

8. CUTTING & CUTOUTS

FABRICATION GUIDELINES

Solid Surface Material

Cutting and cutouts of HIMACS sheets directly affect the visible quality and durability of the finished products. Poor cutting surfaces can make seams more visible after joining and may lead to cracking along the seam. Improper cutouts, particularly at corners, can also cause cracks. Ensuring the long-term performance and service life of finished products made from HIMACS sheets starts with precise cutting and accurate cutouts.

1. Material Preparation

Preparation and checking before cutting are the last opportunity to validate and correct your job plan. Thorough preparation and organisation will ensure a profitable and efficient project.

1.1 Cutting List

A complete cutting list, including detailed information based on site inspection, measurements, templates, seam position rules, and drawings, is essential for efficient fabrication and installation. Maintaining the cutting list will also help rectify defects and respond to customer complaints if needed. Essential information to include in the cutting list:

- Project title and intended use
- Customer information, including name and address
- HIMACS sheet numbers
- Cutting sizes, shapes (drawings), and quantities of fabricated individual pieces
- Consideration of thermal expansion and contraction in cutting sizes
- Identification number for each fabricated piece (marked on the back) and recorded in the cutting list
- Additional special notes as required

1.2 Conditioning

Before starting fabrication or installation, HIMACS sheets should be conditioned at room temperature ($20^{\circ}\text{C} \pm 5^{\circ}\text{C}$) for a minimum of 24 hours. Conditioning is essential to achieve the original material performance and correct dimensions after fabrication.

2. Cutting

2.1 Factory Ends and Edge Cutting

Factory ends and edges of HIMACS sheets are not suitable for direct fabrication without additional finishing. These edges may have been damaged, cracked, or contaminated during storage and transportation. The saw blades used at LX Hausys factories do not guarantee an optimal edge condition for seaming.

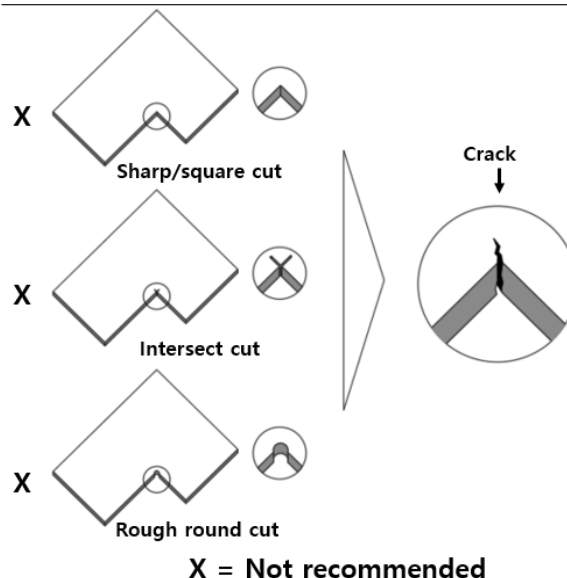
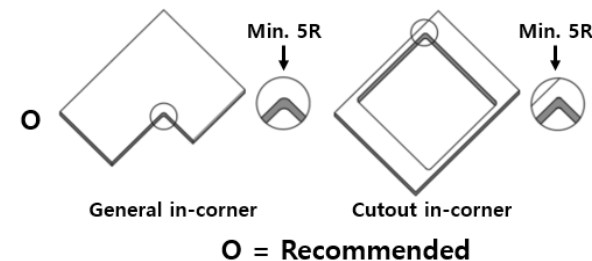
To ensure high-quality results, LX Hausys strongly recommends trimming factory ends and edges before fabrication. Removing these areas helps prevent visible defects and guarantees strong, durable seams.

2.2 Inside Corner Cutting

All inside corners of HIMACS sheets should have a minimum radius of 5 mm. The same minimum radius applies to all cutouts. Sharp or square inside corners are highly susceptible to cracking and breakage.

Rounded corners provide the best protection against damage, with larger radii offering greater durability. Never create sharp or square inside corners when working with HIMACS sheets.

Inside corner example



2.3 Key recommendations for cutting

There are many methods, machines, and tools available for cutting HIMACS sheets. For safe and accurate cutting, LX Hausys recommends the following minimum requirements:

- HIMACS sheets should be fully supported and securely fixed on the worktable during cutting.
- Only use machines and tools dedicated to solid surface materials.
- Portable circular saws should be used for rough cutting to size only. If a portable circular saw is used, the cut edge must be finished using an appropriate method to ensure high-quality seaming. Routing or sanding is recommended for edge finishing.
- When using hand tools such as routers or circular saws, always use cutting guides such as straight edges or templates to maintain accuracy.

