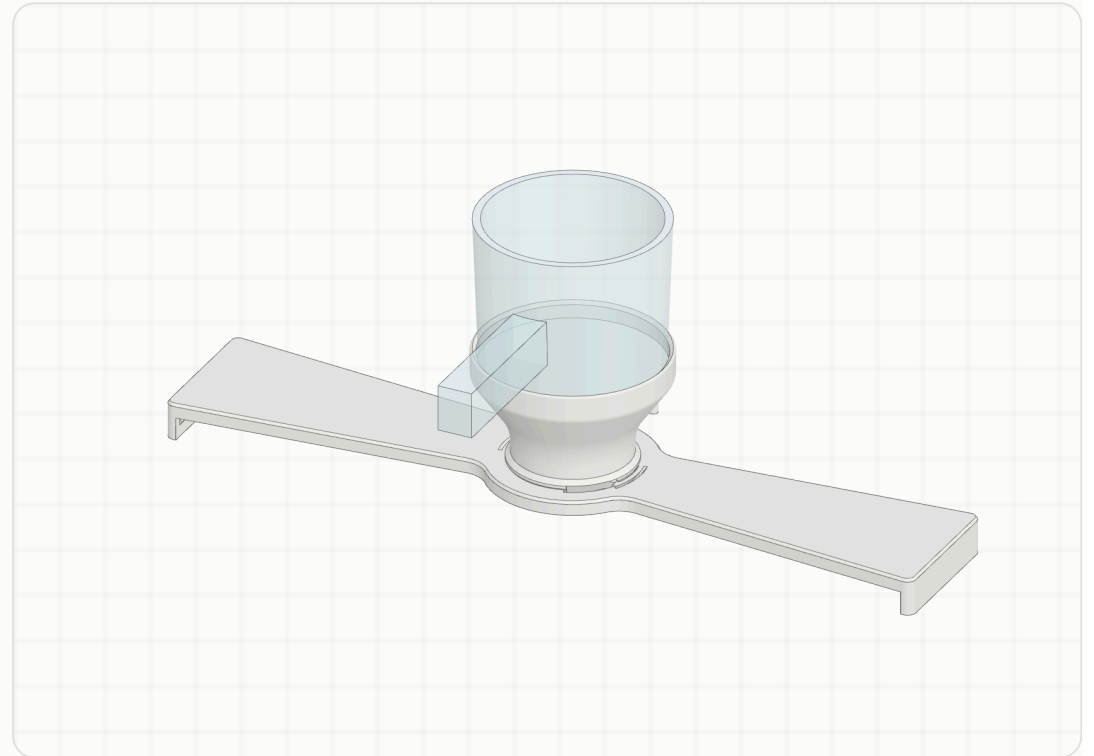


RANCILIO SILVIA PRO X

Espresso Cup Holder

The parameter guide for the two-piece stand. Each value in the design is listed here with what it does.



