

# Making Parts & Jigs for Apparatus by Using 3D Printer

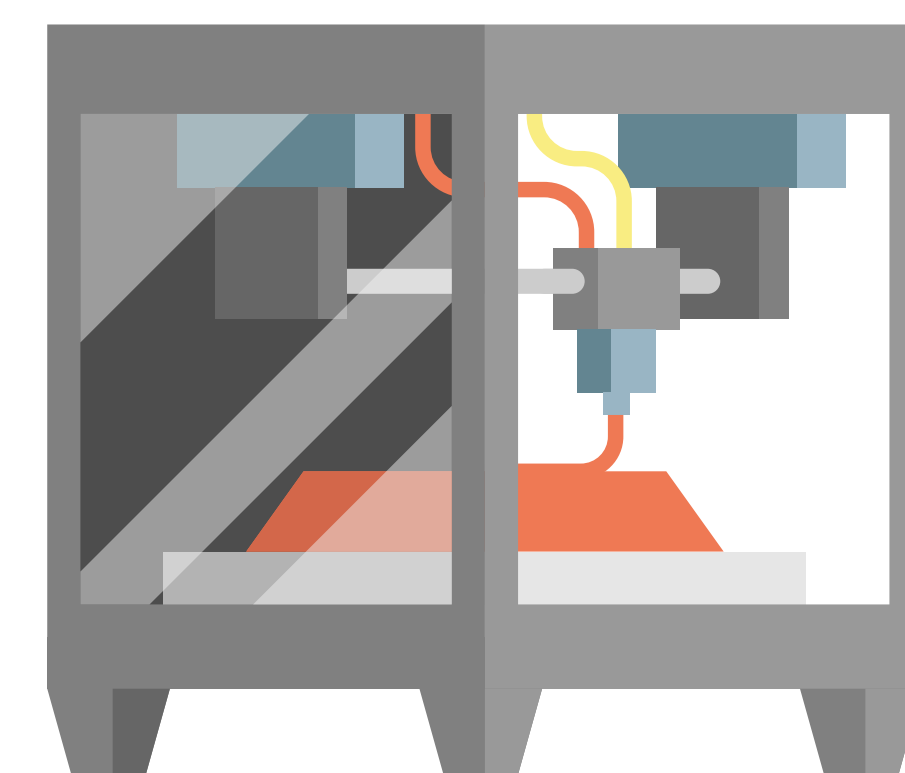
## 3Dプリンタを利用した試験機用パーツ/治具の作成

The 3D printer market developed a lot by a project called RepRap in the past few year. Many parts that constituted the apparatus are made of Aluminium/Steel/Stainless/Acrylic. When we make new parts/jigs, In the case of handcraft, it can be lower accuracy than requirement. But the drawing and outsourcing to manufacture needs too much cost. Then, this poster will show you some solutions that solved this conflict by using the 3D printer.

この数年、RepRapプロジェクトにより3Dプリンタ市場は急速に発達した。実験室の試験機で用いられるパーツの多くが、アルミ/鉄/ステンレス/アクリルで作られている。新規に部品を作成する際、手製では精度が足りないが、図面を引いて製作を外注するほどでもない機会が数多く存在する。ここではそのような3Dプリンタを用いた解決策について紹介する。

### About 3D Printer

The 3D Printer is categorized into **Self-replicating machine**. But this is based on same technology as normal printer, not brand-new tech. The normal one can print **COLOR** layer by **INK**. The 3D one can print **PLASTIC** layer by **MATERIAL** filament. This material called "PLA". It's cheap and easy to procure, **1kg PLA = 20 ~ 30 USD**. The **body** is from **100 USD**. It makes your workshop **easily, cheaper and creativity**.



