3D MODEL ONLY

# Universal Parametric Rugged Box

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VIEW IN BROWSER

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## Summary

This is my version of the rugged box. Inspired by yanew and Whity, but created by myself with OpenSCAD. Now improved.

Hobby & Makers > Organizers

Tags: box rugged ruggedbox

### Unversal Parametrized Rugged Box

I saw those boxes at yanew and Whity, but they are all constructed with Fusion360. Admittedly, I'm not that Fusion360 expert. So I rebuild such a box with OpenSCAD, so you don't have to have Fusion360 to customize your box.
You need only OpenSCAD and the BOSL2 library, both OpenSource and freely available.
I also introduced some more parameters, that would be quite hard to implement in Fusion.

#### Overview

You can stretch and tweak the box to fit exactly your requirements. I include two examples: a Cigarette Box for outdoor use, that keeps your cigarettes dry and a box I modified to store my Wagos. All dimensions are adjustable and you can even design your own interior.

## Additional materials

You need some screws, preferably M3 and a bit longer. I used 20mm for the cigarette box and 25mm for the Wago box.

## How to modify

As I had some problems with the OpenSCAD customizer (to store the parameters reliably), I did choose another approach: All parameters are stored in one file, the construction in another, which is then included in the parameter file.
So you can keep your parameter sets structured. The template for the parameter file is defaultbox.scad. To begin a new box, you simply copy this file and give it a new name. Then you open it with SCAD and modify the parameters at wish.

## Parameters

### View

In fact not a real parameter, it controls how SCAD renders the object. You can view the box open ("Complete Open"), closed ("Complete"), as parts ("Parts) e.g. to produce the STL for printing or the seperate parts for their own.

### ViewAngle

In View mode "Complete Open" this is the angle of the lid.

## Global Parameters

The first measurements are all for the interior of the box, as this is what matters - the available space.

### InnerBoxDepth

The depth of the box internal

### InnerBoxWidth

The width of the box internal

**InnerBoxBottomHeight**

The height of the bottom part, should be >=16

**InnerBoxLidHeight**

Height of the top part, should be >=10

**InnerCornerRadius**

The radius of the vertical inner corners. If you set InnerBoxDepth=InnerBoxWidth and this parameter to nearly half of InnerBoxDepth/Width, you'll get a round box. You should also set NumHinge, NumLatch and NumRibs to 1.

**InnerChamferSize**

The chamfer of the horizontal inner corners

**ScrewLength**

Self explaining, the length of the screws

**ScrewDiameter**

Diameter of the screws

**ScrewTol**

Tolerance for the latch holes

**WallThickness**

Thickness of the wall.

**NumHinge**

Number of Hinges - max 3

**NumLatch**

Number of latches, max 3

#### TSealHeight

Height for an optional TPU-seal, 1mm should be enough, 0 if you don't need one

#### InteriorToLid

Boolean, which controls whether the interior is applied to the lid

There are many more parameters, most of them do not need to be modified, but there are exceptions:

#### LatchDisplacement

this is how much the latch is pushed downwards. For lower lids ( e.g. InnerBoxLidHeight = 10) adjust this to 4.

#### NumRibs

The number of the decorative rib pairs on the side, Max 3 pairs

### Interior

The interior can be designed as you need it. To modify you change the Interior module down in the parameter file. The interior module can deliver a geometry that will be inserted into the bottom and optionally in the lid of the box.
You can design the interior with SCAD complete free. The boundaries are the depth (x), width (y) and height(z) of the box. Coordinates are all positive.
For easier design, there are 2 simple modules, you can use for dividers: dwall and wwall. They create a wall either in depth or width direction. Here the coordinates are relative, allways between 0 and 100. So dwall(0,33,100,100) will create a divider with fill height on 1/3 of the width.
As the lid always has a height of min. 10mm and small parts could 'jump' over the dividers in the bottom, the interior can be also applied to the lid - it gets scaled in the z-Axis and mirrored to fit exactly on the bottom one. See wagobox.scad for an example.

### More modifications

To be more flexible, 4 new module definition have been added:

### liddiff() and bottomdiff()

Geometry defined in this modules gets substracted from the lid/bottom. Introduced for the moneyslot for my rugged moneybox.

### lidadd() and bottomadd()

Those geometries will be added to the lid/bottom without any masking or scaling.

## Model files

**rugbox.scad**

**defaultbox.scad**

**zbox.scad**

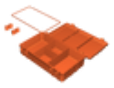
**wagobox.scad**

**defaultbox-parts.stl**

parts for defaultbox

**zbox-parts.stl**

parts for cigarette box



**wagobox-parts.stl**

parts for wagobox

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