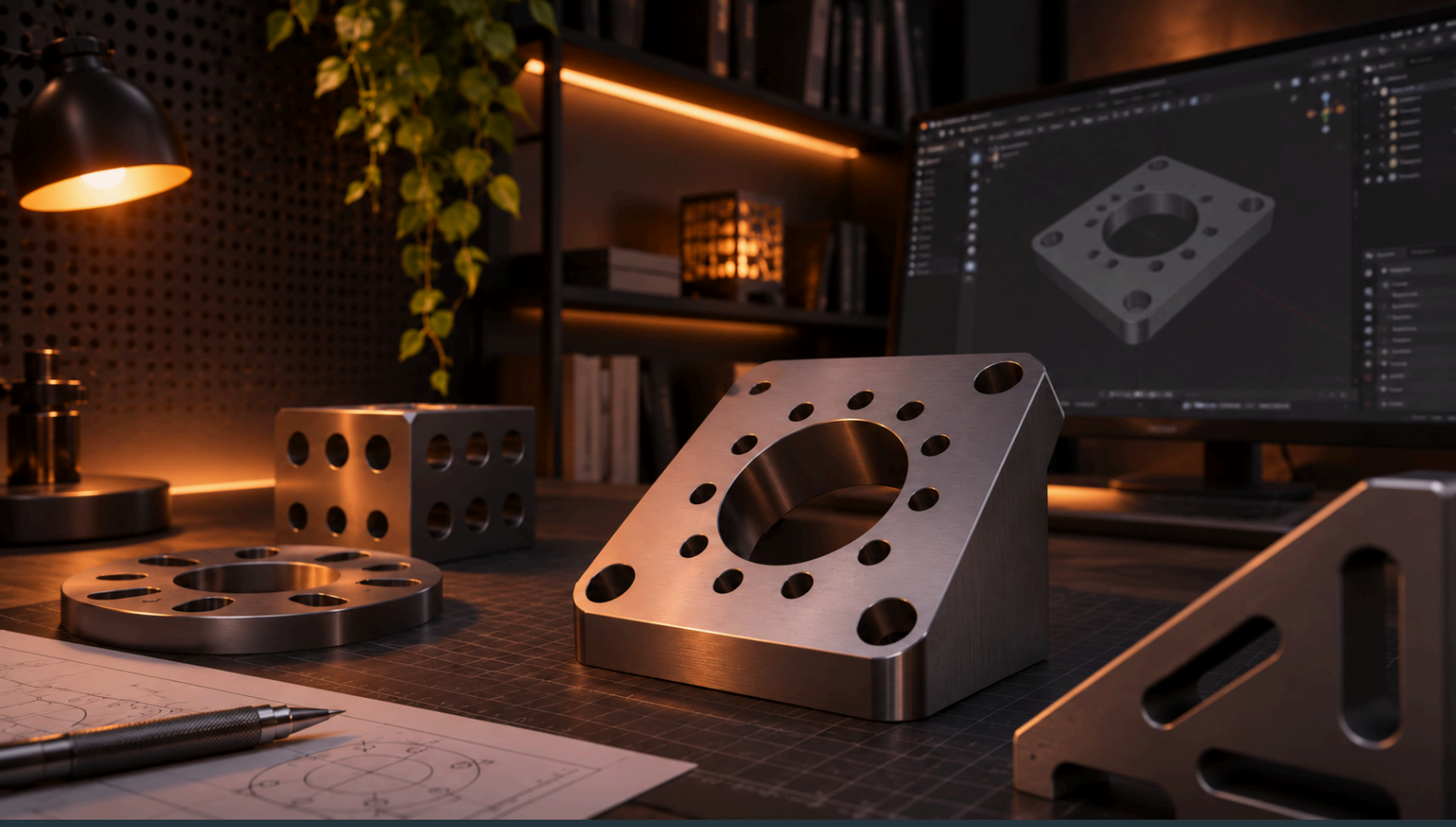


DESIGNIC.NET / BLENDER ADD-ON

CUTCRAFT

User Guide & Feature Reference

Precision cuts. Editable patterns. A cleaner modeling workflow.

VERSION 1.0.0 ENGLISH EDITION NOVEMBER 2026

SOURCE-BASED DOCUMENTATION | DESIGNIC.NET

Cover artwork is illustrative; it is not a verified CutCraft interface screenshot.

