

9 mm Snap-Off Utility Knife - Ratchet Lock, Parametric (FreeCAD)



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Summary

Cutter for 9 mm snap-off blades: ratchet lock, push-button release, pinch-off rear plug. 2-part or one-piece shell.

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[9mm](#) [utilityknife](#) [boxcutter](#) [snapoff](#)

A printable cutter for standard 9 mm snap-off blades

Utility knife handle for **standard 9 mm snap-off blades (30°)**. The blade is locked by a **sawtooth ratchet**: push the button forward and it clicks out notch by notch; the cutting force can't push the blade back. Press the button down to release it and retract the blade.

- 20 notches of 3 mm: up to 60 mm of blade out, and the blade hides completely inside the nose when retracted
- Integrated spring in the carrier: no metal spring, no screw
- Pinch-to-remove rear plug: squeeze the two ears to pull it out and change the blade

- Handle: 129.6 × 13.9 × 11.2 mm

3 possible shells

- **One-piece "zebra" shell** (Coque_Unie_Zebre) – **the tested version, shown in the photos.** Printed in one go, upside down (top face on the bed), with 45° filleted windows through the floor. The carrier and the button slide in from the rear.
- **One-piece plain shell** (Coque_Unie): same as the zebra shell, without the windows.
- **2-part shell to glue** (Coque_Bas + Coque_Haut): bottom and top shells located by a lip/rebate joint. Not tested.

Parts

- One shell: Coque_Unie_Zebre (tested) or Coque_Unie or Coque_Bas + Coque_Haut
- Chariot (blade carrier with built-in spring)
- Bouton (push button)
- Bouchon_Arriere (rear plug)
- One standard 9 mm snap-off blade

Printing

- Printed and tested in PLA on a Bambu Lab A1 mini, 0.4 mm nozzle, 0.2 mm layers.
- **Cutter_oriented.3mf** contains all the parts with the orientation I used for a good print with the zebra shell: just open it and slice.
- The individual 3MF files are oriented too: carrier and button on their side (the spring and the teeth flex in the layer plane), plug flat, one-piece shells upside down.
- No supports needed for the carrier, button and plug.
- **A little sanding may be needed** to fine-tune the clearances and get parts that fit perfectly into each other (mainly the carrier sides and the button), depending on your printer.

Assembly

1. Put the blade on the carrier pin (the hole edge is 2 mm from the cutting edge).
2. Fit the button foot into the carrier window, above the spring.
3. **One-piece shell:** slide the carrier and the button in from the rear, button pressed. **2-part shell:** lay the carrier in the bottom shell, then close and glue the top shell.
4. Clip the rear plug in: pinch the ears, push, release.

Files

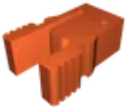
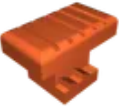
- Cutter-oriented.3mf: all parts, oriented for printing (zebra shell).
- 3MF (oriented) and STEP (assembly position) for every part, plus a full assembly STEP.
- FreeCAD file: the model was generated by a parametric Python script driven by a "Parameters" spreadsheet (clearances, wall thickness, number of notches, spring size, blade dimensions...).

Safety

This holds a real, very sharp blade. Always retract the blade after use, check that the lock holds before cutting, and keep it away from children. Use at your own risk.

Designed with FreeCAD; the parametric script was developed with the help of an AI assistant.

Model files

 STEP		8 files
	cutter_assemblage.step	
	bouchon_arriere.step	
	bouton.step	
	chariot.step	



coque_bas.step



coque_unie.step



coque_haut.step

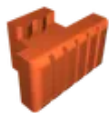


coque_unie_zebre.step



3MF

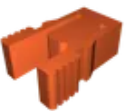
7 files



bouton.3mf



chariot.3mf



bouchon_arriere.3mf



coque_unie.3mf



coque_haut.3mf



coque_bas.3mf



coque_unie_zebre.3mf



cutter.fcstd



cutter_oriented.3mf

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