

USER GUIDE

Tumbler
Hold-All collapsible mold

How to assemble, form, release and care for your SenseCraft Collapsible Mold System – Hold-All for a handleless coffee tumbler with a low belly, in three sizes: S, M and L.

1 · Before you start
Parts, tools and a dry run.

2 · Form the cup
Five pieces (a base and two rings), built upside down. Paper templates on pages 10–12.

3 · Release and dry
Release order, joints, foot, drying, fixes.

Version 1.0 · November 2026 · Mold revision R01
Print on A4 or Letter at 100 %. Photos show the printed M Dual-Color mold; images marked “Illustrative render” or “Diagram” come from the CAD.

SenseCraft

1 Before you start

The Hold-All is a forming support: you build the cup on it from flat clay pieces with the mold upside down, then take the mold apart through the rim. It never goes in the kiln.

The mold parts (each size)

01 Core · 02 four Key Segments (narrow) · 03 four Side Segments (wide) · 04 Lock Lid · 05 Hex Nut: 11 printed parts. The Key and Side STL files hold one segment each: print each of them four times (the 3MF print profiles already have all eight). There is no inversion stand in this kit: rest the lid on something stable that clears the nut, such as a wide mug or a roll of tape.

You will also need

- A clay body you know (note its shrinkage)
- Rolling pin and two 6 mm thickness guides
- The paper templates for your size (pages 10–12), thin card or plastic sleeves
- Craft knife, scoring tool, slip of the same clay, small brush
- Soft rib, sponge, a small tool that reaches inside the cup
- Two small boards (bats), a plastic sheet, a pencil, a ruler



The M mold, Dual-Color, printed in PLA, assembled and locked. PHOTO

Important

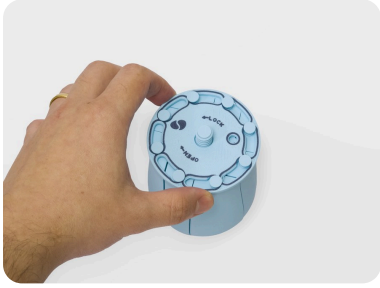
- **Never fire the mold.** It is PLA. Fire the clay only, as your clay and kiln maker say. Keep the mold away from heat sources and hot cars.
- **Do not scale the files.** Scaling changes the clearances of the mechanism too.
- **Do not let the clay shrink onto the mold.** Release in time and never lever it out.
- **Make a trial cup first.** Timing and shrinkage depend on your clay.
- Small parts: keep the nut and segments away from small children.

1 Assemble and lock

Do this first with no clay, and once more as a full dry run: assemble, then release in order (page 6). If something sticks without clay, fix it before you add clay.



1 Segments. Stand the Core on the table. Lower the eight segments onto it from above, one at a time, each along its own rail. Do not force a segment that catches: look for brim or elephant foot on the rail.



2 Lock. Put the Lock Lid on top with the arrow at **OPEN** and turn it to **LOCK** (about 24° on the S, 28° on the M, 30° on the L). It should turn without force. **Locked = the padlock on the Core shows through the round window of the lid.** No padlock in the window = not locked.



3 Nut. Screw the Hex Nut on by hand until it is snug. Do not use tools and do not over-tighten.

PHOTOS · M DUAL-COLOR

Dry run checklist

- [ ] Every segment slides on and off without force.
- [ ] The parting lines meet with no step you can feel with a fingertip.
- [ ] The padlock shows in the window when locked.
- [ ] The locked mold sits steady upside down, resting only on its lid (on a wide mug or a roll of tape that clears the nut).
- [ ] You can release the whole mold in order (page 6) through a ring the size of the cup's mouth.

2 Cut five pieces: a base and two rings

A tumbler has its belly low: the wall leans out from the base up to the widest point, about a third of the way up, and then rises and leans gently back in toward the rim. A straight slab cannot follow both, so the body is a flat base and two rings, each cut as two half-arcs.