START HERE / DOCUMENT MAP

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A practical reference to CutCraft 1.0.0 - from the first surface cut to advanced patterns and final geometry.

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01	02	03	04	05
DRAW	**EDIT**	**PATTERN**	**REFINE**	**FINALIZE**
Choose a shape	Set dimensions	Repeat or mirror	Rims and detail	Bake if needed

ABOUT THIS EDITION

This guide is based on the contents of the supplied CutCraft v1.0.0 extension archive, including its README, manifest, and registered tools. Blender 5.2.0 is the declared minimum; Blender 5.3 use has been reported by the project owner. See the compatibility and limitations section before production work.

01 / CHAPTER

What CutCraft Does

Editable Boolean modeling tools for shapes, holes, grooves, patterns, and precision placement inside Blender.

CutCraft creates cutter objects attached to a target mesh and connects them through Blender Boolean modifiers. The base object stays editable while CutCraft cuts remain live. You can change shape dimensions, depth, edge treatment, placement, and repetition before baking the result.

Core principles

- **Work on the surface:** draw a cutter on a mesh face rather than modeling each Boolean operand from scratch.
- **Keep the result editable:** cutter outlines remain selectable, and the Boolean effect can be enabled or disabled independently of outline visibility.
- **Adjust multiple cuts:** Live Edit and Batch Edit make it possible to synchronize settings without moving each cutter.
- **Build structured patterns:** combine repeat, mirror, grid, and circular placement tools.
- **Finalize when ready:** bake the CutCraft result into mesh geometry, optionally keeping an editable backup.

Typical uses

MODEL TYPE	WHY IT HELPS
Hard-surface props	Panel openings, slotted brackets, decorative cutouts and repeated holes.
Concept mechanical parts	Counterbores, countersinks, visual threads, stepped bores, keyways and undercuts.
Product visualization	Organized hole patterns, precise spacing and editable rim finishes.
Iteration and revisions	Modify an existing cut or a full circular group without rebuilding every opening.

SCOPE

CutCraft is a Blender modeling extension, not CAD/CAM software. Displayed mechanical profiles are visual/prototype geometry and are not certified for fabrication tolerances or standards compliance.

02 / CHAPTER

Install & First Launch

Use the supplied CutCraft 1.0.0 ZIP as a Blender extension.

Requirements & version

ITEM	DETAIL
Extension	CutCraft 1.0.0
Declared Blender minimum	5.2.0 (extension manifest).
Blender 5.3	Project-owner testing reported; validate against your exact build and scene.
Workspace	3D Viewport, Object Mode, selected mesh.
Publisher	Designic.net
License	GPL-3.0-or-later (per extension manifest).

Installation

01 Save a copy of your current **.blend** project, especially when updating from an earlier CutCraft build.

02 Disable or remove any older CutCraft extension to avoid duplicate registrations or conflicting add-on panels.

03 In Blender, go to **Edit > Preferences > Get Extensions > Install from Disk**.

04 Choose **CutCraft-1.0.0.zip** and install it. Enable the extension if necessary.

05 Open a 3D Viewport. Press **N** for the sidebar and choose the **CutCraft** tab.

06 Select a mesh in **Object Mode** and perform a simple Rectangle cut on a duplicate object.

> **FIRST USE**
>
> For more accurate dimensions, apply target-object scale before drawing when scale differs from 1.0. Blender: Object Mode > Ctrl+A > Scale. Verify the result on a copy if your project depends on existing transforms.

03 / CHAPTER

Create Your First Cut

A complete beginner workflow using a cube and one circular opening.

01	02	03	04	05
SELECT	CHOOSE	DRAW	ADJUST	INSPECT
Active mesh	Circle tool	Drag on face	Depth / size	Boolean result

01 Add a cube in Blender and select it in Object Mode.

02 In **CutCraft > New Cut - Draw on Surface**, choose **Circle**. Set the drawing mode to **Cut** for a hole.

03 Click directly on the cube surface, drag to the desired diameter and release. A CutCraft cutter and Boolean modifier are created.