3. Cutouts

3.1 General cutouts

Cutouts are subject to higher stress and must therefore be executed with great accuracy.

- Machine cutouts using a CNC router or a hand router with a template.
- Always ensure that corners are radiused, making the radius as large as practical ($R \geq 5 \text{ mm}$). Never leave sharp corners. See the Inside Corner Example.
- There are several methods for creating cutouts. Fabricators should select the method that best suits their workshop conditions and the specific project requirements.

CNC Machines

- CNC machines offer the most accurate solution, capable of producing large quantities of identical cutouts quickly. They can perform cutting and edge finishing in a single operation according to the designed shape.
- CNC machines require significant investment in equipment and skilled operators. Electronic drawings (e.g., AutoCAD files) are necessary for precise fabrication.

Handheld Router with Template

- Using a handheld router with an accurate template is generally a reliable method. Templates can be reused multiple times for identical cutouts.

Straight Edges

- Straight edges are suitable for single-use applications.
- Single-type sink or vanity basins can also serve as templates.
- With all methods, LX Hausys recommends careful evaluation of the work to be carried out before cutting.

3.2 Making template

An accurately made template is essential for successful fabrication of cutouts in HIMACS sheets. Templates can be made using various methods and materials.

Tools Required:

- 10 mm router bit
- 25 mm template guide

Using HIMACS Under-Mount Basins

1. Choose a suitable template material and cut it to the proper size.
2. Prepare the basin by wrapping its upper edge with masking tape. The tape should be applied flat, with no wrinkles.
3. Apply hot-melt glue to the flange of the basin, turn the basin upside down, and fasten it securely to the template material.
4. Once fastened, turn the assembly (basin and template material) upside down again.
5. Carefully drill a hole away from the flange—do not drill into the flange itself.
6. Install a flush-cut laminate trimmer bit in the router. Adjust the roller bearing so it sits approximately 1 mm below the bottom of the template material.
7. Carefully route around the inside edge of the basin using the router.
8. Detach the basin from the template and carefully remove all hot-melt glue from both the template and basin flange.
9. Sand and ease the inside edge of the opening.
10. Mark the template with an identification number or the name of the basin.

Using Supplier's Paper Template

1. Prepare the paper template and locate the line indicating the shape and size of the basin (this is the inside edge line).
2. Draw an offset line 10 mm inside the edge line (matching the router bit diameter).
3. Carefully cut along the offset line using scissors, keeping the inside piece for later use.
4. Glue the inside paper piece onto MDF or plywood.
5. Cut the MDF or plywood by tracing the outside of the paper piece with a saber saw. Do not cut inside the paper piece. The inside MDF or plywood piece will be used in the next step.
6. Sand the inside piece to match the paper line and ease the edges until the shape perfectly matches the paper template.
7. Choose a suitable template material and cut it to size.
8. Glue or screw the prepared MDF/plywood piece onto the template material.
9. Carefully route around the piece using a router set with a 10 mm bit and 25 mm template guide.
10. Sand and ease the inside edge of the opening.
11. Mark the template with an identification number or the name of the basin.

3.3 Making cutouts for cooktops

Cutouts for heat-generating appliances require precise fabrication, proper heat insulation, and reinforcement to withstand stress. Heat from appliances can cause cracks or burns on HIMACS sheets. Therefore, LX Hausys recommends following the minimum fabrication methods below when making hob cutouts for residential cooktops.

It is not possible to provide guidance for all types of heat-generating appliances, especially commercial appliances operating at higher temperatures for extended periods. These require optimised and reinforced fabrication methods in consultation with the appliance supplier. HIMACS sheets can withstand heat, but all cutouts must allow adequate ventilation or heat dispersion to keep the temperature below the critical performance limits.