Size	1 · Base	2 · Lower arc (half)	3 · Upper arc (half)	Pencil line
S	Ø 55.2 mm	cut 2 · short edge 84 mm → base · long edge 106 mm	cut 2 · long edge 106 mm · rim edge 92 mm (+3 mm to trim)	≈ 24 mm
M	Ø 67.0 mm	cut 2 · short edge 103 mm → base · long edge 130 mm	cut 2 · long edge 130 mm · rim edge 112 mm (+3 mm to trim)	≈ 29 mm
L	Ø 77.9 mm	cut 2 · short edge 120 mm → base · long edge 152 mm	cut 2 · long edge 152 mm · rim edge 131 mm (+3 mm to trim)	≈ 34 mm

Wet sizes for a 6 mm slab; they already follow the mold. Do not enlarge them. Pencil line = distance from the flat bottom of the mold to its widest point (the belly).

4 **Roll a 6 mm slab** on canvas between two 6 mm guides. Smooth both faces lightly with a soft rib without thinning it. Carry it on a board.

5 **Test the curve on a scrap.** Lay a scrap over the belly of the mold. It must follow the curve without cracking on the outside. Too soft (it sags): let it firm up a little, supported. It cracks: the slab is already too dry; roll a new one.

6 **Cut the five pieces from the same slab** with the paper templates for your size: one base, two lower half-arcs, two upper half-arcs. Hold the blade upright. Keep the pieces you are not using covered. Soften the rim edge of the upper half-arcs with a damp sponge while they are flat.

> **Starting templates**
>
> The templates are drawn from the Tumbler profile with the same method as our Orb, Belly and Espresso 80 guides. They have not yet been tried in clay on the Tumbler Hold-All: treat your first cup as a trial and note what you change.

2 Build the cup upside down

The Lock Lid is designed to retain all eight segments while you build upside down. Confirm secure locking and a stable support in a dry run before adding clay. Prepare one joint at a time, just before joining: score both faces lightly and brush on a thin layer of slip.

7 **Set the locked mold upside down**, lid end down, on a wide mug or a roll of tape that clears the nut. Dust it lightly with cornstarch. Draw a light pencil line around the mold at its widest point (S ≈ 24 mm, M ≈ 29 mm, L ≈ 34 mm from the flat bottom): the long edges of the lower ring sit on this line.

8 **Base.** Center the disc on the flat bottom of the mold and seat it from the center outward with your palm. Its edge eases down over the rounded corner: follow it, do not stretch it.

9 **Lower ring.** Bring the short edge of a lower half-arc to the edge of the base and wrap it; add the second half-arc and join the ends end to end (butt joints): no bevel and no overlap. Check that the long edge sits on the pencil line. On the Tumbler the lower ring is short and strongly curved: ease it around the base, do not pull it. Seat with broad, light contact; blend the joint with the base from the outside without thinning the wall.

10 **Upper ring.** Its long edge meets the long edge of the lower ring. Line them up with no step and butt-join the ends, with these seams about a quarter turn from the lower seams. Leave the 3 mm of extra clay at the rim for now. Do not push clay into the gaps between segments.

Stop if...

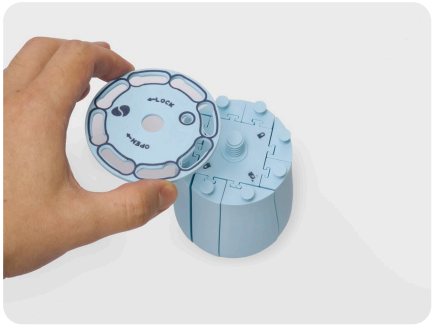
- a fold appears that would only go away by squeezing: check the piece, the pencil line and that the clay is still flexible;
- a ring only closes when you stretch it: check for bevelled or overlapped ends, a slab that is not 6 mm, or texture added after cutting;
- the clay slumps or a joint opens while upside down: let the pieces firm up a little, supported.

3 Release in order

Flip mold and cup together onto a board so the cup stands on its base. Take the mold out one part at a time, in this order. Keep the cup on its board the whole time.



11 Unscrew and lift off the Hex Nut.



12 Turn the lid to OPEN and lift it off.



13 Pull the Core straight up and out.

14 **Key Segments, one at a time.** Slide each key toward the center **until it stops**, and only then lift it out. Lifting a key early makes it hit the rim.

15 **Side Segments, one at a time.** Pull each one diagonally into the center and lift it out through the rim.

