The objective is a waterproof, corrosion-resistant, chemical-resistant, impact-resistant, thermo-resistant, EMP-resistant, lightweight, accessible, versatile, modular container for electronics and other hardware.

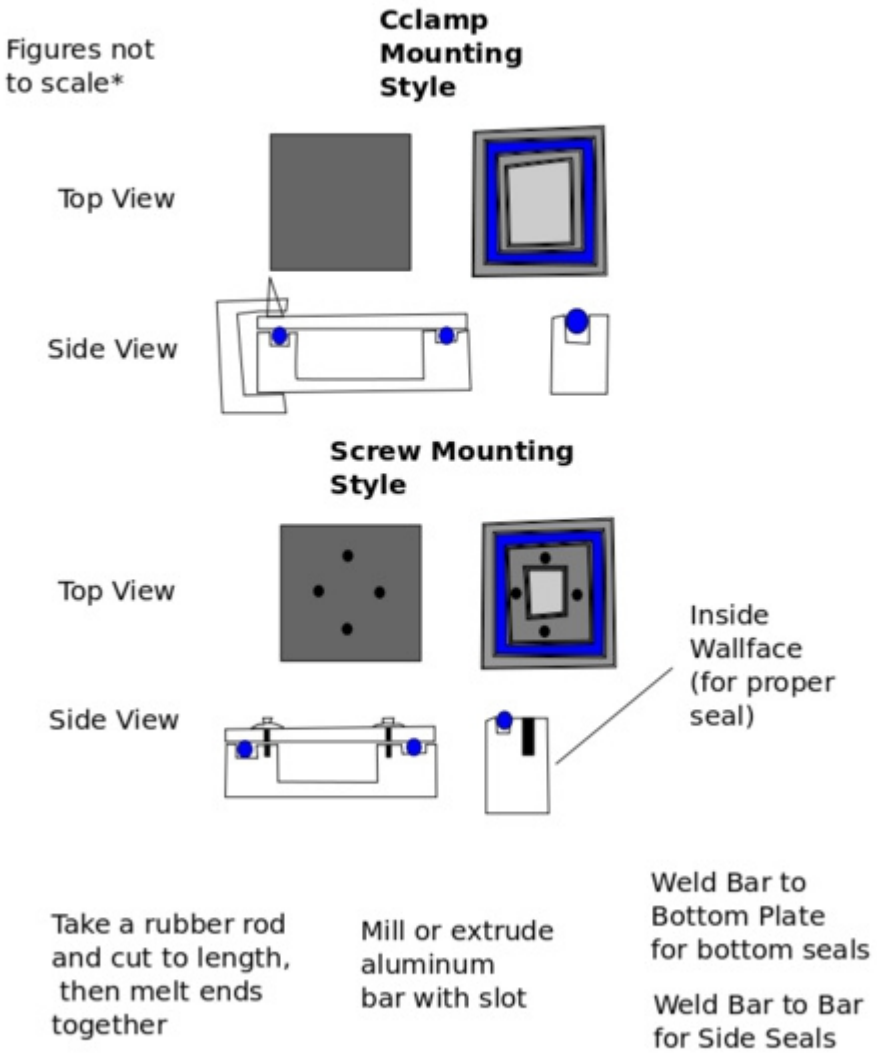
For recyclability, the use of a single frame material is optimal. Aluminum alloy (ex. Al6061) is corrosion and chemical resistant, machinable and weldable, and has a relatively high strength to weight ratio. A rectangular frame with low height minimizes geometric complexity and material use (for low-height technologies like circuit boards).

For maximum waterproofing, the terminal case should have minimal failure points. Accessibility inside the terminal case from just 1 face (ex. top face) provides the greatest waterproofing to accessibility ratio (at least where area-access technologies like circuit boards are concerned).

A seal designed for disassembly involves the application and release of tension on a sealing material that surrounds the inner volume. The seal material should be elastic, non-porous, and of a fine stick surface (with low adhesiveness for disassembly) for water-tight contact volume with the frame material. The seal material should also be electrically conductive such that the case frame acts as a faraday cage.

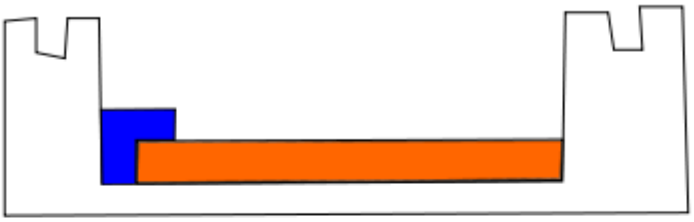
The frame should have a mechanism to hold the seal material in place and minimize exposure of the seal material with substances outside the terminal case. A groove or slot (slot is easier to make) along the top face of the perimeter frame material improves seal material holding; provides space into which the seal material can be compressed for reducing the seal exposure and improving the geometric durability of the seal (ex. without a groove/slot, the seal material gets entirely flattened into a thin sheet (resulting in low tensile strength and vertical elasticity), whereas a groove/slot better retains the volume of the seal material along all 3 axes)

The seal tension is applied between the base frame and the lid. Tensioning methods include C-Clamps (greater modularity, but more material and greater relationship between impact events and waterproof level - ex. if the CClamps get hit, seal tension changes a lot) and screws with sealing washers (more compact, but more complex, less compatible, and more waterproofing failure points).



Mounting Interface between PCB Mount and Terminal Case should be tension with inner terminal case surfaces for maximum waterproofing and compatibility with different PCB+PCB Mount Modules. An elastic rectangular bar placed along perpendicular bottom edges of the case would allow boards of a certain size to fit inside through compression-tension of the elastic material, with tolerance based on the working range of the material's width displacement.

Front View



Top View