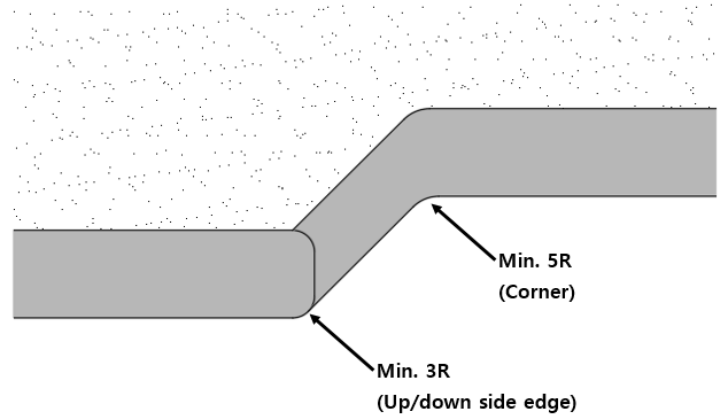
Cutout Size and Position

- Leave a minimum of **3 mm space** between the underside of the appliance and the edge of the HIMACS sheet whenever possible. Depending on the hob type, a **filling piece** may be required.
- **Do not place a joint or glue line** across any heating device. Fabricate the hob area as a single, unglued piece.
- Maintain a **minimum seam distance of 300 mm** from the hob cutout.
- Keep a minimum distance of **50 mm** between the hob cutout and the backsplash or upstand.
- Maintain a minimum distance of **60 mm** from the hob cutout to the wall.

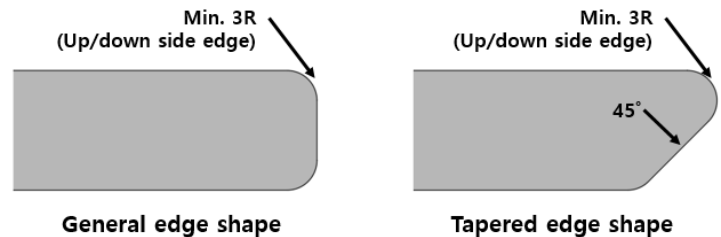
Cutout Process

1. Place and secure the template at the correct position using clamps if using a hand router. Allow sufficient space at the back for the backsplash and at the front for finished-edge treatment.
2. Machine the cutout using a **CNC router or hand router with a template**. Do **not** use jigsaws or hand saws intended for masonry.
3. Always machine a radius around the corners, making it as large as practical (**R ≥ 5 mm**). Never leave a sharp corner.
4. Ease all cutout edges to a **minimum radius of 3 mm**. For CNC users, perform a second pass to trim edges with a 3 mm radius (see **Edge Trimming**).
5. Finish-sand the edges using **180-grit sandpaper**. Clean the sanded edges with **denatured alcohol or acetone** and a lint-free white cloth.
6. In some markets, a **tapered 45° edge** is commonly used for hob cutouts. This edge can be considered if it has been proven reliable in your market.

Edge Trimming



Edge finishing



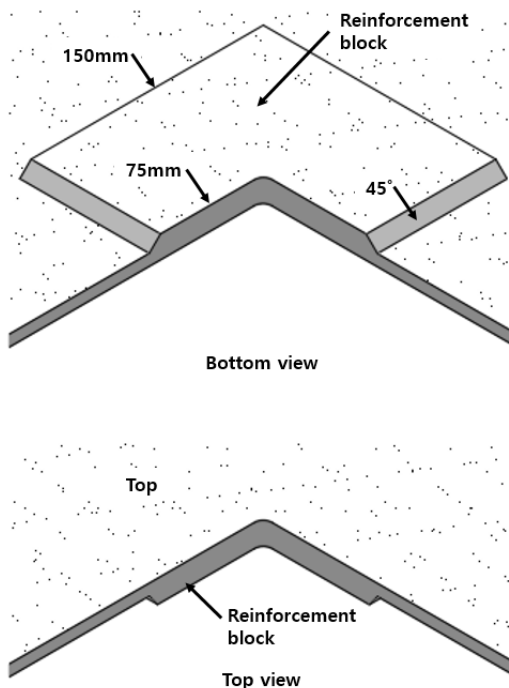
3.4 Protecting from Heat

Excessive heat can cause **cracks or burns** on solid surface tops. These issues can be prevented with **adequate reinforcement, insulation, and ventilation**.

