D” and further drawing, ↶ leads back into 3D mode as soon as a step was made there – first to the last state before exiting, then through the steps in 3D mode to before it. ↷ goes the way back, out of 3D mode again up to the placed group. Leaving 3D mode without a change leaves no step.
- The **splitter** between the windows stays movable; the 3D image is drawn continuously while you move it. File commands and a page change finish 3D mode automatically first; the automatic backup also contains the object you are working on.
- The page with the template image lies in the 3D window as the ground – always with the image that is currently loaded.

Rotating the object

Without a command the two sliders rotate the object: the left one about the **horizontal**, the right one about the **vertical axis of the page**. Rotation always starts from the current position – there are no fixed angles and no order to follow. On release the slider **springs back to the middle**, ready for the next move in either direction; a full move is exactly a quarter turn. While you drag, the slider shows the angle of that move.

- The **pivot** is the centre of mass of the object; it rotates in place. Long press on the object → **Set the pivot here** moves it to another spot (face, edge, corner); in the same menu “Pivot: back to the centre of mass” returns. While rotating, the pivot is shown as a small cross-hair.
- **The view of the 3D window never changes by itself** – neither when rotating nor when a value changes. You set section and magnification yourself (drag, two fingers, mouse wheel); “Fit the view” is in the menu next to the model. **Fit** on the splitter returns the upper window to the start view – ISO above the page, page and model fully in view – in case you zoomed far away. Seen from below, the page with the template lies semi-transparently in front of everything that stands above it.
- The lower window always looks at the page from above; the projection follows at once. With complex models only the edges appear while moving; the exact image follows as soon as the hand rests.
- **Exact angles:** tap the “Value” field and enter by how many degrees to rotate.
- **Fixed positions:** long press next to the model → **Position of the object**: “As drawn”, “ISO” (isometric below), “Bottom”, “Front”, “Back”, “Left”, “Right” – below, the object appears as seen from that direction, upright (top, front and side view with side columns also as buttons). **Save the current position** remembers the present position; saved positions are listed in the same menu (tap = back to that position, × = delete). The eyedropper takes the viewing direction of the 3D window as the position of the object.

The sliders within a command

Command	Left slider	Right slider
Extrude	draft (angle)	depth – centre = 0, both directions
Revolve	start angle	angle
Sweep	twist along the curve	end size (%)
Loft	transition ruled / smooth	–
Fillet	–	radius
Chamfer	angle	distance
Circular pattern / row	total angle / spacing	count
Section	angle of the cutting plane	position of the cutting plane

For every command the **command bar** appears at the bottom of the 3D window: the name, a **number field per slider** for the exact dimension (comma or point, Enter applies the value), “⋯” for options and × to discard. **Apply with the check mark on the splitter** – it appears in place of the “+” as soon as something can be finished – or with Enter. The values of the 2D sliders stay untouched. **Only one command runs at a time:** starting a new one applies the running one – also between the commands of the drawing area (circular pattern, row, blend, fillet) and those of the 3D window.

Buttons of the top bar and on the splitter

Button (place)	In 3D mode
Effects	**Exit 3D.**

Button (place)	In 3D mode
Algorithm 1–4	**Extrude · Revolve · Sweep · Loft.** A tap starts or applies the command; long press: new body, add, subtract, intersect. The buttons are the same size as before.
Width field	Shows the value of the right slider; a tap opens exact input (without a command: rotation angles). Next to it (with side columns) top view, front view, side view.
Four line-style buttons	**Shading · hidden edges dashed · tangent edges · section** (long press on section: show, position, other side, remove).
Button in the middle of the splitter	**Move** (four arrows, on/off): drag parts above directly with the finger. Long press: **Planes** – draw on the ground plane or a saved plane, remember the selected face as a plane.
✓ on the splitter	**Finish:** apply the command or finish the sketch (back to the page view).
+ on the splitter	**Take curve** – replaces the check mark while reference curves are selected.
Eyedropper	**Take view:** show below what is seen above; long press = as drawn.
Magic wand	**Extend edge selection:** contour, all, along X / Y / Z.
Colour box	**Display** of the model.

