coral pen holder

assembly guide: 7 printed parts, 2 rods and pins to cut, 4 bought parts



the back



TOOLS

- flush cutters or a small hacksaw and a fine file: cut the rods to length, square and chamfer the ends, file the flats
- thin CA glue (superglue) and a toothpick to place single drops
- soldering iron with a heat-set insert tip
- 2.5 mm hex key (M3 socket head screws)
- tweezers (small parts and springs)
- craft knife or deburring tool: the elephant's foot (the squashed first layer) off every printed part
- this booklet printed at 100 % (actual size)

HOW TO READ THE STEPS

- grey: already in
- colour, outlined: the new part
- green ring: where it goes
- dashed blue arrow: the way it goes in
- it can go in the wrong way up: read WAY UP
- glue here (never in a bore)
- CHECK: test it before going on
- turn the work over
- **1:1** PARTS tray: true size (1:1) when printed at 100 %

50 mm at 100 %

BEFORE STEP 1: do this first

☐ 1. Clean every printed part

- 7 printed parts: peel the brim, scrape the elephant's foot (the squashed first layer) off the bed-side edge, and trim stringing out of every hole.

☐ 2. Cut the rods (lay each on the sorting card to check its length)

- 54.3 mm: pin_base (pin, 2 mm)
- 26.0 mm: pad_rod (pin, 2 mm)
- stock: 2 pieces of 2 mm rod, 80 mm in all; allow 82 mm (1 mm a cut). Cut each a hair long and file the ends square, then chamfer the edge lightly (a burr catches whatever slides onto the rod or into its hole).

☐ 3. Dry-fit the closing parts

- Put coral and plate and clamp together empty (no wheels, no glue): they must line up and close without force. Take them apart again.

☐ 4. Sort

- Lay every rod, pin and spacer on its outline on the sorting card, and every printed part on the parts sheet: a part left over or missing shows at once.

50 mm at 100 %

SORTING CARD (1:1): rods, pins, spacers, hardware

Print at 100 %: every outline is true size (check the 50 mm bar at the foot). Lay each rod, pin, spacer and screw on its outline before you start; label them with tape.



54.3 mm
pin_base
1:1



26.0 mm
pad_rod
1:1



x 2
screw_1
screw_2
1:1, side view



x 2
insert_1
insert_2
1:1, side view

50 mm at 100 %

PARTS SHEET: the printed parts

Each part from above, its side profile under it, the way it is installed. True size unless marked 1:2.