Corner Reinforcing

1. **Prepare blocks:** Cut corner reinforcing blocks from HIMACS sheets, **150 mm × 150 mm**. Applicable for **12 mm and 20 mm sheets**.
2. **Bevel and round edges:** Bevel all four edges at **45°** and round each corner to a **minimum radius of 3 mm**.
3. **Clean blocks:** Wipe blocks with **denatured alcohol or acetone** using a **lint-free white cloth**.
4. **Prepare surface:** Scuff-sand and clean the underside of the HIMACS sheet where the blocks will be adhered.
5. **Adhere blocks:** Apply **joint adhesive** and attach each block to the underside of the cutout corners.
6. **Position blocks:** Ensure **75 mm × 75 mm** of each block extends into the cutout area.
7. **Clamp and remove excess adhesive:** Fully cover blocks with adhesive, clamp securely, and carefully remove any squeezed-out adhesive. Allow to harden.
8. **Trim excess:** Remove any excess block material from the cutout opening using a router.
9. **Ease edges:** Round the top and bottom edges of the cutout opening and all exposed block edges to a **minimum radius of 3 mm**.
10. **Finish-sand and clean:** Sand all edges using **180 grit**. Clean with **denatured alcohol or acetone** and a **lint-free white cloth**.

Corner reinforcement



Edge Insulating

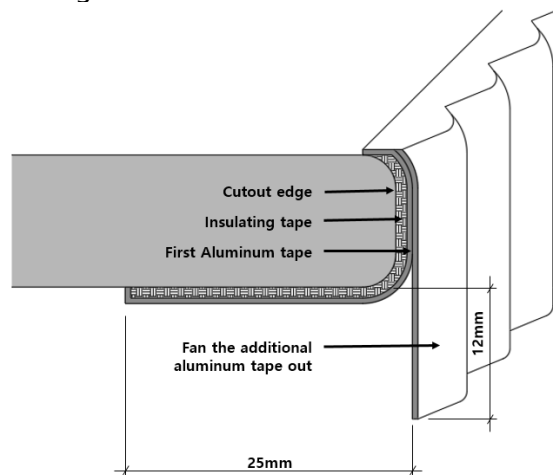
The **internal edges of hob cut-outs** must be protected with **heat-resistant materials**. Suitable options include:

- **Self-adhesive ceramic tape**
- **Neoprene tape**
- **Kaowool tape**
- **Nomex®**
- **Super Wool Paper®**
- **Self-adhesive aluminum reflective tape** (e.g., 3M, Tape No. 425)
- Other heat-resistant materials that provide sufficient protection for the specific residential or commercial heat-generating appliance can also be used.

Applying edge insulation and aluminum tape

1. **Apply heat-resistant tape:** Carefully wrap **self-adhesive insulating tape** around the cutout edge and the underside of the top, extending **up to 25 mm**.
2. **Use multiple layers:** Apply **multiple layers** of insulating tape whenever possible to increase heat protection.
3. **Cover with aluminum tape:** Place a layer of **aluminum tape** over the insulating tape.
4. **Add additional aluminum layers:** Apply **one or more extra layers** of aluminum tape on top of the first layer. Extend each aluminum tape layer at least **12 mm below the cutout edge**.
5. **Create a heat sink effect:** Fan out the aluminum tapes like fins. This increases the **surface area**, allowing heat to dissipate faster and reducing the risk of cracks or burns.

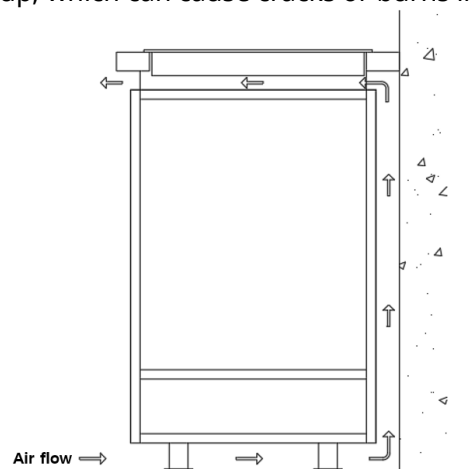
Insulation reinforcement



Ventilating

- **Provide adequate ventilation** in the cabinet housing the cooktop.
- Install a **vent and fan system** to help remove heat from the countertop area.
- Ensure airflow is sufficient to prevent heat buildup, which can cause cracks or burns in the HIMACS sheet.

Ventilation



This guideline has been created to provide technical information for successful fabrication and installation of HIMACS, and it is intended to be used in a safe environment considering their own discretion and risk by who has technical skill for fabrication and installation of HIMACS.

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