Chamfer / radius, **circular pattern**, **mirror** and **eraser** act on the 3D selection while the last selection was made above; after a touch in the lower window they work in 2D as usual – a command always acts on one side only. Chamfer / radius: tap = fillet, long press = chamfer. Circular pattern: tap = circular pattern, long press = row (if a new circular pattern is running, it becomes a row). While their 3D command runs, the button is marked active as in 2D; tapping it again leaves the command (applies it). Menus on a button – such as **Model display** on the colour box – close when the button is tapped again.

Selecting and commands in place

Dragging rotates the view about the axes of the picture as in SolidWorks: horizontally about the vertical axis of the picture, vertically about its horizontal axis – the same in every position, seen from above the object tilts (instead of turning about the floor); without a stop, also past the top view and on to the view from below. The rotation follows the finger exactly and stops as soon as you let go (no coasting). When the finger **circles**, the view also rotates slightly about the viewing axis, in the opposite sense as in SolidWorks: circling clockwise turns the view counterclockwise, counterclockwise accordingly – the larger the circle, the more. The rotation is about the object in the middle of the picture: even zoomed in closely it stays in the middle while rotating. Two fingers (or the mouse wheel) zoom and pan. The **display follows the zoom seamlessly:** closely spaced edges (such as the threads of a model shown small) fade out and the shading shows the shape; zoomed in, curves and bent edges are shown finer and smoother. A **tap** first marks only the object; only another tap selects a face, edge or corner (tapping again removes it). A **long press** (or right click) always opens a menu at that spot first – nothing aligns by itself:

Long press on …	Menu
the object	Draw on this face · draw in the viewing direction · 3D sketch here · **Convert to formable volume** or edit formable volume · **Mate …** (in an assembly) · set the pivot here · edit sketch · edit command · display · **Scale …** · circular pattern · **Transparent** · hide / delete body
a selected face	Draw on the face (curved face: tangentially at that spot) · draw in the viewing direction · **Mate …** · set the pivot here · remember a plane here · fillet / chamfer the edges of the face · section · mirror · circular pattern about the normal

Long press on …	Menu
an edge	**Mate …** (circular edge, in an assembly) · Draw across the edge (view along the edge) · remember a plane here · fillet / chamfer with scope: this edge, connected contour, all suitable edges, along X / Y / Z · set the pivot here
a free curve	Align the lower window to the sketch plane · extrude · revolve · delete
empty space	Draw on the ground plane · 3D sketch here · **View of the model:** ISO, top, bottom, front, back, left, right · saved views (× deletes) · **Perspective …** · Save the current view · fit the view · **Position of the object:** as drawn, ISO, bottom, front, back, left, right · saved positions · Save the current position · take this view to the lower window · show hidden bodies · make all bodies opaque again

Move: the button in the middle of the splitter (four arrows) switches moving on and off. While it is on, you drag a part above directly with the finger – it moves parallel to the view as when drawing in space, the grabbed point stays under the finger. In a 3D group (assembly) only the grabbed part moves; a model made of several separate bodies becomes an assembly for this (one part per body – bodies that touch, such as the head and shank of a screw, stay one part and move together); a single body moves the whole object. Tapping still selects, dragging in empty space rotates the view, undo restores the position.

Scale: long press on the object → **Scale …**. The model gets its frame with handles at the eight corners: dragging a corner scales evenly while the opposite corner stays – the preview follows at once. The field in the bar takes the exact factor in % (about the middle of the frame), with the new dimensions next to it. The whole model grows with it – sketches, command dimensions, space curves. The check mark applies, × discards.

Drawing changed in 2D: if the finished drawing of a 3D object is moved, rotated, scaled evenly or mirrored in 2D (for example with the frame in node mode), the model follows in exactly the same way the next time it is opened in 3D mode; mirroring appears as a “Mirror” step in the history. A body cannot follow uneven distortion – it then follows evenly (position, rotation, size).

Saved views (viewing direction, framing, zoom) and positions belong to the object: they are kept in the drawing, in the project file and in the .vp3d file.

Within fillet / chamfer a tap adds further edges; a long press on an edge chooses its scope.

Commands for the whole body: on every face, edge and corner the menu always continues with the same commands under the object’s name: **Edit formable volume** or **Convert to formable volume**, **Scale …**, **Transparent**, **Hide body**, **Delete body**.

