

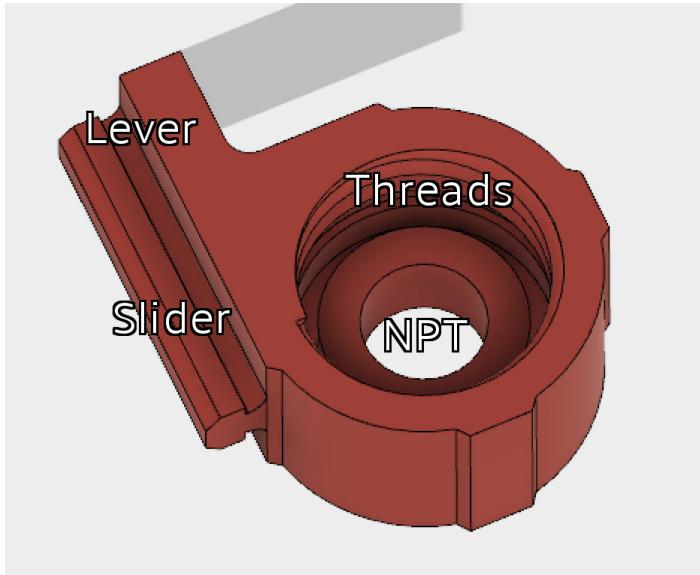
3D Printed Component Info Sheet – Bag Cap 10

Part Name: Bag Cap 15mm 1/8 NPT

Project: OPEnSampler (Bag Version)

Current Version: 10

Date: November 8, 2017



Summary Description:

Custom bag cap for IMPAK 250mL SpoutPack bags. Printed threads screw onto the original bags and tighten an O-Ring against the mouth, providing a clean seal. The lever eases hand-tightening. The mushroom-shaped bar (the slider) slides into Misumi's 15mm Aluminum Extrusion channels. The through hole is tapped to 1/8" NPT for attaching tube fittings.

Description and reason for most recent change:

The walls of the main body were unnecessarily thin, and increasing the thickness both strengthened the component and reduced the probability of leaks. The fillets on the O-ring gland were not necessary and complicated the component and O-ring behavior.

Comments:

When printed with an FDM (extruded filament) printer, it is very difficult to waterproof the cap. Extra top/bottom layers are necessary, as is a slower print speed. Heavy acetone finishing is also required. Alternatively, we have experimented with SLA printing and were impressed with the results. It is very easy to form a tight seal with an SLA bag cap.

Related Parts:

Misumi 15mm Aluminum Extrusion [\[link\]](#)

15mm x 2mm O-Ring [\[link\]](#)

1/8NPT x 1/4" Compression Tube Fitting [\[link\]](#)

Recommended Print Settings:

Printer: Fusion3 F400-S

Print Head, Extruder Type: 0.4mm E3D v6, Bowden

Slicer: Simplify3D

Layer Height: 1.2mm

Layer Width: .42mm

Speed: 4500mm/min

Support Type: Lines, Touching Print bed

Support Fill: 30% with 2 layers dense 70%

Fans: Low

Top/Bottom Layers: 7

Comments: Print with the threads up. Print a minimum of two at a time.

There are no recommended settings available for the Form2 SLA printer at this time.

Post Processing:

Vapor-finish with acetone. Let sit for 2 hours, then tap through-hole with 1/8 NPT tap. Add 15mm ID x 2mm CS O-ring to O-Ring gland.

Pictures:

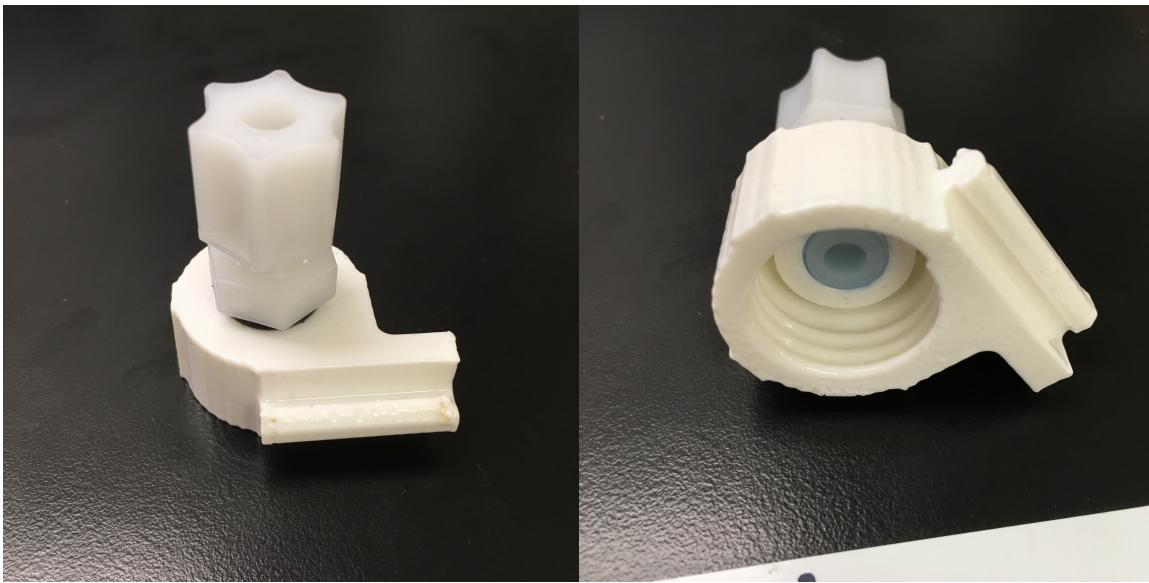


Figure 1: Bag Cap v10 printed with white ABS plastic on the Fusion3 F400-S, finished with acetone. Attached is a 1/8 NPT x 1/4" Compression Fitting and 10mmx2mm O-Ring.

Figure 2: Bottom view of the same cap as Figure 1. There is no O-Ring in the O-Ring gland, and the compression fitting was glued with blue Loctite before threaded into the part.

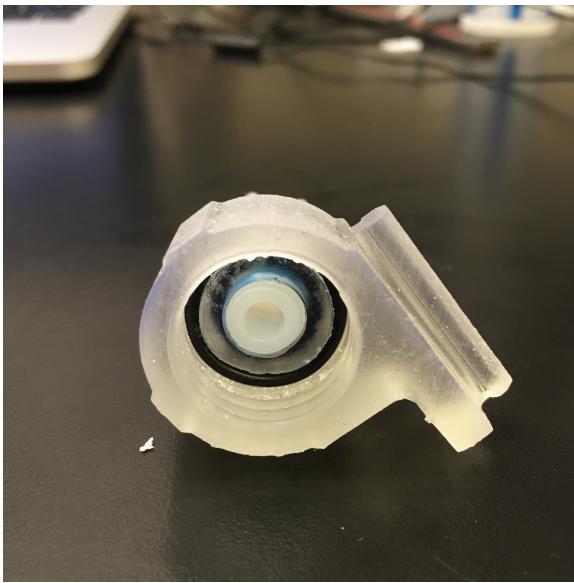


Figure 3: Bag Cap v10 printed by an SLA printer with translucent resin. The compression fitting was threaded with Loctite and an O-Ring was pressed into the bottom O-Ring gland.

Version Changes:

10:

- Increased wall thickness from 2mm to 4mm.
- Removed fillets on O-ring gland.