### Solutions for Apparatus



For Bellofram Cylinder  
To solve scale/screw issue



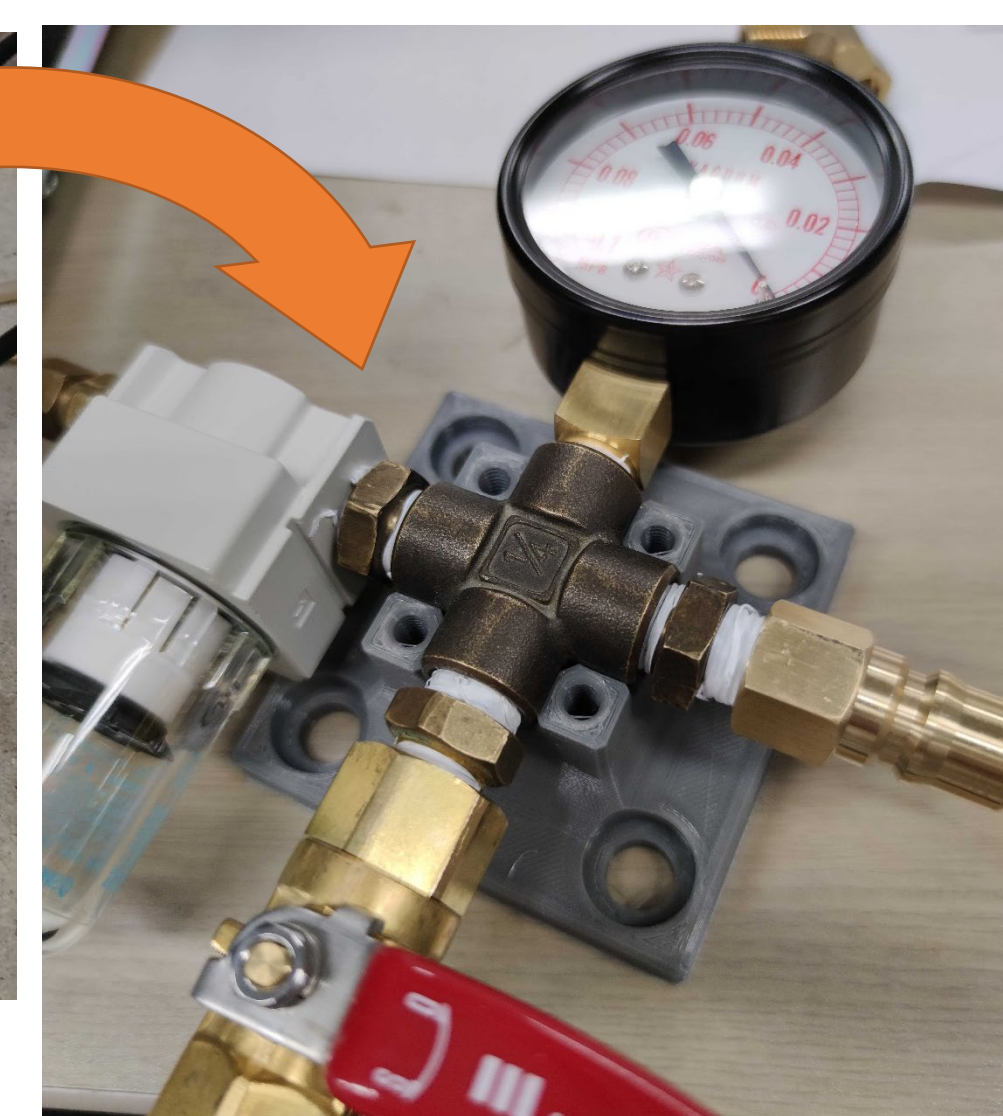
For Displacement Gauge, To Hold and Protect