Transparent: the body appears see-through in the 3D window – bodies inside or behind it (such as a screw in its nut) stay visible, its hidden edges appear faintly. A tap goes through it to the body behind; to select the transparent body itself, tap a spot with no body behind it. This applies only to the view in the 3D window – the drawing below and in 2D stays unchanged. Choose “Transparent” again, or long press beside the model → **Make all bodies opaque again**, to undo it.

Editing curves and nodes

All curves of the model – the sketches the bodies were made from, and the space curves – lie in the lower window as **ordinary curves** (thin and blue, space curves violet). You need no menu and no special mode:

- A **tap** selects a curve; its nodes appear. Move, add, delete, drag handles – all as in 2D, also in the superordinate node mode. The body follows at once.
- This works **in every position of the object**: nodes of a sketch stay in their sketch plane (even when you look at it obliquely), nodes of a space curve move parallel to the view – their depth stays. By rotating the object you reach every direction.
- A selected curve is highlighted **in both windows**, and its nodes are also visible in the 3D window. **A tap there marks the node** (with the mouse: Shift for several); you then move or delete it below.
- Conversely, tapping a curve in the 3D window also selects it below.

- A sketch whose plane you are looking at **edge-on** is only a line below: a **tap** selects it (highlighted above, e.g. as a profile), a **double tap** opens it in its own plane for editing.
- **Space curves** can also be trimmed below, and nodes added or removed – the curve stays exactly as it was in space (arcs keep their depth).
- **Curves a body is made from** (base contour or profile, axis, guide curve) are treated like 3D contours: they cannot be trimmed, erased, cut with the scissors or split or joined – even if they were ordinary curves originally. Moving, adding and removing nodes still works.
- If you look almost exactly edge-on at the plane of a sketch, it is only visible as a line in that view and cannot be grabbed – a small move of a slider is enough.

Drawing on the page, on faces and planes

- **Drawing below** means: drawing on the page as it currently lies under the object. What you draw sits in place above immediately; no command starts by itself.
- **“Draw on this face”** aligns only the lower window perpendicular to the face – the model above stays as it is. The **check mark on the splitter** (“Finish sketch”) returns to the page view, as does every command you start from the sketch. A circle on a face, extruded inwards, makes a bore (subtraction).
- **Template image:** it is only visible below when it really lies in the background of that view – in the page view and on faces that lie like the page. When you look at a side face it is hidden.
- If a sketch lies on a face of a body, it moves along when the face shifts.
- You remember **planes** via the menu of a face or edge; a long press on the button in the middle of the splitter (Move) brings you back to them later.

Commands

Command	What it needs	Notes
Extrude	closed contour(s) of the sketch	open curves give a surface; option “symmetric to both sides”
Revolve	profile; axis = straight open line of the sketch, otherwise the left edge of the profile	axis also by tapping an edge or line
Sweep	closed profile + guide curve (tap)	if both lie in the same drawing, the profile is stood up at the start of the curve
Loft	two or more closed profiles on different planes	tap them in order
Fillet / chamfer	edge(s) or face (all its edges)	where three filleted edges meet at a corner, a spherical corner is made – at oblique corners too (bodies with draft); at a slanted end face the fillet runs out cleanly; if a curved edge is bent more tightly than the radius or distance allows, the command bar reports “radius too large for this edge” (or distance) – the body stays unchanged
Circular pattern / row	marked object	axis or direction from existing geometry: edge, line, normal of a face. The result behaves like an assembly
Mirror	object + flat face	copy mirrored at the face

Command	What it needs	Notes
Section	– or selected face	axis in the command bar: **X**, **Y**, **Z** of the object (or “Page” or “Face”, depending on where the section was made); left slider = angle, right = position; ⋯: other side, tilt axis, angle to 0°. Computed geometrically; the cut face appears hatched below, obliquely cut round shapes as a smooth contour too

The selected curves (selected below or above) serve as the profile, otherwise the free closed contours of the sketch drawn last. The check mark on the splitter (or Enter) applies, × (or Esc) discards. Every step stays editable: long press → “Edit command”, or in the 3D tab under History (pencil = values, planes icon = sketch, eye = step off/on, × = remove).

