

USER GUIDE

Flat White 160 hump mold

How to form a 160 mL (target) slab-built cup on the SenseCraft Barista Line one-piece rigid mold.

1 · Before you start
What you need and what to check.

2 · Form the cup
A base and two rings over the dome.
Paper templates on page 8.

3 · Release and finish
When to pull the mold, rim, foot, handle, drying.

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Print on A4 or Letter at 100 %. Images marked “CAD render” are views of the CAD; diagrams are schematic.

SenseCraft

1 Before you start

This is a hump mold: one rigid printed piece with a flat grip bar across the rim, flush with it. The clay goes over the outside of the dome, so the dome shapes the inside of your cup. There is no undercut: when the clay holds its shape, the mold comes straight out. It never goes in the kiln.

You will need

- A clay body you know (note its shrinkage)
- Rolling pin with 5 mm and 5.5 mm thickness guides
- The paper templates (page 8), thin card or plastic sleeves
- Craft knife, scoring tool, slip of the same clay, small brush
- Soft rib, sponge, cornstarch for dusting
- A small board (bat), a plastic sheet, a pencil, a ruler



Flat White 160 mold. CAD RENDER

Important

- **Never fire the mold.** It is PLA. Keep it away from heat sources and hot cars.
- **Do not scale the files.** The mold is sized for 12 % clay shrinkage.
- **Make a trial cup first.** Timing and shrinkage depend on your clay.
- Remove any blob or seam bump from the dome before the first use: it prints into the inside of the cup.

2 Cut the pieces

The inside of the cup turns from almost flat at the bottom to almost straight at the rim. One straight slab cannot follow that, so the cup is made of a flat base and two rings.

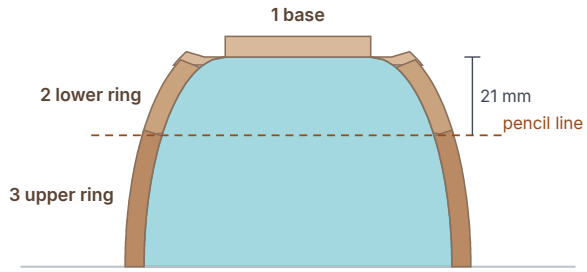
Piece	Slab	Cut	Joins
1 · Base	5.5 mm	1 disc, Ø 58.1 mm	edge → lower ring
2 · Lower ring	5 mm	1 piece (one seam)	short edge 176 mm → base · long edge 242 mm → upper ring
3 · Upper ring	5 mm	2 half pieces	short edge → lower ring · long edge = rim (+3 mm to trim)

Wet sizes; they already follow the mold. Do not enlarge them. They are drawn from the cup profile on the middle of the slab, the same method as our Espresso 80 and Belly guides.

1 **Roll the slabs** on canvas between thickness guides: 5.5 mm for the base, 5 mm for the rings. Smooth both faces lightly with a soft rib without thinning them.

2 **Test the curve on a scrap.** Lay a scrap over the curve near the top of the dome. It must follow without cracking on the outside. It sags: let it firm up a little. It cracks: the slab is already too dry.

3 **Cut the pieces** with the templates: one base, one lower ring, two upper half rings. Hold the blade upright. Keep pieces you are not using covered.



Section, mold dome up (the cup is upside down while you build, so the lower ring sits next to the base, at the top). DIAGRAM

Starting templates

The templates have not yet been tried in clay on this mold. Treat your first cup as a trial and note what you change.

2 Build the cup over the dome

Prepare one joint at a time, just before joining: score both faces lightly and brush on a thin layer of slip.

4 **Set the mold dome up on a small can or jar narrower than the rim** (about 6 cm across), so the bar and ribs rest on it and the rim edge stays free. Dust the dome lightly with cornstarch.

5 **Pencil line.** Draw a light line around the dome 21 mm below its flat top (measure straight down from the top). The long edge of the lower ring sits on this line.

6 **Base.** Center the disc on the flat top and seat it from the center outward with your palm. Its edge eases down over the start of the curve: follow it, do not stretch it.

7 **Lower ring.** Bring its short edge to the edge of the base and wrap it around; join the two ends end to end (butt joint): no bevel and no overlap. Check that the long edge sits on the pencil line. Blend the joint with the base from the outside without thinning the wall.

8 **Upper ring.** Its short edge meets the long edge of the lower ring. Line them up with no step and butt-join the two half pieces, with these seams about a quarter turn from the lower seam. Leave the 3 mm of extra clay past the rim of the mold.

9 **Trim the rim on the mold.** Hold a knife flat against the rim of the mold and run it all the way around, cutting the extra clay flush. The grip bar is flush with the rim, so nothing is in the way, and the rim of the cup comes out level.

Stop if...