coral
1:2, side view

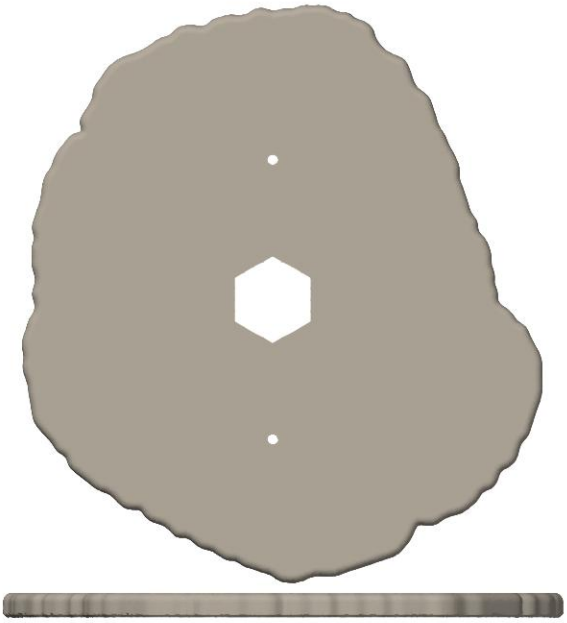


plate
1:2, top + side



clamp
1:1, side view

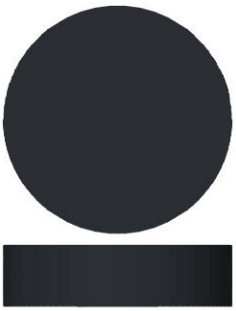


nut
1:1, side view

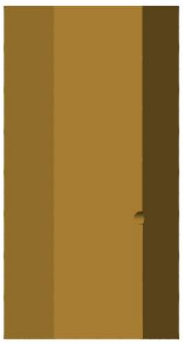


screw
1:1, side view

50 mm at 100 %



pad
1:1, top + side



dowel
1:1, side view

50 mm at 100 %

1 clamp

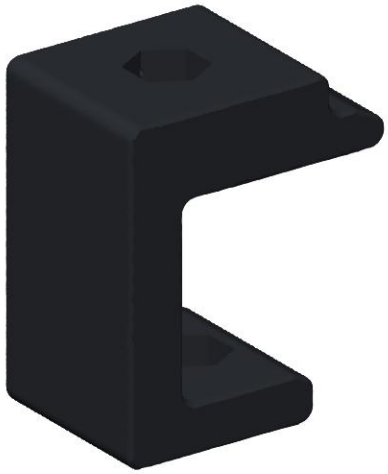
frame

PARTS



clamp

1:2, side view



Lay clamp (frame) flat on the bench as drawn: everything else is fitted onto it.

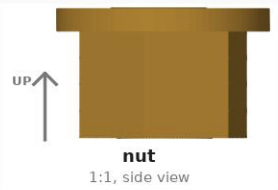
- Print it on its side (the C flat on the bed, chamfered face down): no supports.

☑ CHECK: the hex socket on top takes the dowel; the nut's hex pocket is clean; the table slides into the throat

2 nut

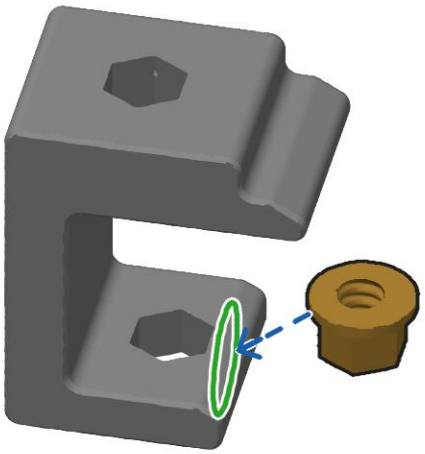
other

PARTS

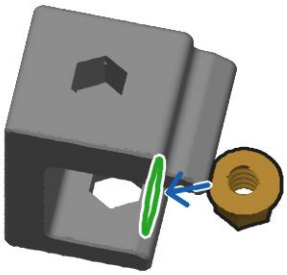


nut

1:1, side view



CLOSE-UP



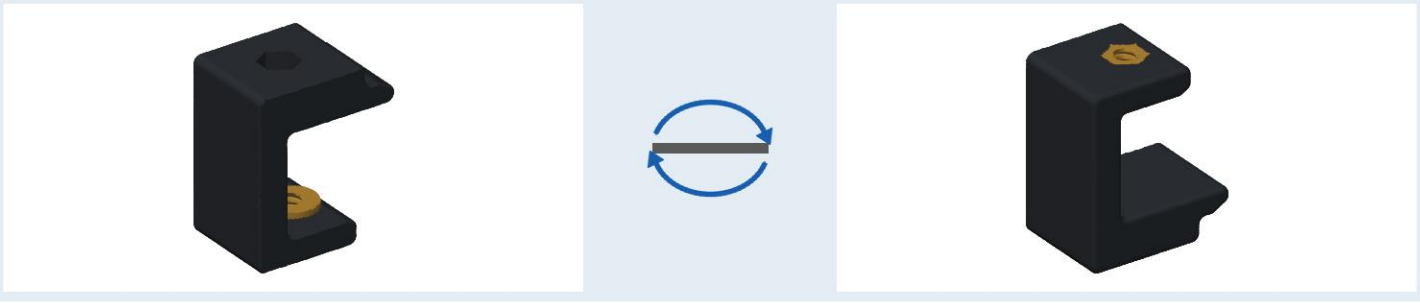
Fit nut (other) onto clamp (the way the arrow points).

- Print it flange down.

☑ CHECK: the screw turns in by hand all the way through

50 mm at 100 %

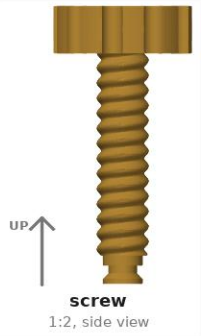
TURN THE WORK OVER: the back face up now