Space curves

There is no separate pen for the upper window: when only the object is marked (no sketch active), the **freehand pencil** and the **Bézier pen** draw a curve in space in the 3D window. Freehand is **smoothed** – the trace of the hand becomes a clean curve with few nodes; the pen gives a polyline (tap points, double-tap ends, the first point closes). The nodes lie on whatever is under the finger (face, edge, corner), in free space across the viewing direction. Afterwards the space curve is selected and lies below as an ordinary curve: move its nodes there (see “Editing curves and nodes”). Space curves serve as guide curves for sweep.

Perspective

Long press next to the model (or the colour box “Display”) → **Perspective …**. The command bar switches it **on or off**; the right slider sets the **focal length** as on a 35 mm camera (24 mm = clearly perspective, 50 mm = natural, 85 mm and more = flat). The perspective applies in the 3D window, in the lower window and in the **finished drawing**; the eye stands at a suitable distance in front of the model. **Vanishing points** shows the vanishing points of the object's three axes and the horizon as dashed guides – for viewing only, they do not go into the drawing. The check mark applies, × restores the previous state. With perspective the template image is hidden below.

3D sketch

A long press in the 3D window – on an empty spot or on a body – offers **3D sketch here**. The lower window then shows the model **exactly as it is seen above**: rotate above and everything below rotates along; the zoom below is set independently. The tool stays as it is – no pen is switched on by itself.

- Below you **draw, mark and move** – with the Bézier pen, line or freehand and all node tools. Drawn curves become **space curves** of the object and appear in place above at once.
- Everything moves **parallel to the view**: the depth in the viewing direction stays, nothing slips backwards or forwards by accident. For another direction, rotate the view above and continue below.
- New nodes lie on the **view plane through the start point** of the line. If it starts on an existing node (of a space curve or a body corner) or on a body, it continues from there; further nodes snap to existing nodes – so edges can be joined line by line.
- **Dashed guide lines** connect the nodes of every space curve – above and below. A small **axis cross** at the bottom left (X red, Y green, Z blue) shows the orientation; the orange dot is the starting point.
- A corner marked above is unmarked as soon as a node moves below (in both node modes).
- The **check mark on the splitter** ends the 3D sketch. The space curves belong to the drawing when the object is placed.

Convert to 3D sketch: a long press on a sketch curve in the 3D window turns it into a space curve and opens the 3D sketch (not possible while a command uses it as a profile). In the drawing this works with a right-click on selected curves or via the command search. **Edit in the 3D sketch** (long press on a space curve) reopens it; the tool stays unchanged here too.

Formable volume (curve volume)

Long press on a body → **Convert to formable volume**. The body becomes a volume defined by its edges – like a surface from boundary curves, but it always stays a closed solid:

- Every **edge** becomes a space curve (Bézier); **perfectly straight edges stay straight lines**. The **faces follow their boundary curves**, neighbouring faces share their edges – the body stays closed. Flat faces stay flat as long as their boundary stays flat – even when an edge is strongly bent within their plane. Twisted and bent faces run smoothly, edges follow their curves exactly. While dragging, the formable volume shows a fast mesh, after release the exact one by itself.
- Edit **below** with all node tools: drag nodes and handles, **corner / smooth / symmetric**, frame selection of several nodes, double-click adds or removes nodes. “Smooth” at a node of an edge makes the faces meet there without a kink. In the main node mode marked nodes move, in the sub-node mode also whole edges in space. When nodes are marked, **switching** between the two modes takes along only the edges with marked nodes: a frame around the contour of one side (for example the one opposite the base contour, to rotate it) brings along just that contour, not the edges to the opposite side that touch it only at a corner. In a formable volume every frame marks anew, even when edges are already marked – first one side, then the base outline on the other. When curves are **selected explicitly** (a contour tapped, or several curves selected in the sub-node mode and taken along when switching), the frame in the main node mode hits only their nodes – as in 2D. Back again, the marking is exactly as before, as often as you like.
- Below, the model is seen as above (as in the 3D sketch); moving is **parallel to the view**. Rotate above for other directions. A **corner** where several edges meet moves with all its edges.
- The **curve button on the splitter** (in place of the Move button) makes all edges bendable – straight edges get handles – or shows edges whose handles lie on the straight line as straight lines again.
- **Not possible:** removing corners (where three or more edges meet), trimming, splitting or deleting edges, adding new curves. A change that would **fold** the body is rejected – the last valid state stays, with a notice.
- **Base sketch follows:** when you deform edges that come from the base contour of an extrusion (the edges in the sketch plane), the base sketch adapts when you finish editing – corners move along, bends become arcs of the sketch. The formable volume stays exactly as you deformed it; edges pulled out of the plane enter the sketch as their outline.
- The **history** of the body (sketches, commands) **is kept**. After editing, the **floor plan** (the sketch) is selectable and editable below again, as are the dimensions of the commands. When the body changes, the formable volume follows it: it is rebuilt from the changed body, and every edge that can be found again keeps its deformation (a bent edge stays bent, an unchanged circular edge stays a circle). New edges start the way the body has them.
- **Fillets** stay smooth: new points lie on the curves, tangent transitions stay soft without a crease. While dragging, only the points and normals are recomputed – finely divided bodies such as threads follow smoothly as well.
- The check mark on the splitter ends editing; long press on the body → “Edit formable volume” reopens it. A **drawing tool** (rectangle, ellipse, star …) ends it as well.
- Whatever is drawn and extruded next to it afterwards stays a **separate body** – only what really touches is joined – and can be converted just the same. If a formable volume was explicitly joined with another body (“add”), the long press offers both: “Edit formable volume (earlier state)” and converting the joined body anew.