Made from `silvia_cup_holder.scad` · 2026-10-18 07930b6

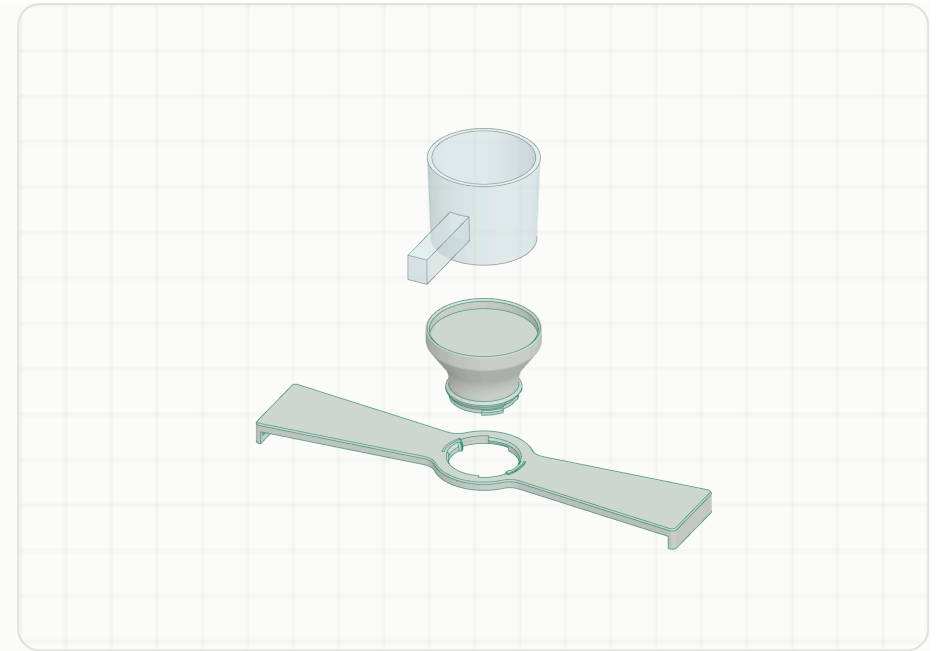
How it works

A short glass espresso cup sits far below the spouts on the Silvia Pro X. The espresso splashes, and the cup slides around on the tray. This stand lifts the cup so the rim is 8 mm below the spouts.

- The **legs piece** spans the cup tray and clips over its sides.
- The **cup piece** is a cradle on a pedestal. A twist lock joins the two pieces: drop the pedestal in, turn it 40°, and it clicks.
- A fin on the back of the cup piece touches the front panel of the machine. Slide the stand back until the fin stops, and the cup is centered under the spouts.

Every size is a named value in `silvia_cup_holder.scad`, so you can fit the stand to a different cup or machine. [docs/parameter_guide.pdf](#) explains each value.

Axes: X goes across the machine, Y goes into the machine, and Z goes up. Z = 0 is the top of the cup tray. All sizes are in millimeters.

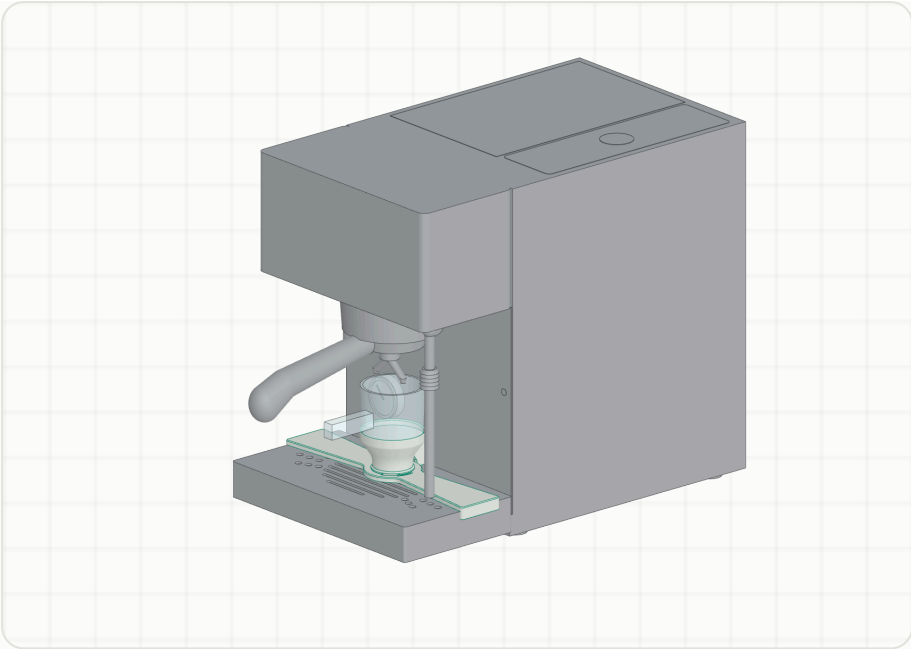


PARAMETERS

Machine

Measure your machine. These values place the stand on the cup tray and set the height of the cup.