PHOTOS · M DUAL-COLOR (NO CLAY)



Core, 4 Key and 4 Side Segments laid out. The wide Side Segments come out last.

Stop if...

- the clay follows a part as it comes out, the rim bends, or you hear a crack;
- a part needs force or a lever. **Never lever against the clay rim.** Support the cup, find what is blocking and free that first.

3 Release window, finishing and drying

When to release

Release when all three are true: the cup **holds its own shape**, the mold **comes out without deforming it**, and the inside joints **can still be worked**. Do not wait too long: clay shrinks as it dries and the mold does not, so the wall gradually grips the mold. There is no fixed time; note the time of your first cup. Keep loose plastic over the work while you wait.

Finish the joints inside

Supporting the outside with one hand, work the four vertical seams and the two joints around the cup from the inside with a small rounded tool. A very thin coil helps only where the joint already meets well.

Rim and foot

Trim the 3 mm of extra clay to a level rim and compress the edge. A tumbler has no handle: you hold it by the belly and drink from the rim, so round the rim slightly and soften the outer edge of the base. Without a handle the wall gets hot: the L holds a lot of hot coffee, so it suits warm or iced drinks best. When you glaze, leave the bottom and the lowest few millimetres of the wall bare (wax resist), so the cup can stand on the kiln shelf.

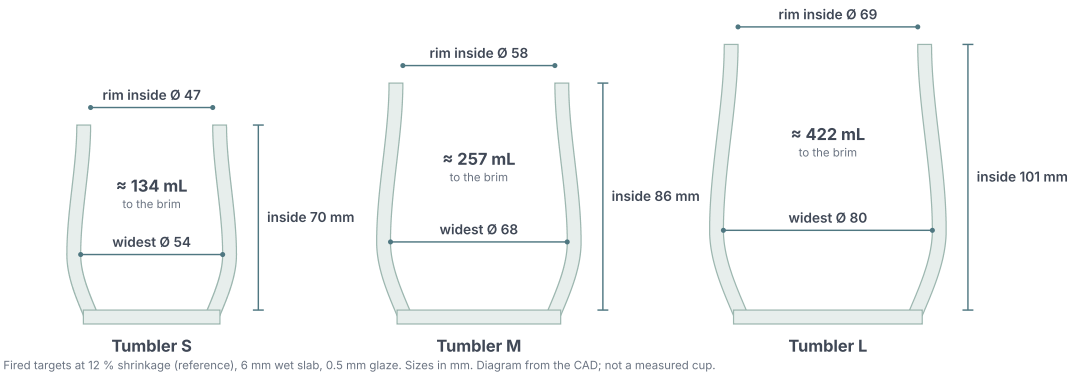
Drying

Keep the cup on its board, away from drafts, under a loose plastic tent. The rim dries first: protect it a little more. Turn the cup onto its rim when it can carry its own weight, so the base dries too.

Size: a target, not a guarantee

Size	To the brim	Comfortable fill*	Rim inside	Widest inside	Inside height	Outside, approx.
S	≈ 134 mL	≈ 117 mL	Ø 47 mm	Ø 54 mm	70 mm	≈ 76 × Ø 65 mm
M	≈ 257 mL	≈ 231 mL	Ø 58 mm	Ø 68 mm	86 mm	≈ 92 × Ø 78 mm
L	≈ 422 mL	≈ 386 mL	Ø 69 mm	Ø 80 mm	101 mm	≈ 106 × Ø 90 mm

Fired targets at 12 % total shrinkage (reference), from the CAD of the mold, with a 6 mm wet slab and 0.5 mm of glaze.
*Comfortable fill = 10 mm below the rim. If your clay shrinks more or less, the fired size changes with it; the templates stay the same.