Assemblies and mates

- **Combine:** select several 3D objects in the drawing and **group** them (group button, Ctrl+G) or “Combine objects” – they become **one composite 3D model**. Every part keeps its sketches, commands and position in space and stays fully editable; parts do not merge. Ordinary curves in the selection stay unchanged.
- **Overall assembly:** two assemblies grouped make an overall assembly.

- **Split:** the first **Ungroup** splits an assembly back into its components (individual 3D models or the sub-assemblies) – also a single model consisting of several separate bodies. Only a model with a single part becomes an ordinary drawing on ungrouping (as before).
- **Opening** several selected 3D objects **in 3D mode** also makes an assembly. A model from the 3D library and an imported STL file each become a **part of their own**.
- **Mate:** long press on a face → **Mate …**. The part of this first face moves. Then tap a face – or a circular edge – **of another part**; the preview shows the result at once. In the command bar:
  - flat faces: **Coincident** (face on face) or **Parallel** (e.g. a face offset by 90° parallel to the face of the other part),
  - round faces (cylinder, circular face, circular edge): **Axial** (axes aligned), **Tangent**, **Concentric** (circle centres on top of each other),
  - ⇅ flips the direction; the **right slider** sets a distance (0 = touching). The check mark applies. Every further alignment is a “Mate” command of its own.
- Mates persist: they are **met together** and **kept** after every change of a part (e.g. another extrusion depth). If not all can be met, a notice appears and the affected mates are shown in red in the object manager.
- The **3D tab** of the object manager lists **parts** and **mates**; per mate: flip direction, edit, delete (the parts then stay where they are).

STL and STEP

In 3D mode the **File** menu also shows:

- **Import STL:** reads an STL file (binary or ASCII, millimetres) as a **fixed part** – placed on the ground next to the existing model; faces are recognised, separated at creases. Up to 60,000 triangles.
- **Export STL:** all visible closed bodies as a triangle mesh, in millimetres.
- **Export STEP** (AP214): every body as a **closed solid**; flat faces as real faces, curved faces as flat facets.
- Export (STL, STEP) is **only possible with a licence**; locked in the demo. STEP import is not provided.
- To keep the menu clear, the **PDF, SVG and DXF entries** (import and save) are hidden in 3D mode – in 2D the menu is unchanged.

3D library (Free 3D Library)

In 3D mode the **magnifier** opens the 3D library instead of the artwork search. It works exactly like the artwork search (section 11): search term in German or English, more results only when scrolling, bookmarks (usable without internet, with a preview computed from the model). Drag a model **into the 3D window** – it then lies on the ground of the object under the finger, or on the body it is dropped on – or into the lower window. It is inserted as a **part of its own** (the object thus becomes an assembly) with all its commands and stays editable (sketches, dimensions, fillets); with “Mate” it can be aligned to other parts. Undo takes the insertion back. The library file format (.vp3d, interface vp3dl/v1) is unchanged.

