Press release

# Two-Component technology for improved quality of life

**Georgensgmünd (D):** In the field of injection moulding and mould making, toolcraft covers all processes within the added value chain – from the design and selection of materials through to the creation of finished and qualified products. Complete solutions offered include injection moulding for parts in the small and extremely small component areas, e.g. for medical technology. Utilising two-component injection moulding, the company creates hearing aids for Unitron. The high-quality and reliable products made by Unitron contribute to improved quality of life. toolcraft supports this objective by providing certified production processes.

## High demands

Micro-components often involve macro-demands on mould design, manufacture and assembly. The top housing shell consists of a demanding hard/soft material combination. The hard component consists of PA12. A thermoplastic elastomer is used as a soft component. The part of the housing with little to no warpage meets tightest clearance requirements. toolcraft also manufactures a battery compartment and a push-button for the assembly. In this regard, Unitron makes use of the entire process chain, from 3D data customisation, mould making and injection moulding, through to quality assurance.

## Special expertise in mould making

To ensure the economic efficiency of the application, the goal was to develop an extremely reliable mould for integrated moulding process. In addition, the parts required extremely tight clearances for accuracy of fit as well as repeatable injection for smallest shot weights. Furthermore, a perfect alignment of hard and soft components was necessary. toolcraft had the necessary expertise in mould making. Nevertheless, the 20-week construction period proved to be a great challenge.

## From concept to finished plastic component

The construction of a 1+1-component precision mould followed the development of automated manufacturing as part of the two-component injection moulding process. Designing and programming the 2-component injection moulding machine was the next step. The Arburg A470S 2K was outfitted with an integrated quality assurance system including a camera and a robot that sets down the parts on a conveyor belt. In so doing, the robot separates the trays so that expert personnel can then proceed with packaging. The concept was implemented as part of a close cooperation between the manufacturer of the injection moulding machine and toolcraft's engineering team, mould making and injection moulding departments.

## Challenges successfully tackled

Engineering such a complex mould, as well as the manufacture of parts with fine and small contours, proved to be demanding. Time pressure resulting from tight project planning was an additional

incentive. Prior to mass production, the team had overcome all major and minor challenges. Since this time, the process is stable and large production runs have been ensured. Further activities in two-component injection moulding are still being developed at toolcraft, including parts from the automotive sector as well.

**Facts about Arburg A470S 2K**
Ø cylinder 1 20 mm
Ø cylinder 2 18 mm
rotary disk
robot system KUKA KR16
camera system
tray separation
part weight 0,5 g – 20 g

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**About toolcraft**
toolcraft is a pioneer of forward-looking technologies, such as 3D metal printing and the construction of customised turnkey robotics solutions. The company tests and develops innovative engineering processes until they are ready to be used on production lines. As a provider of comprehensive solutions, toolcraft covers the entire process chain, from the initial idea to manufacturing, quality assurance and testing in the areas of CNC machining, 3D metal printing, injection moulding, spark erosion (EDM) and mould making. Its clients include market leaders in the semiconductors, aerospace, medical technology, optical, special machinery manufacturing, motor sports and automotive industries. Building close working relationships with collaborative partners as well as universities, other institutions of higher education and research centres is an important part of its corporate philosophy. The medium-sized family-owned company, located in Georgensgmünd and Spalt, was founded by Bernd Krebs in 1989.