PARAMETER	VALUE	WHAT IT DOES
grate_width	260 mm	Width of the cup tray (the grid lid on the drip tray), side to side
grate_t	1.5 mm	Thickness of the cup tray top sheet
group_y	97 mm	Distance from the front edge of the cup tray back to the group center (used only to place the holder in the previews)
panel_dist	48 mm	Distance from the group center back to the lower front panel
spout_height	100 mm	Height of the spout tips above the grid. The grid has three settings: 80, 90, or 100 mm from the portafilter.

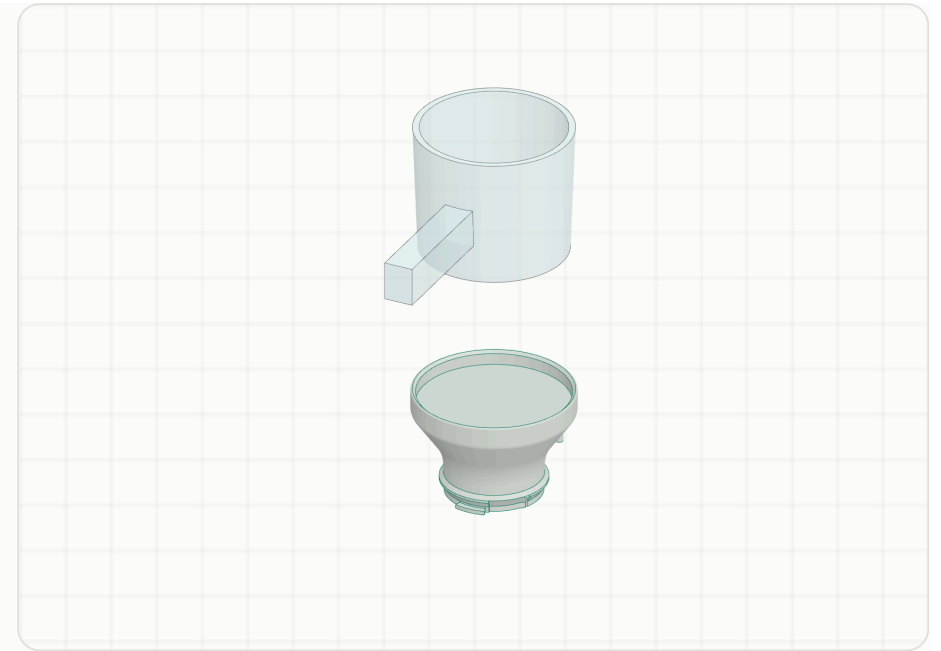


PARAMETERS

Cup

Measure your cup. The cradle fits the base of the cup, and the cup height sets the gap under the spouts.

PARAMETER	VALUE	WHAT IT DOES
cup_base_d	60.25 mm	Outside diameter of the cup body at the base
cup_height	53 mm	Cup height from base to rim
handle_angle	0°	Handle direction in degrees, for the previews only (0 = handle points to the front, toward you)