Tumbler S, M and L, fired target (section). DIAGRAM FROM THE CAD

Troubleshooting

What you see	Likely causes	What to try next time
Folds or cracks near the belly	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 6 mm; texture after cutting; half-arcs swapped	Butt joints; 6 mm guides; texture before cutting; short edge of the lower half-arc goes to the base.
Clay sticks to the mold	Clay too wet; no release dust	Let the pieces firm up; dust lightly with cornstarch.
Hard to release, cup grips the mold	Waited too long; outside dried fast	Release earlier; keep loose plastic over the work.
A key hits the rim	Lifted before it reached the center	Slide each key in until it stops, then lift.
A joint opens when dry	The defect was already there	Finish every joint from the inside on the next cup.
The cup rocks on the table	Base pushed out of flat while releasing; uneven drying	Support the base during release; dry on a flat board and turn the cup over when it can carry its weight.
Segment catches during assembly	Brim or elephant foot on the rails; clay in a gap	Clean the rails; check first-layer squish; keep clay out of the parting lines.

Caring for the mold

- Take it apart and clean it with a damp sponge after each session; dry it before storing.
- Keep clay out of the rails, the lid window and the nut thread.
- Never put the mold, the nut or any plastic part in the kiln. PLA softens in a hot car, near a heater, in very hot water or in a dishwasher.
- The printed mold is a tool, not a kitchen utensil: do not use it with food or drink.

Printing reminders

- Use the 3MF print profile for your size (Single-Color or Dual-Color) from the MakerWorld page, or the STL files.
- Print in the orientation of the files. No supports. Brim: 15 mm with a 0.1 mm gap on the eight segments (they are tall and slim), 8 mm on the Core.
- Remove all brim before the first assembly. If parts feel tight, check first-layer squish and elephant foot.
- 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

- Core on the table · eight segments down their rails
- Lid from OPEN to LOCK · padlock in the window · nut hand-tight
- 6 mm slab · test a scrap on the belly
- Cut base + 2 lower + 2 upper half-arcs from one slab
- Mold upside down on its lid · pencil line at the widest point
- Base → lower ring → upper ring · score + slip · butt joints

Release

- Flip onto a board
- Nut off · lid to OPEN · lid off
- Core straight up
- Each key: in until it stops, then up
- Each side: diagonally in, then up
- Finish all joints from inside · trim and round the rim
- Dry slowly under a loose tent · bare foot when glazing

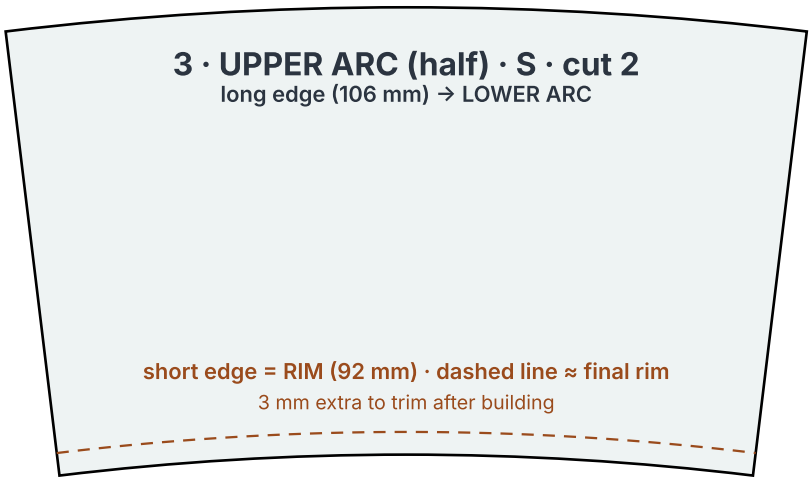
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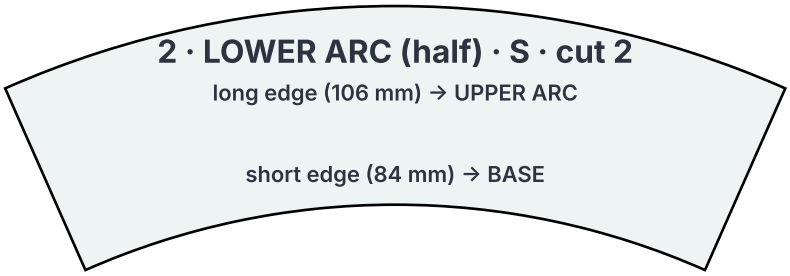
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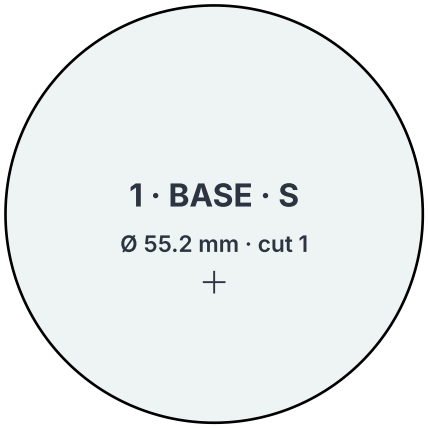
About this guide