3 screw

knob

PARTS





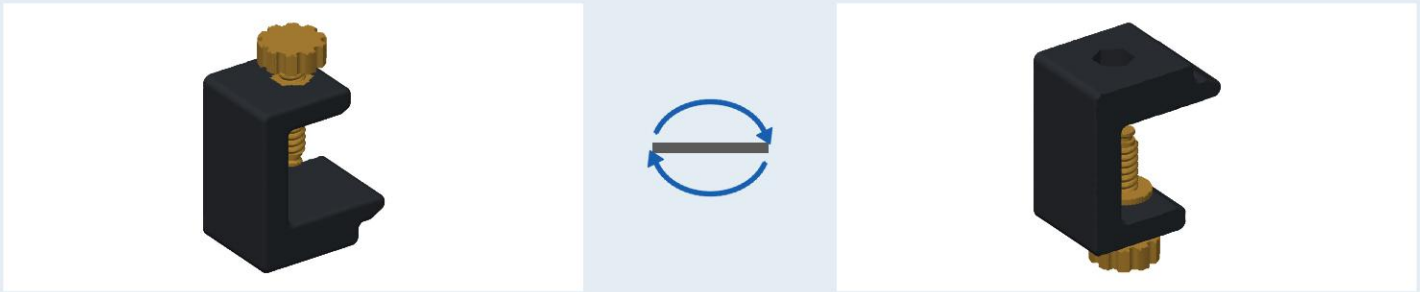
Fit screw (knob) down onto nut.

WAY UP: the wide end UP, away from nut.

- Print it knob down.

CHECK: turns in the nut by hand; the pad turns freely on its tip

TURN THE WORK OVER: the front face up again

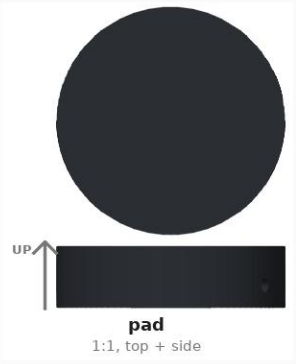


50 mm at 100 %

4 pad

other

PARTS



pad
1:1, top + side



Fit pad (other) onto screw (the way the arrow points).

WAY UP: print it top face down.

CHECK: sits flat under the table; turns on the screw tip, can't come off

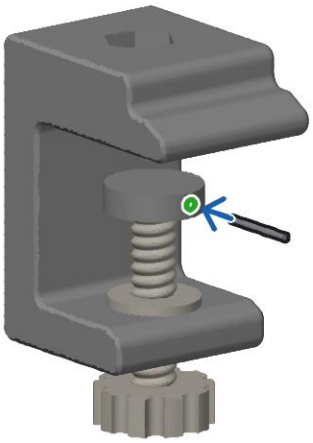
5 pad_rod

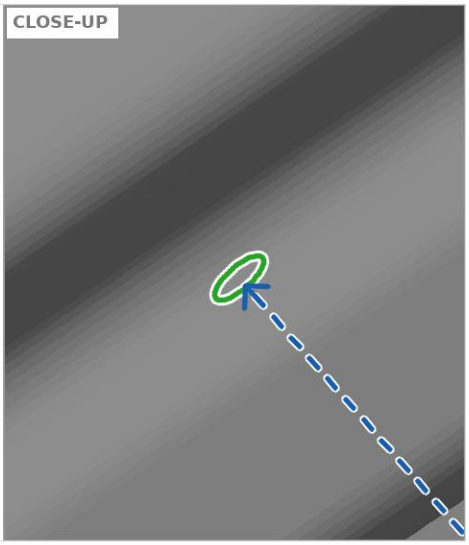
pin

PARTS



26.0 mm
pad_rod
1:1





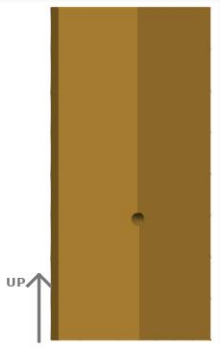
Push pad_rod (2 x 26.0 mm pin) into its hole in pad (the way the arrow points).

50 mm at 100 %

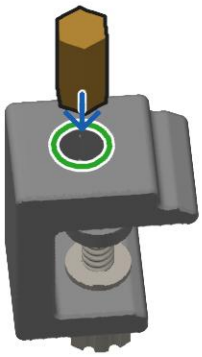
6 dowel

other

PARTS



dowel
1:1, side view



Fit dowel (other) down onto clamp.

WAY UP: print it lying on a flat side.

