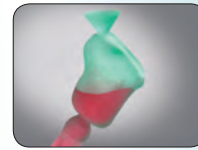


LUXAPRINT® 3D

mould, shell & cast
378-388 nm UV/LED



DETAX
HIGHEST MEDICAL MATERIALS MADE IN GERMANY

**Premium
Resins**
for all open
3D printer

ASIGA – DETAX – Haus der Hörtechnik A success story

by **Udo G. / Haus der Hörtechnik GmbH**

luxaprint® 3D
Application-Clip



We are the Haus der Hörtechnik GmbH, a company specializing in the manufacture and sale of medical earmolds using professional open machines and materials in DLP 3D printing. By digitalizing the entire process from ear impressions, modeling, and 3D printing, we are able to manufacture almost any earmold shape in a quality never before seen. The rapid development of 3D printers in recent years has increased the requirements for even faster delivery times and even better print quality. We took this opportunity to inquire about new technologies and expert partners at EUHA. This process is now largely complete. The company ASIGA impressed us

in the printer sector, not only in regards to their performance, quality, and service but also in terms of a direct price comparison to their competitors. The market for DLP materials is enormous. DETAX in their turn impressed us with their many years of experience in this area, their exceptional technical expertise, and not least their open and friendly approach.

After a series of in-house test phases with the support of ASIGA and DETAX, and the necessary medical marketing authorizations, we have now formed a very genuine, high quality partnership.



In our production we use the following DETAX materials:

Printer materials

- ▶ FREEPRINT® cast 2.0
- ▶ luxaprint® 3D mould UV clear
- ▶ luxaprint® 3D mould UV rose

Earmold silicones

- ▶ aquaplast®
- ▶ detax softwear® 2.0
- ▶ earflex® rainbow

Auxiliary products

- ▶ Cast Separator 2.0, luxaprint® shellac, super coat, mixing cannulas, syringes, etc.

Fig. 1 Machinery

The manufacturing steps

The earmolds are scanned and saved in digital format. The earmolds are then digitally modeled (Fig. 2) using the Cyfex program. During the modeling, the shape, the tubing bore, a vent hole, step, waxing, external hearing aid, etc. for each earmold are individually adjusted and saved as an STL file for years to come.

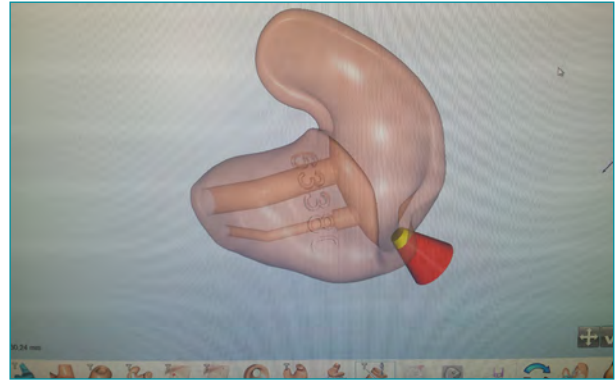


Fig. 2 Shell being adjusted for the mold material

CAST production with DETAX FREEPRINT® CAST 2.0

For the production of silicone earmolds on an ASIGA PRO75

The finished printed cast is freed of excess adhesion in a subsequent step in an ultrasonic device with isopropyl alcohol in a water bath. After a brief drying process, the cast is then immersed in the Cast Separator. This prevents any silicone adhering to the cast mold and makes it easier to remove the silicone blank from the mold. The cast molds can then be injected very easily with an earmold silicone (e.g., DETAX softwear® 2.0, earflex®, aquaplast®) in a number of possible colors and then sealed with a one-component silicone lacquer (e.g., super coat).



Advantages of the ASIGA PRO75:

- ▶ Tabletop device with minimal space requirements
- ▶ Low power consumption
- ▶ Very fast production and control (LAN)
- ▶ Very low manufacturing costs
- ▶ Very little wear and maintenance



Fig. 3/ 4 Cast cross-section / Golf-earmould

Picture 3 shows a cross-section of the finished sound bore and vent holes that are already located in the earmold after injection. These are then simply drawn out of the finished earmold because the cast material can be crushed afterwards like chips allowing it to be easily removed from the finished earmold.



Casts on carrier head

Picture 4 shows the finished cast. The Golf earmold also has a sound bore and a vent hole as well as the holes typical for a Golf earmold.

Here is a brief illustration of the steps involved in making a cast



Casts filled with silicone



Shell crushed



Holes removed



Finished and lacquered

Earmold production with DETAX luxaprint® 3D mould UV

The ASIGO PRO2 75 UV can be very rapidly converted to a different material color, needing only a few seconds to make the change. There is a wide range of colors available in the DETAX premium polymers (clear transparent, rose transparent, rose orange, light beige, red, blue, fluorescent yellow, intensive red, intensive blue, black, white, and beige / Fig. 5). Using ASIGA's own software, Composer, the data for the particular material are selected to achieve the best possible printing result. To achieve this, ASIGA and DETAX are working closely together on a number of innovations and improvements.