04 Select the new cutter outline in the Viewport, or expand **Editable Cuts** and select its row.

05 In **Edit**, change the **Diameter**, **Depth**, or **Cut Through** setting. Watch the effect update on the target.

06 Try **Live Shape Handles** or **Drag Depth in Viewport** for on-screen control, then save your .blend file.

Controls while drawing

INPUT	ACTION
Left mouse + drag	Place and size the cutter on a target surface.
Mouse wheel (drawing)	Adjust the preview depth before completing a cut.
Ctrl (during drag)	Snap drawing dimensions to the configured grid step.
Shift (during drag)	Use mesh-surface snapping near eligible features.
Esc / right-click	Cancel the current drawing operation.

Boolean mode

Cut removes material (Difference). **Join** adds material (Union). **Intersect** keeps the overlapping region. Certain mechanical tools enforce Cut mode because they are designed as subtractive bores or grooves.

> CUT THROUGH
>
> For a Difference cut, **Cut Through** adjusts the cutter to pass through the target based on its individual position and orientation. It is different from simply increasing the saved numeric Depth.

04 / CHAPTER

The Shape Library

CutCraft contains 19 drawing and mechanical shape entries. Filter them using Drawing, Mechanical, or All.

Drawing and profile shapes

TOOL	PURPOSE
Rectangle	Simple square or rectangular opening; editable width and height.
Circle	Circular hole with adjustable diameter and curve detail.
Rounded Box	Rectangle with adjustable corner radius.
Slot	Capsule-shaped elongated hole with rounded ends.
Polygon	Regular polygon with configurable side count.
Star	Pointed star with point count and inner-radius ratio.
Triangle	Three-sided opening.
Hexagon	Six-sided opening.
Diamond	Rhombus with independent width and height diagonals.
Cross	Cross-shaped cutout.
Toothed Wheel	Decorative tooth profile; not an engineering involute gear.
Custom Polygon	Click arbitrary outline points and close the shape with Enter.

Mechanical and specialized profiles

TOOL	PURPOSE
Keyway (D-End)	Slot with one rounded end and one flat end.
T-Slot	Narrow entrance with a wider undercut underneath.
Dovetail	Angled undercut with an adjustable flare angle.
Threaded Hole	Visual helical groove and optional head recess.
Counterbore	Wider, flat-bottomed cylindrical recess over a bore.
Countersink	Tapered screw-head entrance.
Stepped Bore	Bore made from multiple diameter regions.

TOOL SELECTION

The Mechanical filter also shows Circle and Slot for convenience. Some tools use dedicated profile parameters rather than the generic Taper / Bevel controls.

05 / CHAPTER

Edit & Manage Existing Cuts

Select an outline or a row in Editable Cuts to expose the controls for that individual cutter.

The Editable Cuts list

- **Select row:** activate the named cutter for editing. The selected cut also appears in the 3D Viewport.
- **Eye control:** hide or show the cutter outline; it does not remove the Boolean effect.
- **Checkbox:** enable or disable the Boolean effect while keeping the cutter editable.
- **Search:** filter a long cut list by cutter or modifier name.
- **Through All / Use Saved Depths:** toggle through-cut behavior for eligible cuts, or return to their saved depth settings.

Actions for the selected cutter

ACTION	EFFECT
Rename / Solo	Identify the cutter and isolate its effect for inspection.
Duplicate	Create an independent editable copy of the cut.
Earlier / Later	Change CutCraft modifier ordering, which can affect Boolean evaluation.
Remove Cut	Remove only that cutter and its Boolean relationship.
Align to Face / Nearest Edge	Reorient the cutter to the target surface or the nearest face edge.
Move / Rotate / Scale	Use Blender transform gizmos from the selected-cut controls.
Drag Width / Height / Diameter	Interactively change the relevant dimensions in the Viewport.
Drag Depth in Viewport	Adjust cut depth with direct pointer interaction.

Keep outlines and effects distinct

Hiding an orange wireframe cutter is a visibility choice. Disabling its checkbox turns off the live Boolean. Removing a cut deletes the editable CutCraft entry. For a member of a linked circular pattern, **Remove Only This Cut** does not delete the whole group.

> NON-DESTRUCTIVE BY DEFAULT
>
> The original target remains a separate mesh with modifiers until you explicitly finalize. Save a new version of the .blend file before structural changes.

06 / CHAPTER

Live Edit & Batch Edit

Edit one cutter, apply shared properties to other matching cutters, and keep their individual placements.