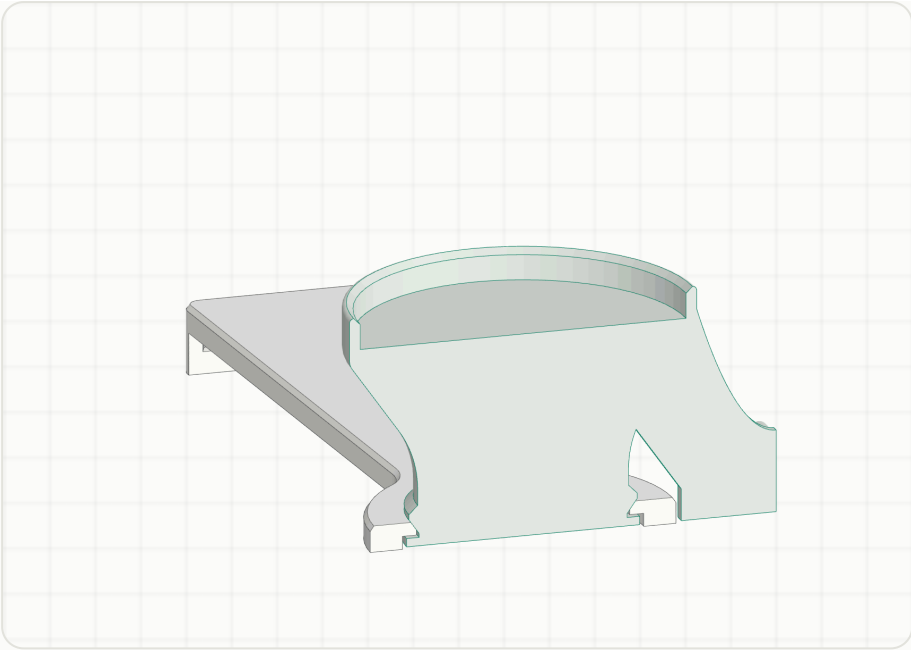


PARAMETERS

Fit

These values set how tight each joint is. Change one value at a time, and check it with the fit-test pair.

PARAMETER	VALUE	WHAT IT DOES
spout_gap	8 mm	Gap between the cup rim and the spout tips. This gap lets the portafilter drop and turn out of the group.
cup_clearance	0.8 mm	Radial clearance between the cup and the cradle wall
grip_interference	0.8 mm	Squeeze on each side of the cup tray
snap	0.8 mm	Height of the grip bump inside each leg
fit	0.25 mm	Twist lock clearance in the hub of the legs piece (radial and vertical)
base_shrink	0.3 mm	The pedestal bottom and the lug tips are made smaller by this value
lug_trim	1.5°	degrees off each side of each lug
base_lift	0.4 mm	The pedestal bottom stays this far above the cup tray. The cone seat in the hub carries the cup piece.
click_depth	0.5 mm	Depth of the click groove in the pedestal
preload	0.2 mm	The spring arms push on the groove with this much bend when locked. This removes rattle.
pad_gap	0 mm	Gap between the push pad and the front panel

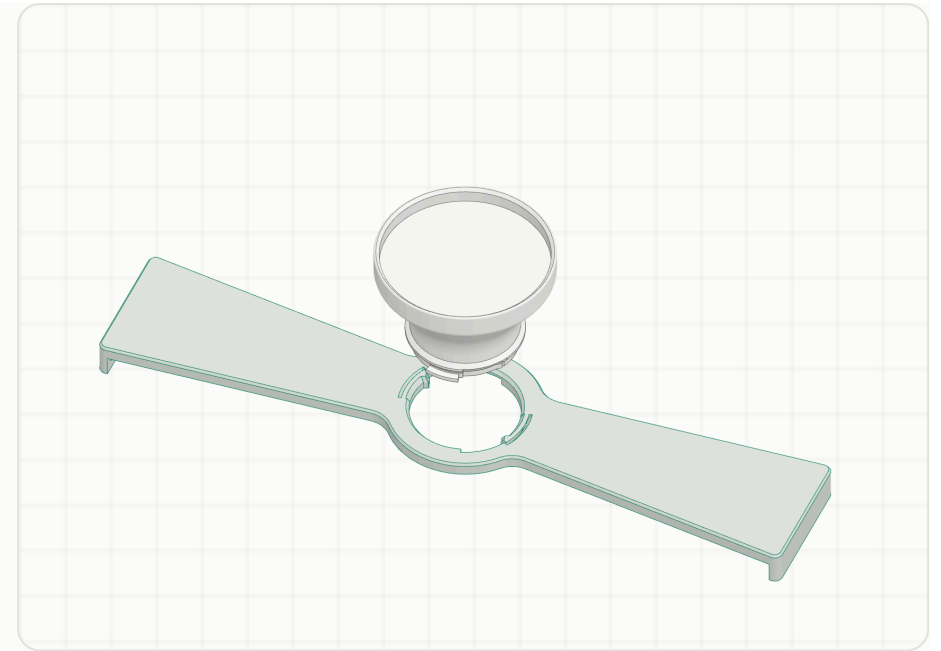


PARAMETERS

Holder

The shape of the two pieces. The section shows the cone seat, the flare, and the core inside the cup piece.