- a fold appears that would only go away by squeezing: check the piece, the pencil line and that the clay is still flexible;
- a ring only closes when you stretch it: check for bevelled or overlapped ends or a slab that is not 5 mm;
- the clay slumps or a joint opens: let the pieces firm up a little, supported.

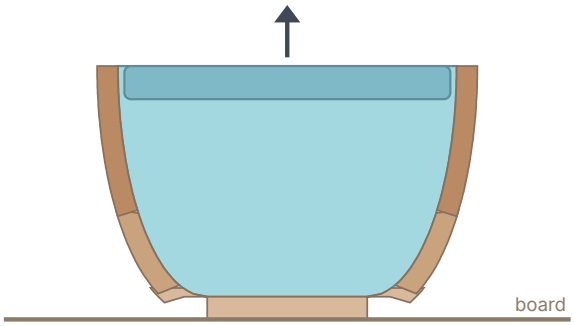
3 Release, finish and dry

When to release

Release as soon as the clay **holds its own shape**. Do not wait long: clay shrinks as it dries and the mold does not, so the cup gradually grips the dome. There is no fixed time; note the time of your first cup. Keep loose plastic over the work while you wait.

10 **Turn it over** onto a board so the cup stands on its base, with the mold inside it and the grip up.

11 **Pull the mold straight out by the grip**, with one steady pull, while the other hand rests lightly on the board side of the cup. Do not twist it to break it free.



Release: the mold comes straight out. DIAGRAM

Finish

12 Work the seams from the inside with a rounded tool. Round the rim and thin it from the outside (target about 3 mm fired). Shape the foot. Attach the handle when cup and handle are at a similar state: score and slip both contact areas and support the inside at the joint.

Drying

Keep the cup on its board, away from drafts, under a loose plastic tent. Rim and handle dry first: protect them a little more.

Size: a target, not a guarantee

Fired target	Flat White 160
Brim capacity	≈ 160 mL
Rim inside	Ø 72 mm (also the widest point)
Inside height	49 mm
Flat inside floor	Ø 34 mm
Foot (outside)	Ø 42 mm fired · ≈ Ø 48 mm wet
Handle opening	22 × 26 mm fired · section 6 × 8 mm

Fired targets at 12 % total shrinkage (reference), from the profile the mold was built on, before glaze. Capacity is to the brim; a comfortable fill is less. If your clay shrinks more or less, the fired size changes with it.

Troubleshooting

What you see	Likely causes	What to try next time
Folds or cracks on the curve	One straight slab; ring off its line; clay too dry to bend	Use the base and two rings; seat the lower ring on the pencil line; roll a new slab if a scrap cracks.
A ring only closes when stretched	Ends bevelled or overlapped; slab not 5 mm	Butt joints; 5 mm guides; cut from the templates.
Clay sticks to the dome	Clay too wet; no dusting	Let the pieces firm up; dust lightly with cornstarch.
The mold will not come out	Waited too long; outside dried fast	Release earlier; keep loose plastic over the work. Never lever against the rim.
Lines or a bump inside the cup	Print marks on the dome	Smooth the dome lightly; keep its shape. Layer lines show less with the 0.12 mm profile.
A joint opens when dry	The defect was already there	Finish every seam from the inside on the next cup.

Caring for the mold

- Clean it with a damp sponge after each session; dry it before storing.
- Never put the mold in the kiln. PLA softens in a hot car or near a heater.

Printing reminders

- Use the included profile: Bambu Lab P1S, 0.4 mm nozzle, PLA, 0.12 mm layers, 6 walls, 25 % infill (≈ 1 h 50 min · ≈ 66 g).
- Print in the orientation of the file. Rim and grip bar on the plate, dome up. No supports.
- Do not scale the files. Other printers: see the PDF “Printing on other printers”.

Quick card

Cut out and keep it next to your bench.

Form

- Slabs: 5.5 mm base · 5 mm rings · test a scrap on the curve
- Cut base + lower ring + 2 upper half rings
- Mold dome up on a small can · dust with cornstarch
- Pencil line 21 mm below the flat top
- Base → lower ring → upper ring · score + slip · butt joints
- Trim the rim flush with the mold