Reference and “Take curve”

The rest of the drawing stays visible in grey in the lower window. Tap reference curves or drag a frame – **+** appears on the splitter and copies them onto the active plane; the originals stay where they are. Curves of a switched-off algorithm that have not yet been accepted with the flag stay hidden, as in 2D.

The finished object in the drawing

- A group of combined curve sets: **body edges** in the stroke width of the drawing style, **tangent edges** in their own stroke width (⚙ Settings → View, default 0.5) and – if enabled – **hidden edges** dashed and thinner. Cut faces carry the hatch fill.
- **Fill:** if the object gets a fill in 2D, it fills the area the model covers in its view – as a separate area below the edges, without outline; openings you can see through stay free. The edges themselves stay unfilled,

stroke colour and width still apply only to them; “no fill” removes the area again. The fill is kept when editing in 3D mode (the area is rebuilt when the object is placed) and tints the model slightly there – transparent bodies too. In the wireframe view the area does not appear.

- **As a whole, without nodes:** the group is the view of the model. It can be selected and moved as a whole (arrow keys, dimensions, handles of the superordinate node mode) but shows no nodes – so it stays in step with the model. A group moved on the page keeps its position when you open it in 3D mode again.
- **Ungroup** first splits an assembly (or a model with several separate bodies) into individual 3D models. A model with one part becomes an ordinary drawing with freely movable nodes, without fills, with only the contours visible from this direction; each curve set stays a combined curve with its stroke width, hatches stay. The model is discarded by this.
- **Long press** (finger, pen) on a line of the 3D object or **right-click** (mouse) on a 3D object: **Edit in 3D mode**, **Convert to 2D drawing** (the whole model with all parts in one step); with several 3D objects selected (frame in the main or tapping in the sub-node mode) also **Combine objects**. In 3D mode: long press on the object in the lower window → **Convert to 2D drawing** (finish and place as ordinary curves) or **Leave 3D mode**. After the menu the touch is over – the next one-finger swipe drags, rotates or selects as usual.
- A **selection frame** can also be dragged over a 3D object, even when it starts on a line of the object; a short tap on a line selects the object.
- **“+” on the selection frame** (sub-node mode) copies a 3D object as an editable 3D object – like copy and paste.
- **Trimming** (trim line, lasso, circle delete, scissors) and **splitting** never affect 3D objects – not in the sub-node mode either; all other curves are trimmed as usual.
- **3D tab** in the object manager: lists the 3D objects of the page; pencil = open in 3D mode, eye = hide, lock = lock, “+” = new 3D object. In 3D mode it shows history, sketches, space curves, planes and bodies of the object.
- Copy and paste give an independent object.
- **File → 3D mode** opens 3D mode like Effects → 3D mode. **File → Save 3D object** appears as soon as there is a 3D model and writes the model with sketches, commands, values, planes, space curves and history to a .vp3d file; **Load 3D object** places such an object in the drawing. The model is also part of the project file. Objects from earlier versions are taken over when opened. Saving is locked in the demo.

Limits of this version: fillets along freely shaped edges (sweep, loft), at corners with more than three edges, with curved faces or with different radii do not always succeed – the command reports this or the corner stays mitred. As before, the history lives in memory only (not in the project file). Hatches of partly hidden cut faces are not clipped. Nodes can be marked in the 3D window; they are moved in the lower window. Without WebGL the 3D window shows an edge view. STEP exports curved faces as flat facets; the files are checked for correct structure (closed shell, every edge exactly twice), not tested in every CAD program. With perspective, Bézier handles below are mapped through their end points (nodes exact). A formable volume detects folding from flipping face pieces; intersections of distant faces are not checked. Mates move parts rigidly; they do not solve joints or motion.

15. AI assistant (MCP 1–3)

An AI can work directly in the open Vectopalm session – like a second person at the same device: look at the template and the drawing, trace template contours, draw curves and shapes, edit nodes, set styles, run every command and effect, use 3D mode and the artwork search, and operate any control of the interface. Any AI that supports custom connectors (MCP) can be connected – for example Claude, ChatGPT or Gemini –, up to three at the same time. Vectopalm contains no AI of its own and needs no AI key: each AI works through your own account with its provider, and you talk to it in its own app.