Choose where changes apply

APPLY TO	BEHAVIOR
Auto: Pattern / One	A linked circular pattern updates as a group; an ordinary cut updates only itself.
This Cut Only	Edits the selected cutter even if it belongs to a pattern.
All Same Shape	Applies supported property changes to same-type cuts on the same target mesh.
Same Named Group	Targets same-type cuts with an identical nonempty Cut Group name.

The Live Edit area appears at the top of the selected cutter settings. When it finds matching cutters, the panel reports how many will update. Supported size, depth and shape-detail properties change as you edit them; other cutters retain their locations and rotations.

Match Current Settings

01 Select the cut with the settings you want to use as the source.

02 Check **Apply To** and the reported match count.

03 Click **Match Current Settings to N Cuts** to synchronize the full set of supported shape settings in one action.

04 Inspect all matching results, especially when the cutters are on different surfaces or have different depths.

Advanced Batch Edit

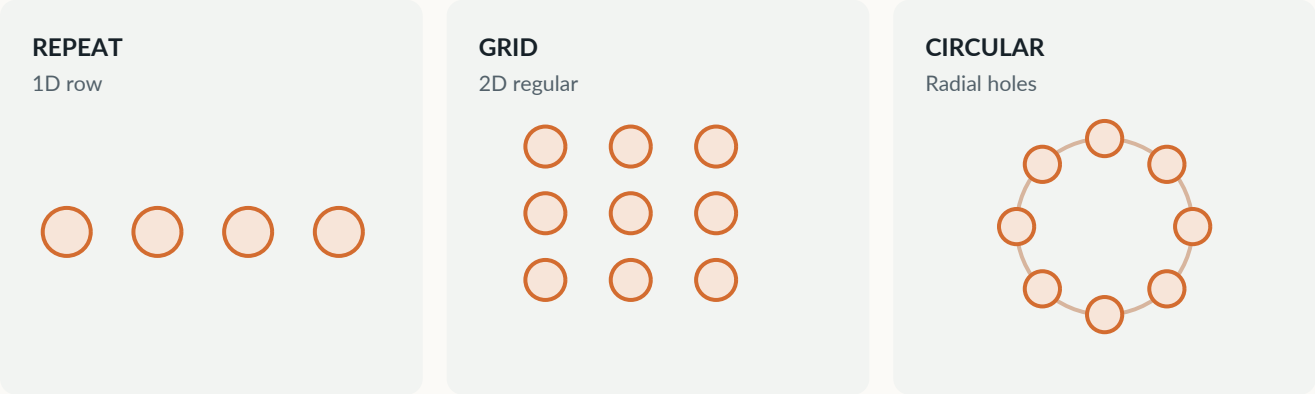
The **Batch Edit** tab keeps explicit actions for **Copy Size**, **Copy Depth**, **Copy Details**, **Copy All Three**, and **Copy Cut Through**. The standard actions confirm before applying; the quick matching button applies immediately.

> **WHAT STAYS INDIVIDUAL**
>
> Batch and live synchronization preserve position, rotation, Boolean operation, and the custom point paths of distinct cutters. For Difference cuts, Cut Through depth is recalculated per cutter; it is not a copied world-space length.

07 / CHAPTER

Repeat, Mirror & Grid

Use the Mirror & Patterns tab to create structured layouts without manually duplicating every cutter.



Manual Repeat

Choose **Repeat Along** X (left/right), Y (up/down), or Z (forward/back). Use the directional buttons for one side or **Both Sides**. The repeat count includes the original cutter when using one direction; Both Sides is symmetric around the source.

Example: Both Sides with Count 3 gives one original, two on one side, and two on the other side: **5 cuts total**. Use Space Between Cuts for the gap.

2D Grid & Mirror

Columns and Rows add groups in two dimensions; X Gap and Y Gap control the spacing. Mirror X, Y, Z, or X + Y can reflect the layout. Some mirror options also expose **Fill Space Between Mirrored Sides**, **Adjust Mirror Row Spacing**, **Fit Both Rows Inside Mesh**, and **Refresh Fill After Moving Cut**.

Easy Symmetric Grid

01 Enable **Easy Symmetric Grid** in Mirror & Pattern Controls.

02 Choose **Mirror Direction** and which way the copies extend.

03 Set **Cuts Per Side** and **Other Direction** count.

04 Adjust **Gap Between Cuts**, **Gap Between Rows**, and optionally the **Middle Gap**.

05 If the layout extends off the face, use **Center Entire Grid on Mesh**. This moves the original cut, so Undo or a saved backup is useful.