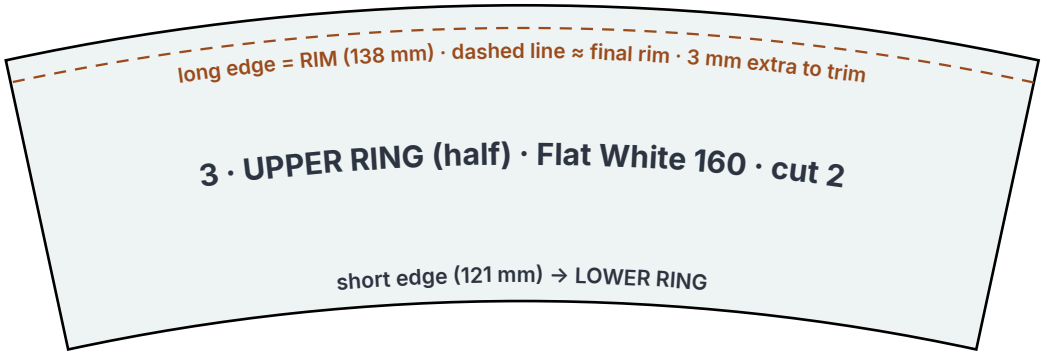
Release

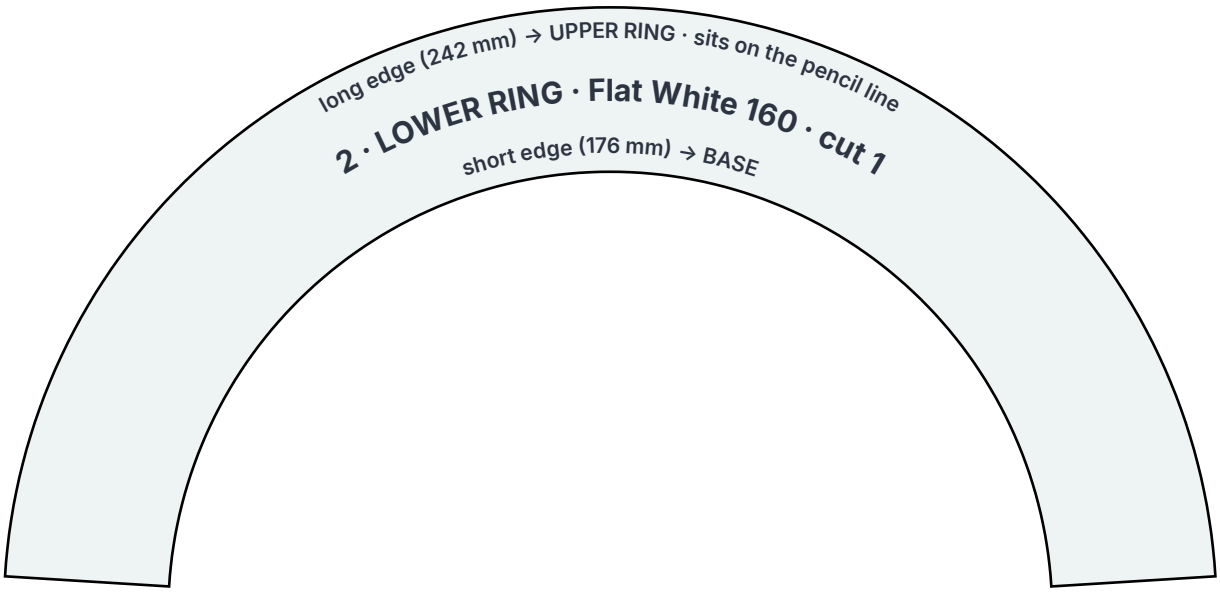
- As soon as the clay holds its shape
- Turn over onto a board, cup on its base
- Pull straight out by the grip · no twisting
- Seams from inside · round and thin the rim
- Foot, handle · dry slowly under a loose tent

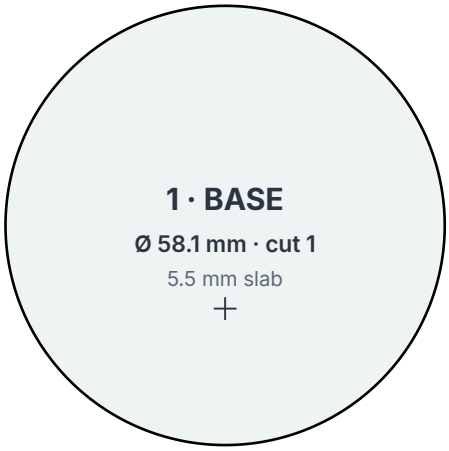
About this guide

The clay steps follow the forming procedure of the Flat White 160 design study and general handbuilding practice from SenseCraft's book *Handbuilding Ceramics* (2026). The mold has not yet been used in clay: treat every number and step as a starting point and make a trial cup first. Fired targets come from the design profile at 12 % reference shrinkage.

Images marked “CAD render” are views of the CAD; diagrams are schematic. Designed by SenseCraft with the assistance of AI tools.









CHECK: this bar must measure 50 mm

Rings: 5 mm slab. Base: 5.5 mm slab.
Butt the ends: no bevel, no overlap.
Offset the seams of the two rings by 90°.
Starting templates: make a trial cup first.