



Case
Study

Cyclone Filter

W2P

University
of
Maribor
&
IRNAS Ltd.

Cyclone Filter

Application: Biomedical Research

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The Institute of Biomedical Sciences of the University of Marburg developed in joint research project with IRNAS Ltd. cyclone filters that are used to separate particles from liquids by centrifugal forces and gravity. The filter consists of three parts: the main chamber, where the separation of the particles happens, the base storage which removes the particles from the liquid and collects them and the outlet that leads the liquid to exit the vertical channel. For the use in biomedical research applications, the filter needs to be made of biocompatible material.

Requirements

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Material: Medical Device Class IIa

Production Method: quick and easy production

Recommended Resins

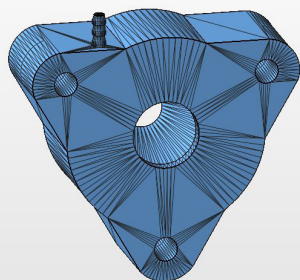
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SolFlex Splint / SolFlex Ortho

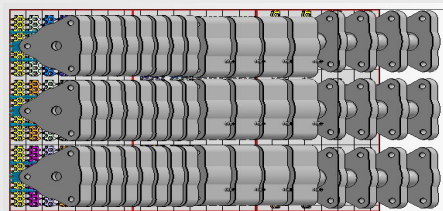
Digital Workflow

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Preparation: Prior to the printing process, the filter parts have to be prepared for printing. A 3D printing software helps to place the model on the building platform. Also, support structures have to be added.



3D Model



Support Structures

Printing Process: In the next step, the prepared files are being processed by the printer. In this specific case the filter parts were 3D printed under the following conditions:

3D printer:	SolLab 370
Layer thickness:	100 µm
Printing time:	2:30 min.
Resin:	SolFlex Splint
Number of printed objects:	48
Resin use:	350 g
Total resin use (incl. support structures):	350 g
Total resin costs:	€ 129.50

Depending on the size of the 3D printer's building platform, a different number of filter parts can be 3D printed.

Number of filter parts that fit on the building platform:

SolLab 370:	48
SolFlex 650:	26
SolFlex 363:	13
SolFlex 350:	16
SolFlex 170:	6
SolFlex 150:	4

Post-Processing: The 3D printed filter parts are post-cured in a UV light box, cleaned and the support structures have to be removed.