PARAMETER	VALUE	WHAT IT DOES
wall	2 mm	thickness of the cradle wall
cradle_wall_h	6 mm	height of the ridge around the cup; keep it under the handle
floor_t	3 mm	sets the height where the flare meets the cradle wall
bar_w	26 mm	Y size of the bar at the hub
end_w	50 mm	Y size of the bar at the legs (a long grip stops the bar from turning)
bar_h	5 mm	Z size of the bar (solid; it lies flat on the cup tray)
edge_c	1 mm	chamfer on the top edges of the bar
leg_t	4 mm	leg thickness
leg_drop	8 mm	how far the legs go down the sides of the cup tray
corner_r	3 mm	outside corner radius of the legs piece outline
fillet_r	10 mm	fillet radius between the bar and the hub
pedestal_d	40 mm	—
flare_r	20 mm	radius of the curved flare under the cradle
flare_round	3 mm	radius where the flare meets the cradle wall
core_wall	0.5 mm	The inside of the cup piece prints as open infill (see part = "core"). Drips go down through the infill and out of the bottom to the cup tray. the core stops this far inside the outside surface
rim_chamfer	1.2 mm	lead-in chamfer on the inside top edge of the cradle
rim_round	0.8 mm	radius on the outside top edge of the cradle
fin_w	5 mm	X size of the push fin at the cup
fin_tip_w	3 mm	X size of the push fin at the pad
pad_w	14 mm	X size of the push pad
pad_t	3 mm	Y size of the push pad
pad_h	16 mm	height of the push pad above the cup tray

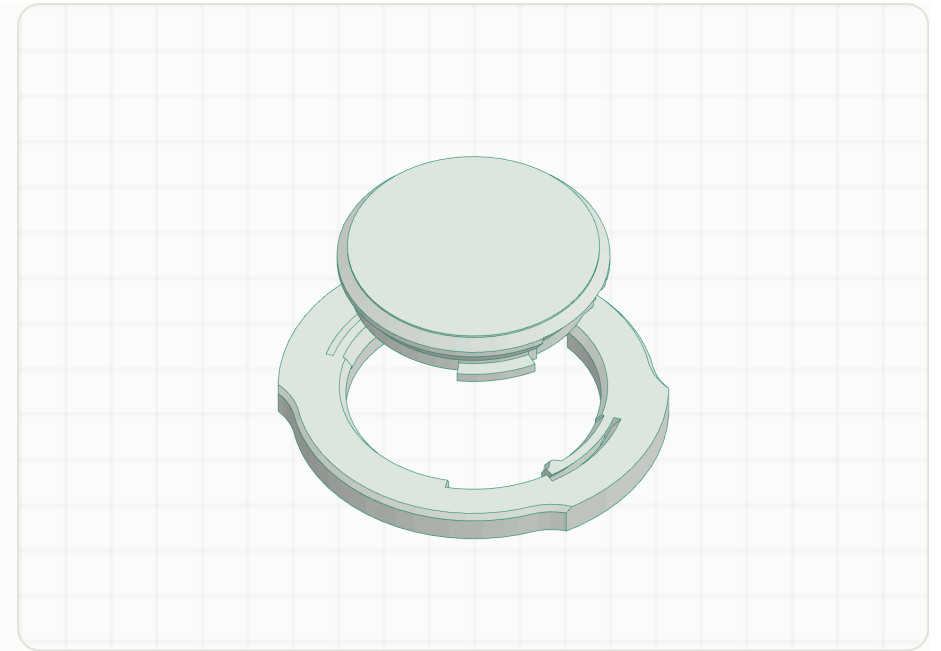


PARAMETERS

Twist lock

The lugs on the pedestal go down through the keyways in the hub lip. A 40° turn locks them, and the spring arms click into the groove.