The AI panel

The ✦ button in the top bar opens the AI panel. At the top are three equal slots, **MCP 1**, **MCP 2** and **MCP 3**; MCP 1 is selected when the panel opens. Each slot takes any AI without choosing a provider beforehand: Vectopalm recognises the AI when it connects and shows it in the slot ("connected to ChatGPT · last active 3 min ago"). Each slot has its own switch, pairing code, mode, log and notes and can be connected, paused and disconnected on its own – so up to three different AIs can work at the same time or be compared. Slots that are switched on **glow** even while another one is open; a **green dot** shows the connection. Drag the header – the slot buttons too – to move the panel.

Setup (once per AI)

The connector address is the same for every slot and every AI: **https://vectopalm.com/mcp**. Examples of where to enter it (menu names may change at the providers):

AI	In the AI's app
Claude	Settings → Connectors → Add custom connector, name "Vectopalm", address as above.
ChatGPT	On the web (Plus, Pro, Business, Enterprise or Edu) switch on developer mode (Settings → Security and login, or Apps → Advanced), add a custom app with the address and pick it in a chat via "+" → Developer mode.
Gemini	On gemini.google.com: Settings → Connected apps → Custom apps → "Add a custom app" with the address (Gemini supports custom apps in English only for now).

1. In Vectopalm choose a slot in the AI panel and switch on **Connect MCP …**. The panel shows a six-character **pairing code** (valid for 10 minutes, "New code" creates a fresh one; "Copy" puts it on the clipboard). Each slot has its own code – the code decides which slot the AI lands in.
2. In the AI's app tap **Connect** on the connector. The Vectopalm sign-in page opens: enter the code – or use "Open Vectopalm and connect" to open the app directly – and choose **Allow**. If the same AI is already connected in another slot, the sign-in page only points this out – whether both connections work at the same time is up to the provider. For several agents, best use different AIs.

The connection then stays: after reloading, each AI that is switched on reconnects by itself.

Working with the AI

Tell the AI in its chat what to do in Vectopalm – for example "Trace the outlines of the template in Vectopalm", "Turn the rectangle into a hexagon 40 mm wide" or "Build a hollow shaft with a flange and six holes on a bolt circle". When connecting, every AI receives a compact, versioned guide to all functions (coordinates, sketch planes, typical workflows, undo, modes, demo limits, known limitations) and can look up details with examples. It sees the template and the drawing as images, reads every curve with its nodes and follows all changes in real time – yours and those of the other AIs. It traces a template like with a pen: it decides which lines make up the picture (outlines, fingers, folds), gives the rough path, and Vectopalm lays the line exactly onto the image edge – as a Bézier curve with few nodes, independent of the zoom on your device.

In an AI's slot	Effect
Mode: Autonomous	The AI works on its own, including deleting without asking.
Mode: Collaborative	Default. The AI draws and edits; deleting, "New" and "Clear all" need your approval in the AI panel.
Mode: Observe	The AI only watches and gives hints – changes are blocked.
Pause / Resume	Holds the AI; it may keep reading, changes only after "Resume".

In an AI’s slot	Effect
Stop	Ends the current task; waiting steps are dropped.
Take over	You continue yourself, the AI pauses.
Note	Short hints to the AI of this slot – not a separate chat: it reads them as soon as you write in its chat, and at every step while it works; “✓ read” shows they arrived. Notes do not count as changes to the drawing. With the keyboard open, the whole AI panel moves above it.
Disconnect	Removes only this AI’s access, immediately; the others stay connected.
Move the panel	Grab the header and drag it; the panel stays fully on screen and keeps its place.

Several AIs at once

When several AIs are connected, they work on the same drawing. Each knows the others by slot and name, agrees on the plan and dimensions in the shared notes, reserves its part and reports finished work or problems it found by message; while waiting for another AI it listens for its messages. Any AI can review and keep a log along the way – no separate observer role is needed; in observe mode an AI can still take part in the conversation, it just cannot change anything. Their commands run one after another, never at the same time. Every change carries who made it (you or which AI). If someone changed an object after an AI’s version, that AI’s step is rejected and it re-reads. An AI can **reserve** a part for itself (a task) – the other AIs then cannot change it, you always can. The AIs send each other **messages** and keep **shared notes** (e.g. dimensions from an analysis); all of it appears in the log of the slots involved, so you can read along and step in.