SPACING & PERFORMANCE

Easy Symmetric Grid uses a dedicated Geometry Nodes pattern instead of stacking overlapping mirrored arrays. The older manual grid mode may pause excessive layouts (a 128-solid guard is displayed), and dense Boolean patterns can slow the preview.

08 / CHAPTER

Circular & Bolt Hole Patterns

Create editable cutter groups arranged on a face or around an object.

Editable Circular Pattern

01 Create and select one source cut.

02 Open **Mirror & Patterns > Circular Pattern - Independent Cuts**.

03 Choose **Placement**: **On Same Face** or **Around Object**.

04 Enter the number of cuts (and rotation axis for Around Object), then click **Create Editable Circular Pattern**.

05 Select any member to edit its dimensions. In the selected-cut area, use **Circular Pattern** controls for Count and Radius; expand **More Pattern Controls** for angles, center and orientation.

Live pattern parameters

PARAMETER	MEANING
Count / Radius	Change how many members exist and how far they sit from the center.
Start Angle / Angular Span	Rotate the initial position or limit the arc extent.
Center	Move the layout center; a button can use the 3D Cursor.
Rotate Each Cut	Turn individual cutters as they orbit, or keep a common facing direction.
Placement / Axis	Control same-face placement or an around-object rotation axis.

Bolt Hole Pattern

Use **Bolt Hole Pattern** to distribute the selected cutter around a bolt circle. Set **Hole Count**, **Bolt Circle Radius**, and **Start Angle**. The pattern center uses the **3D Cursor projected onto the selected cut plane**. Created members share editable circular metadata.

> DELETE SAFELY
>
> **Remove Only This Cut** affects one cutter. **Delete Whole Pattern** removes members belonging to that generated circular group after confirmation. Ordinary duplicated or stamped cutters are not automatically added to the group.

09 / CHAPTER

Precision Layout & Measurements

Position cuts numerically, arrange groups, and measure relative distances.

Move and align a cut

- **Precision Move:** set a local-axis Step and use X-/X+, Y-/Y+, or Z-/Z+ for consistent increments.
- **Exact Position:** directly edit the selected cutter location values.
- **Align to Face:** align the cutter with the supporting surface normal.
- **Nearest Edge:** orient it using the nearest original face edge when suitable.

Align / Distribute Existing Cuts

In the **Align Cuts** tab, choose the set of cuts to arrange, a **horizontal, vertical or grid** layout, Columns, X Gap and Y Gap, and a Center reference (current group, selected cut or 3D Cursor). The tool preserves each cut shape, orientation, and depth. Eligible cuts must lie on approximately the same face plane.

Smart Measurements

01 Select a cutter, open **Smart Measurements** and click **Use Selected Cut as Reference**.

02 Select another cutter. Read the planar center distance and local X/Y offsets.

03 Enter a **New Center Distance** and click **Move to Center Distance** if adjustment is needed.

04 Use **Nearest original face edge** and **Approx Edge Clearance** when checking margins.

> MEASUREMENT LIMIT
>
> The edge-margin tool uses the original target surface and a conservative cutter-radius approximation; it is not a guaranteed minimum distance to every point of a rotated, concave, or irregular shape.

10 / CHAPTER

Shape & Mechanical Detail

Use the selected cutter controls to refine its geometry rather than destroying the original mesh.

General dimensions and profile options

CONTROL	WHAT IT DOES
Width / Height / Diameter	Sets the primary shape dimension.
Depth / Cut Through	Sets blind depth, or extends a Difference cut through the target.
Rotation / Curve Detail	Rotates the cut around its face or changes curve subdivision.
Taper / Stepped Cut	Changes general cutter wall profile on supported shapes.
Smooth Curves	Controls shading of curved cutter profiles.
Bevel Width / Segments	Rounds or chamfers supported cutter side corners, with safe limits.

Top Rim and Bottom Edge

Where supported, **Top Rim - Opening** and **Bottom Edge** independently offer **Sharp**, **Chamfer**, or **Rounded** finishes. Width and Angle control the transition. Rounded finishes add Smooth Segments and Round Profile. Through holes have no closed pocket floor to round; conical drill tips do not use a flat-bottom fillet.