The clay steps are a practical summary of general handbuilding practice and follow the method of our other Hold-All guides. The templates are drawn from the Tumbler profile for a 6 mm wet slab and have not yet been tried in clay on the Tumbler Hold-All. The lock, rails and lid use the same mechanism as our Belly Hold-All, which has been printed and used in clay. A Tumbler M Dual-Color mold was printed in PLA and assembled and locked (padlock in the window) in November 2026; the photos in this guide show it. Sizes S and L have not been printed by us yet, and no cup has been made on the Tumbler mold yet. Clay bodies differ: treat the numbers as starting points and make a trial cup first. The clay method draws on our book *Ceramics by Hand — Foundations and Techniques Without a Wheel* (chapters 3, 5, 9, 11, 19, 24 and 26): see the further-learning page.

Photos show the printed M Dual-Color mold without clay. The size diagram comes from the CAD; it is not a measured cup. Contact: www.sensecraft.com.br. When asking for help, send a photo, the size and this guide's version. Designed by SenseCraft with the assistance of AI tools.



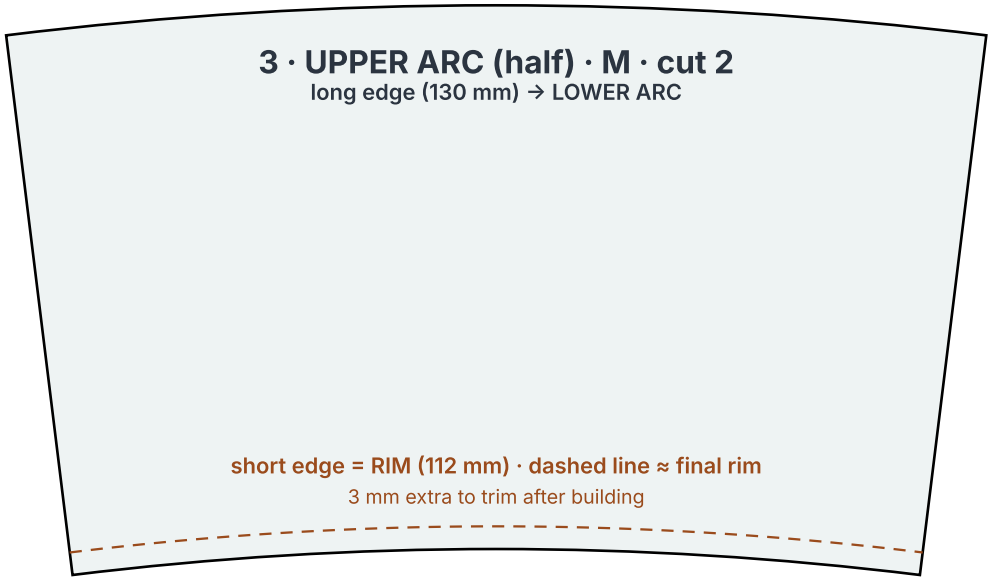


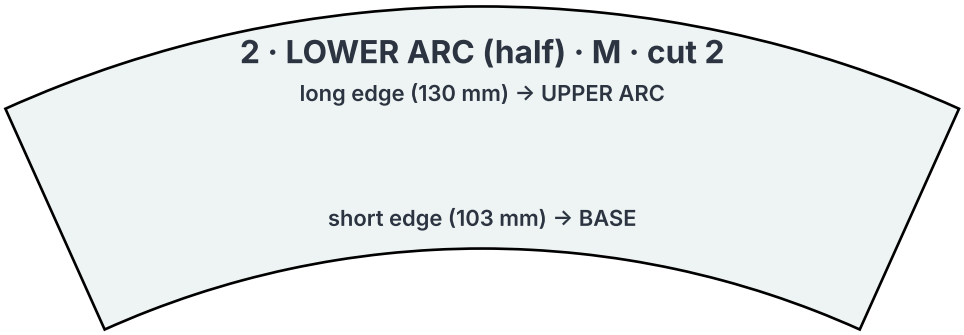


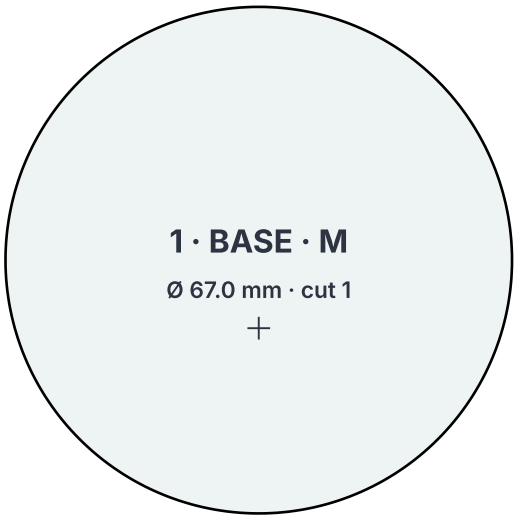


CHECK: this bar must measure 50 mm

Butt the ends: no bevel, no overlap.
Offset the seams of the two rings by 90°.