CHECK: slides into the clamp's socket; its pin hole lines up

7 pin_base

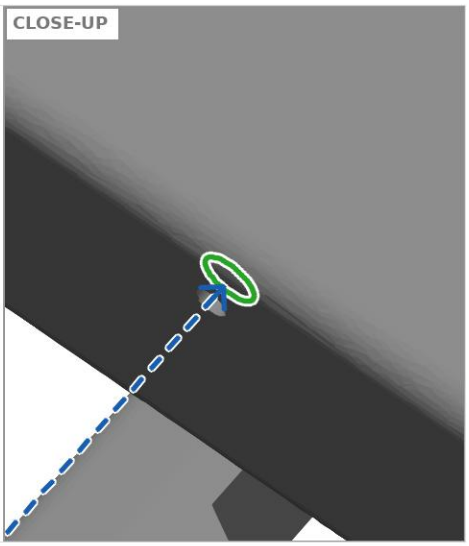
pin

PARTS



54.3 mm
pin_base
1:1





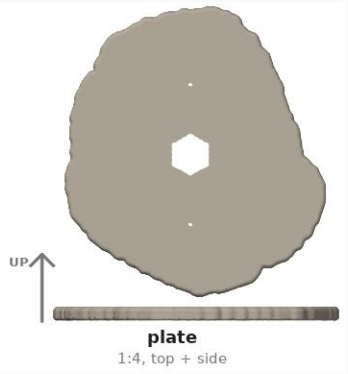
Push pin_base (2 x 54.3 mm pin) into its hole in dowel (the way the arrow points).

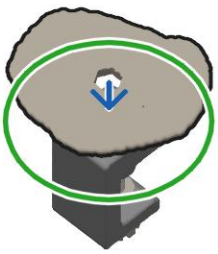
50 mm at 100 %

8 plate

frame

PARTS



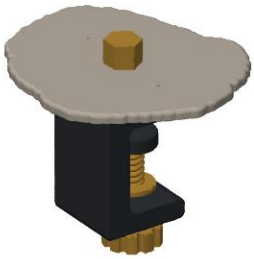


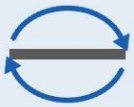
Fit plate (frame) down onto clamp.

WAY UP: print it flat, chamfered face down.

CHECK: the dowel slides through its hex hole; the screw heads sit in their counterbores

TURN THE WORK OVER: the back face up now



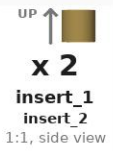


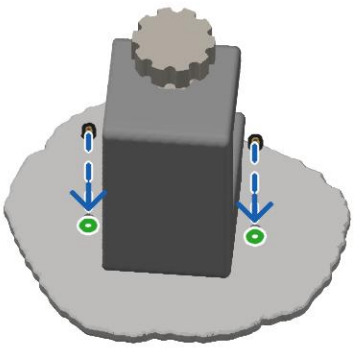


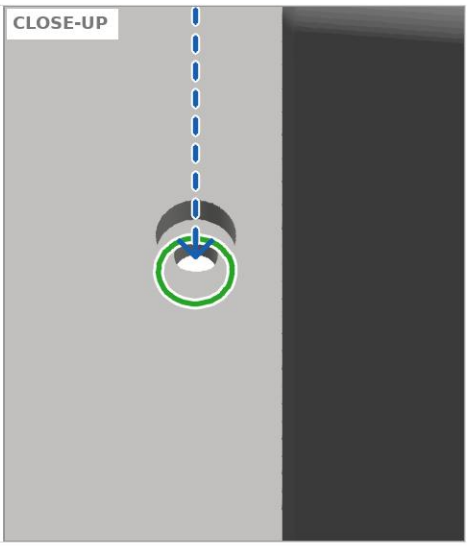
9 2 x insert

insert

PARTS





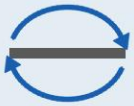


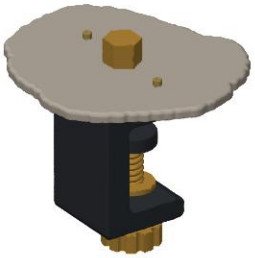
Heat-set 2 x insert (insert_1, insert_2) into their holes in clamp.

50 mm at 100 %

TURN THE WORK OVER: the front face up again



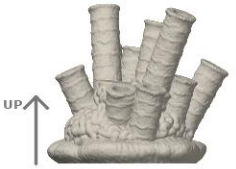




10 coral

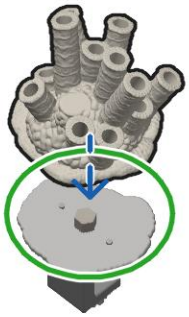
frame

PARTS



coral

1:8, side view



Fit coral (frame) down onto clamp.