Mechanical bores

- **Threaded Hole:** set pitch, groove depth, thread full-hole mode or manual threaded length, handedness, and optional head recess.
- **Counterbore / Countersink / Stepped Bore:** control head and middle diameters and recess depths as appropriate.
- **Drill Point:** use Flat Bottom or Conical Tip. Conical mode supports included-angle or tip-depth control.
- **Keyway / T-Slot / Dovetail:** use dedicated shape and undercut properties instead of generic profile controls where not applicable.
- **Metric Thread References:** nominal coarse-thread presets M3, M4, M5, M6, M8, M10 and M12 are reference values, not certified machining geometry.

> PROTOTYPE GEOMETRY
>
> The sampled thread and drill profiles are intended for visualization and modeling. They must not be used as an engineering, tolerance, CNC toolpath, or ISO/ANSI-certified specification without independent verification.

11 / CHAPTER

Custom Points & Live Handles

Direct shape editing in the 3D Viewport for irregular cuts and precise dimensions.

Convert & Edit Points

Select a supported flat profile and choose **Convert & Edit Points** to turn it into a Custom Polygon and enter the interactive editor. You can also draw a Custom Polygon directly by clicking points and finishing with Enter.

KEY / ACTION	CUSTOM POINT EDITOR
Drag a point / G	Move the selected handle with the mouse; click to confirm G.
Tab / Shift+Tab	Select next or previous point.
Arrow keys	Nudge the selected point using the configured precision step.
Shift + arrow	Use a finer nudge increment.
Ctrl + click edge	Insert a new point on an edge.
X	Delete the selected point, if the resulting polygon remains valid.
S	Toggle planar Face Snap when available.
Enter / Esc	Commit the edited contour / cancel the editor changes.
MMB / mouse wheel	Orbit or zoom the 3D Viewport.

Live Shape Handles

Click **Live Shape Handles (drag dots)** for interactive dimension and depth handles. The 3D viewing angle influences handle visibility: orbit the camera if a dimension axis is nearly edge-on, or use numeric settings for exact work. Enter commits; Esc restores the previously stored values.

> **IMPORTANT CONVERSION RULE**
>
> Converting a parametric cut to Custom replaces its original shape-specific parameter controls. Esc from the point editor does not reverse that conversion. Save first and use Blender Undo if you need the former parametric shape back.

12 / CHAPTER

Presets, Stamping & Slice Tools

Reuse shape settings and speed up repetitive modeling actions.

Reusable Shape Presets

01 Select an existing cut and open **Shape Presets - reusable across projects**.

02 Click **Save Current**, enter a name, and confirm the preset.

03 Create or select a different editable cut, choose a saved preset, then click **Apply to Cut**.

04 Use **Delete Saved Preset** to remove obsolete entries.

Presets are saved as JSON in Blender user configuration under the CutCraft folder and are available in other .blend files. They intentionally do not save object transforms, scene assets, scripts, or modifier stacks.

Boolean Brush: Stamp This Cut

The brush stamps independent copies of the selected cutter onto new points on the **same target mesh**, aligned to the clicked surface. Left click to stamp. Use middle-mouse and the wheel to navigate. Press Enter or right-click to finish; press Esc to cancel and remove stamps from that session.

Slice & Split from Selected Cut

This tool evaluates the CutCraft result and creates two new mesh objects on opposite sides of a plane positioned within the selected cutter depth. The original object and its live cutters remain editable. The evaluated source must be a closed manifold mesh; linked data, shape keys, and interleaved non-CutCraft modifiers can prevent operation.

> **COPY VS. LINK**
>
> Duplicated or stamped cutters remain independently editable. A circular pattern creates a linked group with shared placement metadata. Choose the correct method for your intended editing workflow.

13 / CHAPTER

Finalize & Clean Up

Bake the live Boolean result only when you want ordinary mesh geometry.

Recommended finishing sequence

01 Save a versioned .blend backup and verify the modeling result from several angles.

02 Inspect the Editable Cuts list. Confirm which checkboxes are enabled and which effects should be included.

03 Under **Finish Your Model**, leave **Keep Editable Backup** enabled when possible.

04 Click **Finalize Cuts** and read the confirmation. Only eligible CutCraft Boolean cuts are baked.

05 After finalizing, select the finished mesh and use **Safe Mesh Cleanup** if appropriate.

06 For true mesh-edge chamfers/rounds, switch to Edit Mode, select the intended edges, set the edge style and click **Bevel Selected Edges**.