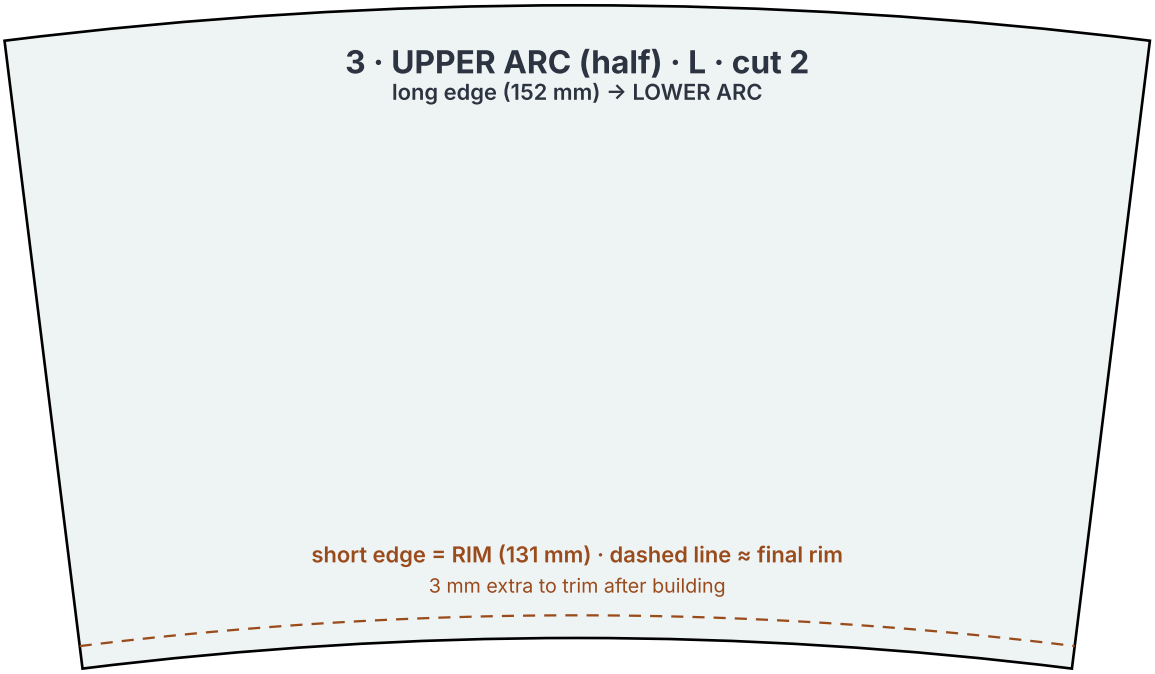


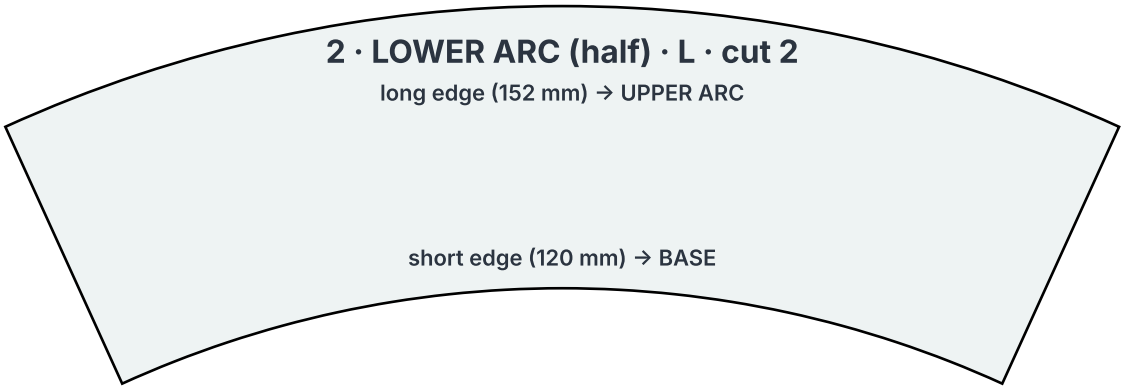


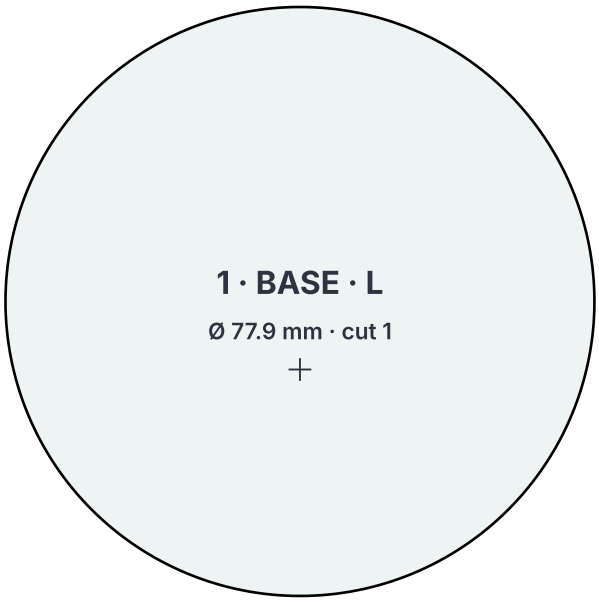


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SENSECRAFT / FURTHER LEARNING

Learn more about working with clay

This guide covers the **Tumbler Hold-All**. For the reasons behind the clay decisions, continue with our book **Ceramics by Hand — Foundations and Techniques Without a Wheel**. It develops the methods, observations and small trials behind the steps in this manual.

Read alongside this guide

Chapters 3, 5 and 9: consistency, contact, backing and slab preparation.
Chapters 11 and 19: bottoms and the sequence for a collapsible mold.
Chapters 24 and 26: drying with suitable support and investigating a failure without assuming a single cause.

Use observations to decide

Fit clean, compatible contact faces before joining. Light scoring and a small amount of same-body joining slip are a starting method here; preparation depends on the clay and access. Direct blending is an alternative only when a representative scrap can be integrated across the join with backing, without distorting the form (chapter 5). Slip or a coil cannot bridge a poorly fitted gap.

Prepare the receiving board before release. The cup must hold its form on that board, and the mold must have a clear, unforced exit. A separating layer cannot remove a geometric obstruction. Stop if the clay follows a part, the rim yields, a crack appears or resistance increases.

Dry with balanced exposure and support that permits shrinkage. Turn the cup onto its rim only when the rim is level and firm enough to carry it without marks; otherwise adjust the cover and support. Dryness, body/glaze compatibility, firing and suitability for food use need their own checks with the kiln operator. Remove every plastic part and temporary support before firing.

Find the book on our website

https://sensecraft.com.br/en/book/ - English edition
https://sensecraft.com.br/livro/ - Cerâmica à mão — Fundamentos e técnicas para criar sem torno

Buying the book is not required to use this guide. Tumbler Hold-All / user guide v1.0 / November 2026.