WAY UP: print it standing on its flat rock bottom, with its breakaway ribs.

GLUE: glue it to dowel with a drop of thin CA. Keep glue out of every bore and off anything that turns.

- 3 walls, 10-15 % infill.

CHECK: every pen tube takes a 20 mm pen/marker to the bottom; the hex socket and the inserts are clean

TURN THE WORK OVER: the back face up now







50 mm at 100 %

11 2 x screw

screw

PARTS

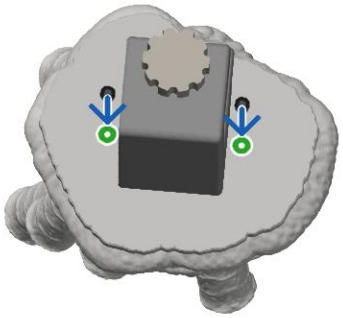


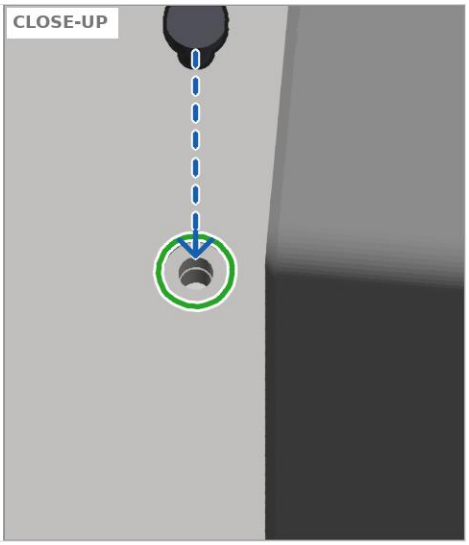
x 2

screw_1

screw_2

1:1, side view



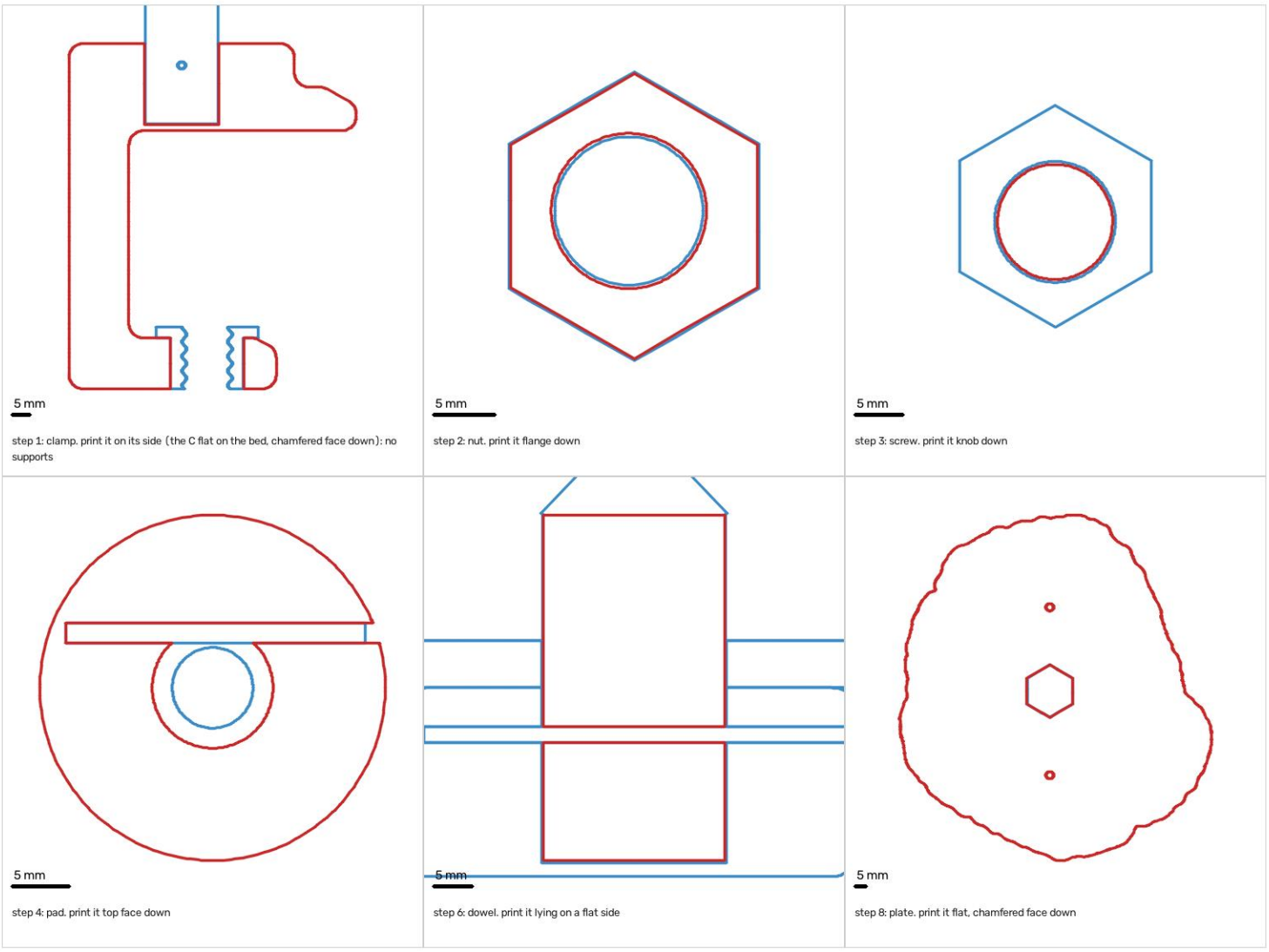


Screw 2 x screw (screw_1, screw_2) into insert_1.

GLUE: glue it to insert_1 with a drop of thin CA. Keep glue out of every bore and off anything that turns.

50 mm at 100 %

Details: cut straight through. Red = the part, blue = what holds it, grey = rod



step 1: clamp. print it on its side (the C flat on the bed, chamfered face down): no supports

step 2: nut. print it flange down

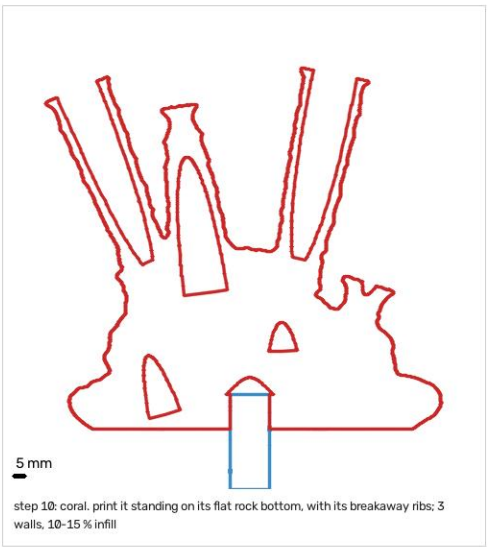
step 3: screw. print it knob down

step 4: pad. print it top face down

step 6: dowel. print it lying on a flat side

step 8: plate. print it flat, chamfered face down

Details: cut straight through. Red = the part, blue = what holds it, grey = rod