Finalize constraints

- Linked meshes and meshes with shape keys require preparation or a duplicate before finalization.
- Non-CutCraft modifiers that appear before or among CutCraft Boolean modifiers may need to be moved after the CutCraft stack.
- Disabled Boolean effects are not baked into the final result, although the editable backup can retain them.
- Without a backup, restoring the original live cutters may depend on Blender Undo or a previous saved file.

> PRACTICAL RULE
>
> Finalize is not necessary for rendering or ordinary design iteration. Keep cuts live until the geometry must be edited directly or exported through a workflow requiring baked topology.

14 / CHAPTER

Troubleshooting & Known Limits

Work systematically: verify the active mesh, scope, modifier stack, and geometry before blaming a tool.

SYMPTOM	WHAT TO CHECK
A cut does not appear	Verify Object Mode, the correct target mesh, Boolean Cut mode, enabled modifier checkbox, and sufficient cutter depth.
Live edits do not affect all cuts	Check Apply To scope, shape type, nonempty group name, common target mesh, and whether the cuts belong to the same linked pattern.
A pattern extends outside the mesh	Reduce count or gap, reposition the source, or use Center Entire Grid on Mesh where supported.
Mirror or grid preview disappears	Inspect large-pattern warnings and overlapping solids; reduce generated count below the safety guard.
A custom handle is hard to grab	Orbit the camera, show the cutter outline, try Tab to select a point, or use numeric controls.
A top rim shape will not finish	Check Cut (Difference), taper, stepped-profile restrictions, shape type, and depth/width limits.
Finalize / Slice refuses	Look for linked mesh data, shape keys, non-manifold source mesh (Slice), or non-CutCraft modifiers earlier in the stack.
Boolean topology looks irregular	Inspect coplanar or overlapping cuts, mesh scale/normals, intersecting patterns, and the shape of the source topology.
A previous .blend behaves differently	Work on a copy; old generated patterns may upgrade after editing their controls and legacy mirrored placements may need manual adjustment.

Technical limits to keep in mind

- Complex Boolean intersections are not guaranteed to produce ideal topology under every target geometry or modifier combination.
- Deep, fine-pitch threads can require many sampled turns and may become slower or visibly approximate.
- Face Snap in point editing is intended for planar original faces; curved-surface snapping may be unavailable.
- Approximate edge clearance is useful for visual layout but is not a certified minimum material thickness.
- Actual viewport performance and modifier results depend on Blender version, scene complexity and device.

15 / CHAPTER

Quick Reference & Release Notes

A compact checklist to keep beside the Blender workspace.

Where to find it

3D Viewport > Sidebar (N) > CutCraft. Select a mesh in Object Mode to create cutters, and select a cutter outline or a row in Editable Cuts to edit it.

Common tasks

GOAL	PRIMARY CONTROL
Make a hole	New Cut > Circle > Cut; draw on the mesh.
Change dimensions	Selected Cut > Width / Height / Diameter / Depth.
Cut all the way through	Selected Cut > Cut Through.
Edit a circular group	Select a member > Circular Pattern Count / Radius.
Update matching shapes	Live Edit > Apply To; Match Current Settings.
Build symmetric rows	Mirror & Patterns > Easy Symmetric Grid.
Arrange cuts precisely	Align Cuts > Align / Distribute Cuts.
Measure a pair of cuts	Smart Measurements > Use Selected Cut as Reference.
Edit irregular contours	Convert & Edit Points or Edit Custom Points.
Reuse a profile	Shape Presets > Save Current / Apply to Cut.
Bake the final mesh	Finish Your Model > Finalize Cuts.

Pre-release validation checklist

- Install the exact extension ZIP in the target Blender version and confirm the panel opens.
- Test a basic Circle and Rectangle, a mechanical hole, and at least one Cut Through operation.
- Test Live Edit on multiple cutters; verify each individual position remains unchanged.
- Test circular Count and Radius, a symmetric grid, Undo, file save/reopen, and Finalize with editable backup.
- Confirm the final mesh has acceptable topology for the intended rendering or export path.

Release and licensing

Product: CutCraft 1.0.0 | **Publisher:** Designic.net | **License:** GPL-3.0-or-later. The extension declares Blender 5.2.0 as its minimum. This documentation describes the supplied release, not a certification of all Blender environments or industrial tolerances.

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