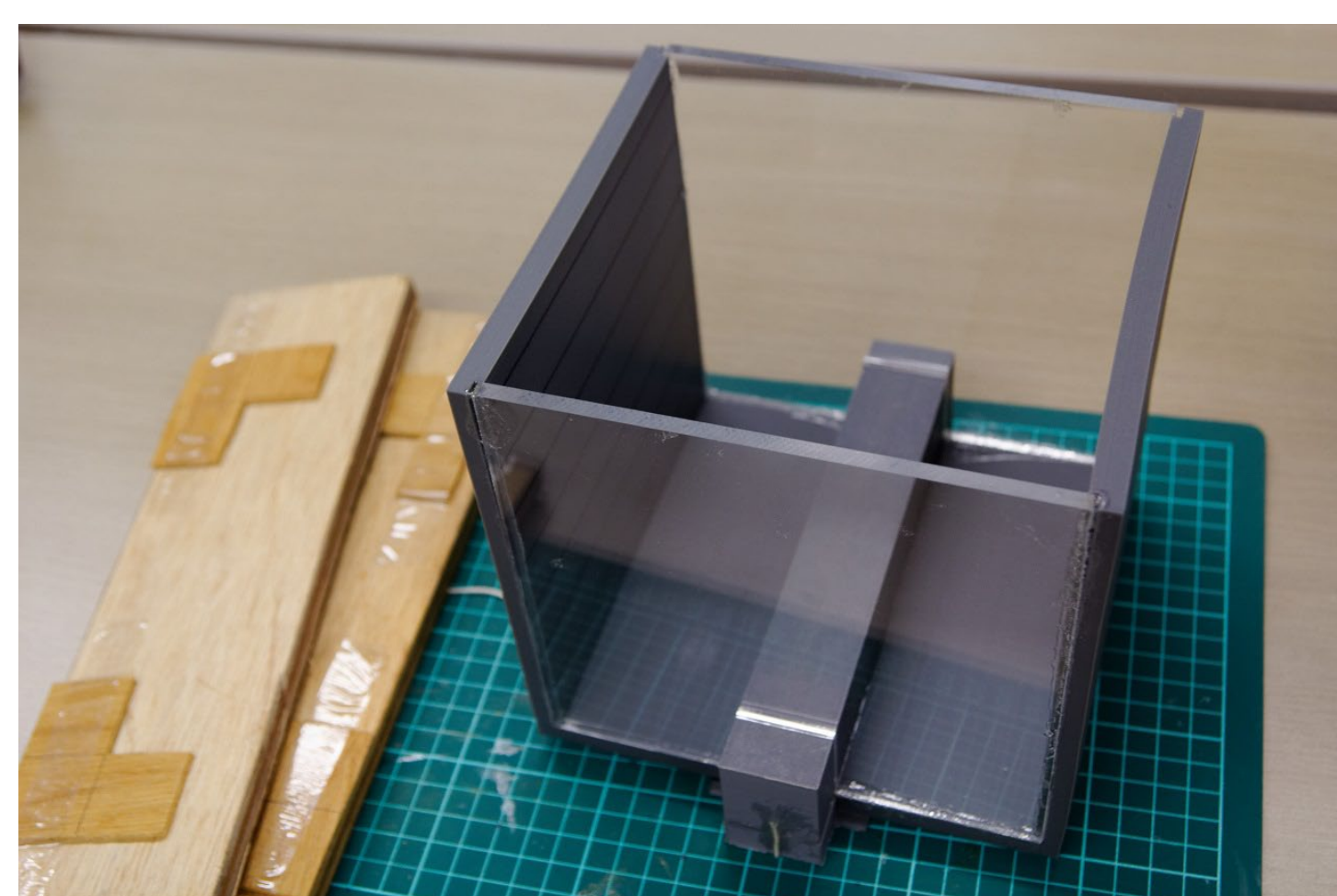
To Replace Acrylic Box



For Vacuum Connection



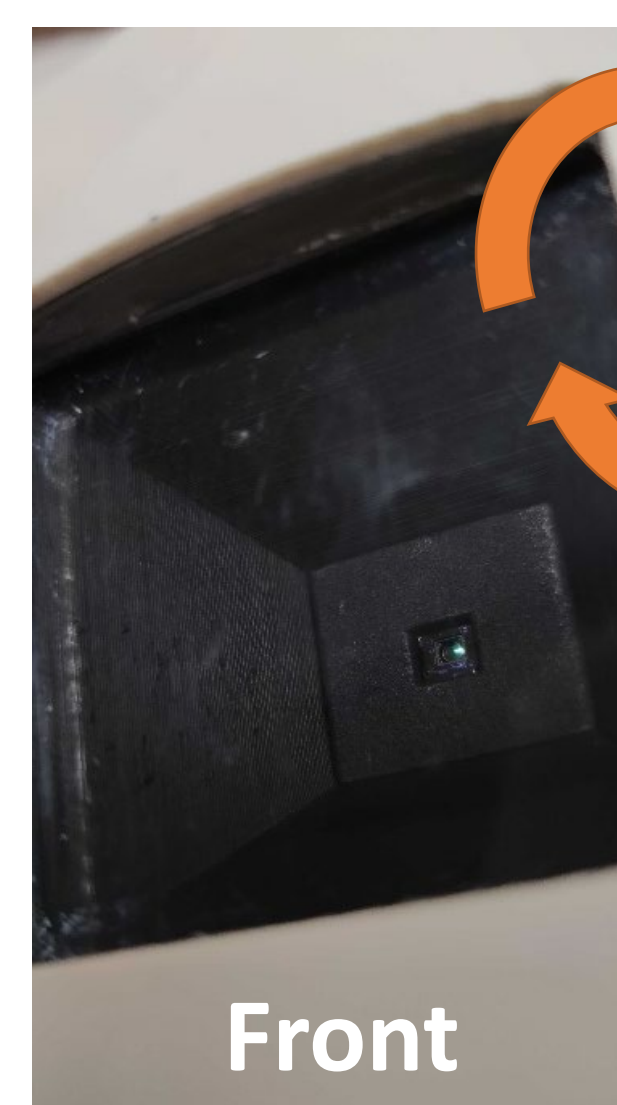