Advantages of the ASIGO PRO2 75 UV

- ▶ Tabletop device with minimal space requirements
- ▶ Low power consumption
- ▶ Very fast production and control (LAN)
- ▶ Very low manufacturing costs
- ▶ Very little wear and maintenance

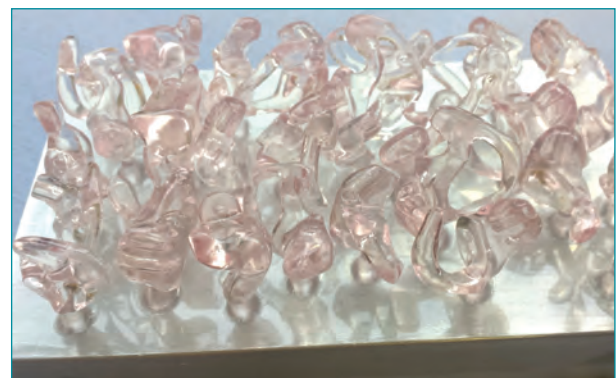


Fig. 5 Colour variety of the luxaprint® 3D Premium resins

Loaded ASIGO – carrier head

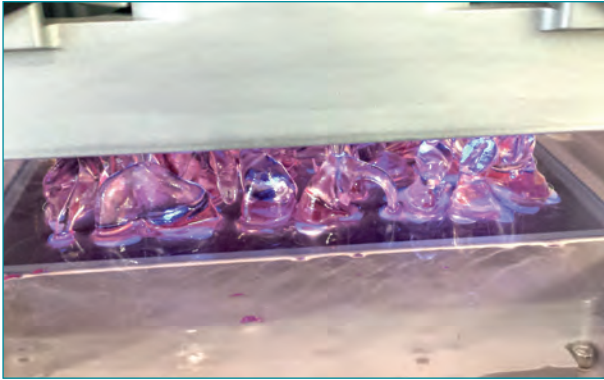


Fig.6 Manufacturing process Mould rose

The picture 6 shows the manufacturing process using DETAX luxaprint® 3D mould in rose. The light polymerization of one layer of 0.1 mm needs only a few seconds. After the printing process, the molds, exactly like the casts, are freed of any excess adhesions in an ultrasonic device using isopropyl alcohol in a water bath.

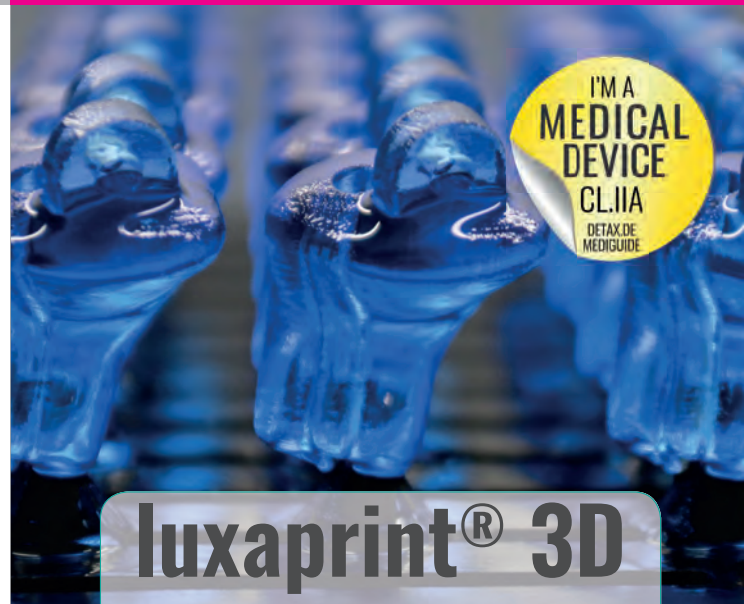


Finished Moulds

The next step is post-curing of the mold in a xenon light polymerization device (Otoflash G171 with protective gas) which optimally cures the material. Finally, our molds are given a surface finish using luxaprint® shellac (Fig. 7) before being shipped to our customers.



Fig. 7 Permanent colour sealing with luxaprint® shellac color



luxaprint® 3D UV Premium Resins



luxaprint® mould
for hard earmoulds & hearing protection (BTE, monitoring, etc.), highest transparency, best mechanical features, biocompatible



luxaprint® shell
for hard ITE shells, maximum precision, thinnest shell walls, high fracture resistance, intensive colours, full cure, biocompatible



luxaprint® cast 2.0
for cast forms (fabrication of silicone earmoulds), reduced loss of material due to low viscosity, fast cleaning, easy to break, effortless removal