step 10: coral. print it standing on its flat rock bottom, with its breakaway ribs; 3 walls, 10-15 % infill

50 mm at 100 %

TROUBLESHOOTING

THE CHECK THAT FAILED	STEP	WHAT TO DO
clamp: the hex socket on top takes the dowel; the nut's hex pocket is clean; the table slides into the throat	**1**	take it off and re-seat it the right way up (the step's WAY UP note), pressed flat
nut: the screw turns in by hand all the way through	**2**	undo the step; check it is the right way up and fully seated
screw: turns in the nut by hand; the pad turns freely on its tip	**3**	undo the step; check it is the right way up and fully seated
pad: sits flat under the table; turns on the screw tip, can't come off	**4**	take it off and re-seat it the right way up (the step's WAY UP note), pressed flat
dowel: slides into the clamp's socket; its pin hole lines up	**6**	take it off and re-seat it the right way up (the step's WAY UP note), pressed flat
plate: the dowel slides through its hex hole; the screw heads sit in their counterbores	**8**	take it off and re-seat it the right way up (the step's WAY UP note), pressed flat
coral: every pen tube takes a 20 mm pen/marker to the bottom; the hex socket and the inserts are clean	**10**	take it off and re-seat it the right way up (the step's WAY UP note), pressed flat

50 mm at 100 %