Exact instead of gestures

The AI selects nodes by position (e.g. “all nodes of the top face”) and rotates, scales or moves them by exact values – in the drawing as well as in the formable volume. In 3D mode it sets the view and camera exactly, knows every body with its id, size, position and volume, moves, rotates or deletes single bodies (only that body changes), puts them on the floor, creates basic bodies – also as holes and as bolt circles or rows –, extrudes and revolves exactly the curves given, subtracts or intersects only on the bodies actually hit, and sketches on the ground, at a height, on front, side or body faces. For the AI, z is the height above the ground (positive up), and every sketch plane reports the exact conversion between drawing area and space. Curves of other sketches are references only for the AI, and no helper lines remain in the drawing when it finishes; optionally it places the model in the current 3D view.

Without images: if images do not reach the AI (for example in a voice conversation), it works with text descriptions: recognised shapes of the drawing, a brightness grid and the outlines of the template as lines, and the 3D bodies with their dimensions. Every change is also reported as text.

Confirmations: in collaborative mode Vectopalm asks before deleting – in the slot of the AI that wants to delete. “Always allow” (or the tick “Ask before deleting”) turns this off for that connection. Approvals in the AI’s app are set there on the connector.

Undo: each AI only takes back its own steps – in 2D object by object and in 3D element by element, as far as needed, as long as nobody changed the objects concerned. You can undo everything as usual. No AI can operate the licence, account, sign-out, local data or file dialogs; the AI connection never changes the licence level.

Demo: with every AI everything works as in the demo itself – only saving as a file and export are reserved for the full version (checked on the server).

Privacy: without a connection switched on, Vectopalm sends nothing. When on, drawing, template and events go only via vectopalm.com to the AI connections you allowed in the slots; Vectopalm keeps only short-lived intermediate states (at most 24 hours) and a security log without drawing content.

16. Keyboard shortcuts

All shortcuts can be changed under ⚙ Settings → Keyboard shortcuts: every command is listed with its icon, “+” assigns a shortcut (then press the key), “×” removes it. If a command has no shortcut left, a dashed placeholder with ↺ takes its place – tap it to restore the default; the same applies to the shortcuts of the effects. These are the defaults.

Area	Action	Shortcut
Tools	Select · eyedropper · magic wand	V · I · W
Tools	Rectangle · ellipse · polygon · star · spiral · line	R · E · Y · S · U · L
Tools	Bézier pen · freehand pencil · text	P · F · T
Tools	Scissors · eraser	C · X
Tools	Circular pattern · blend · chamfer / fillet	O · B · K
Tools	☍ Lower node mode	N
Edit	Undo / redo	Ctrl+Z / Ctrl+Y or Ctrl+Shift+Z
Edit	Repeat last action	Ctrl+R
Edit	Copy · cut · paste · duplicate	Ctrl+C · Ctrl+X · Ctrl+V · Ctrl+D
Edit	Select all	Ctrl+A
Edit	Group / ungroup	Ctrl+G / Ctrl+Shift+G
Edit	Delete	Delete, Backspace
Edit	Cancel or back to select · apply command	Esc · Enter
Move	Move selection or selected nodes (large step)	Arrow keys (Shift+arrow keys)
Move	Fine rotation	Ctrl+← / Ctrl+→
Layers	One layer forward / backward	Shift+Page Up / Shift+Page Down or] / [
Layers	Bring to front / send to back	Ctrl+Shift+Page Up / Ctrl+Shift+Page Down
File	Save project · export dialog	Ctrl+S · Ctrl+E
Search	Command search	Ctrl+K
Mouse	Context menu	Right-click
View	Fit · 100 % · to selection	Ctrl+0 · Ctrl+1 · Ctrl+2
View	Zoom in / zoom out	Ctrl+Plus / Ctrl+Minus
View	Pan the view	Hold the space bar
Effects	Contour steps · drop shadow · extrusion · distort	Ctrl+Alt+K · S · E · D

Area	Action	Shortcut
Effects	Envelope · perspective · text on path · fit into shape	Ctrl+Alt+H · P · T · F
Effects	Copy properties · halftone · colour vectorization	Ctrl+Alt+A · B · V