### Others



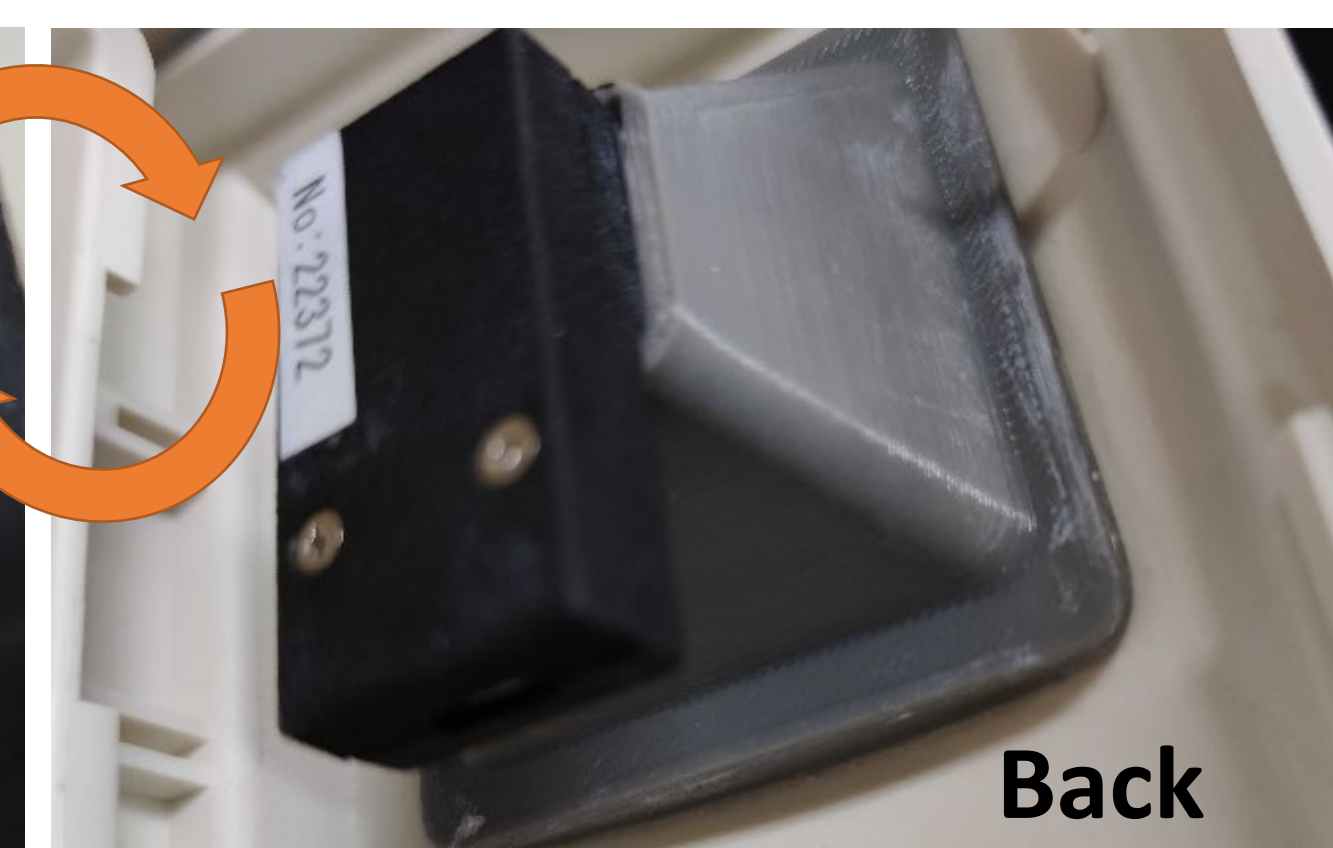
Box, Combine with Acrylic



3D Logo, To Promo



Front



Back

The Food of thermo-camera  
To prevent unnecessary light