PARAMETER	VALUE	WHAT IT DOES
lug_count	2	keep 2: the lock is then the same at each end of the bar
lug_angle	36°	angular width of each lug
key_angle	42°	angular width of each keyway in the hub lip
twist	40°	turn from the keyways to the locked position
lip_t	2.5 mm	thickness of the hub lip above the lugs
lug_depth	2.4 mm	how far each lug sticks out from the pedestal
hub_d	58 mm	outside diameter of the hub
seat	1.5 mm	depth of the cone seat in the hub top
arm_t	1.6 mm	thickness of each spring arm
arm_slot	1.2 mm	width of the slot behind each spring arm
arm_angle	42°	angular length of each spring arm
lug_gap	0.5 mm	gap above and outside each lug, under the hub lip
arm_gap	0.4 mm	gap between each spring arm and the pedestal

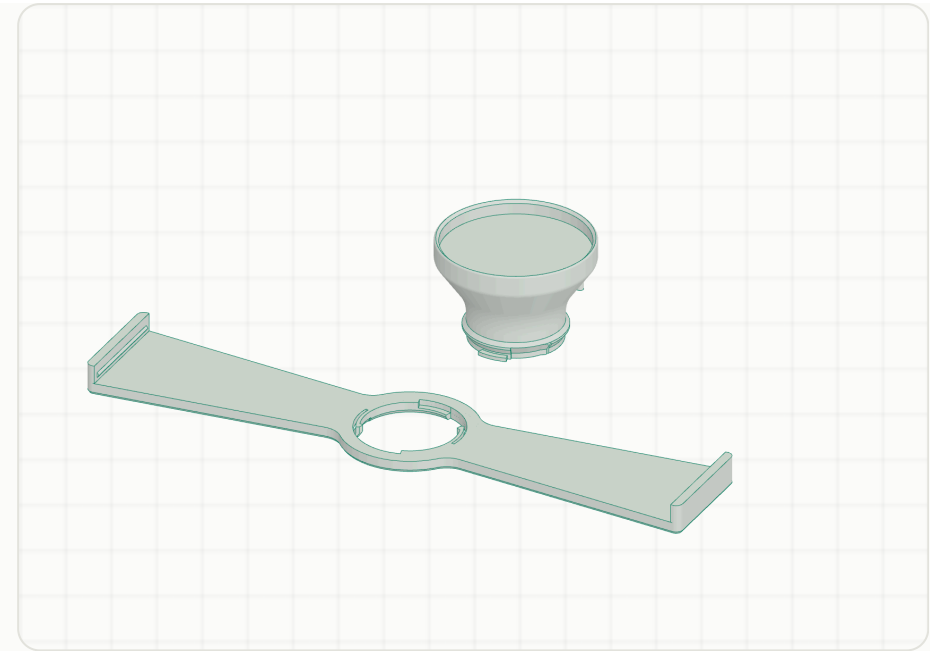


PARAMETERS

Printing

Both pieces print with no supports. The legs piece prints upside down, and the cup piece prints upright.

PARAMETER	VALUE	WHAT IT DOES
overhang	35°	Steepest overhang, in degrees from vertical. Every face that hangs is at this angle or steeper, and every part starts on the bed or on a layer below it, so nothing needs supports. Cura adds supports above its Support Overhang Angle (40 degrees by default). Keep this value smaller.



Fit it to your machine

Open `silvia_cup_holder.scad` in OpenSCAD and use the Customizer. Change one value at a time, then print the fit-test pair to check it.

PROBLEM	CHANGE
The stand slides on the tray	Raise <code>grip_interference</code> by 0.2
The legs are too hard to put on	Lower <code>grip_interference</code> by 0.2
The click is too stiff	Set <code>preload</code> to 0.1, or <code>arm_t</code> to 1.4
The click is too weak	Set <code>click_depth</code> to 0.7
The cup is not under the spouts	Change <code>panel_dist</code> . A larger value moves the cup forward.
The portafilter hits the cup	Raise <code>spout_gap</code> , or set <code>spout_height</code> to your grid setting

Values the design computes

Cradle floor top above the cup tray	39 mm
Cup rim height above the cup tray	92 mm
Legs piece	266.4 x 58 x 13 mm

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