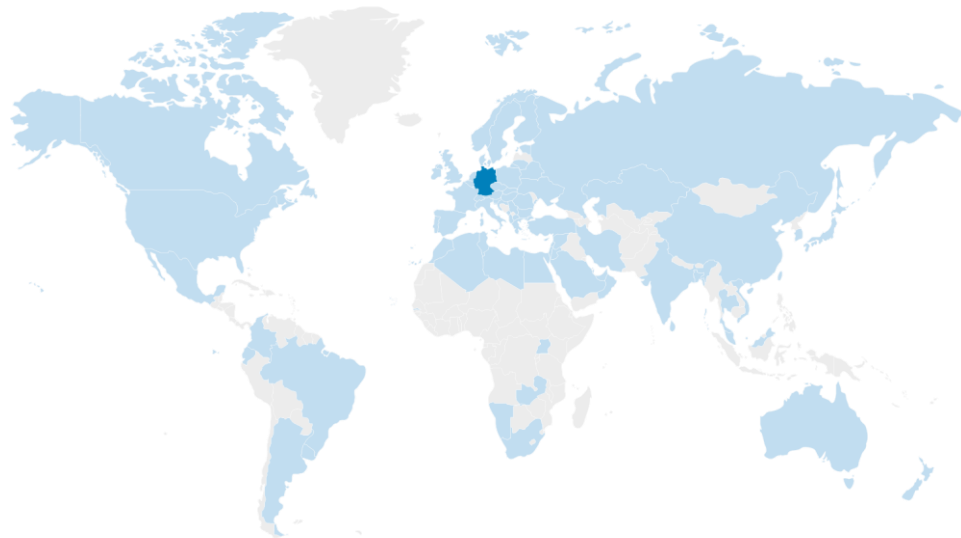


Parts – Mould at SKZ

R&D – Trainings

2023-11



Overview

of the business fields



More than 400 members in the FSKZ network | Events with more than 10.000 participants annually

NETWORKING

Product monitoring
Product certification
Product testing
Expert opinions
Damage analysis

TESTING



Product analysis
Process measuring technology
Damage analysis
Polymer characterisation

ANALYTIK SERVICE OBERNURG



Practical training
Workshops
Courses
In-house training
Training for masters and technicians
Studies
Online-courses

TRAINING



Materials
Processing
Material development
Compounding
Extrusion
Injection Moulding
Additive Manufacturing
Inspection and test methods
Sustainability
Circular Economy
Lightweight construction
Digitization

RESEARCH



ISO 9001
ISO 14001
ISO 45001
ISO 50001
IATF 16949
ISO 22000
ISO 13485
SpaEfV
FW 605

CERTIFICATION



Material development

- Material/Additive Searches
- Formulation development
- Specifications, ...



Compounding & Compounding Processes

- Modification of thermoplastics, incorporation of additives ..
- Manufacture of customer-specific materials



Processing

- Extrusion (Profiles, tubes, foils)
- *Injection moulding*
 - *Manufacture of test specimens*
 - *Manufacture of components*
 - *Material/mould sampling*
 - *Simulations*
- ...
- Joining (therm. joining, US welding, gluing)
- Thermoforming
- Blow moulding
- 3D Printing (Thermoplastics & Resins)

Surfaces

- Surface pre-treatment/activation (Plasma, Corona, VUV ...)
- Surface Characterization

Testing's & Analyses

- Mechanical tests (static, dynamic)
- Creep tests
- Thermal analysis
- Spectroscopic analyses
- Chemical analyses
- Weathering/Storage Tests
- Microscopy, SEM and CT measurements
- ...

Other Areas

- Sustainability & Circular Economy
- Digitisation
- Non-destructive testing
- Reactive Systems / Crosslinking Materials
- Dispersion process, resin development
- Micro/nanosuspensions

Injection Moulding

at a glance



Over 130 industrial orders per year

More than 150 courses

20 - ongoing research projects

Research, Industrial Services & Education

More than 10 injection moulding machines with clamping force of 500 – 5,000 kN

Multi-component injection moulding

Thermoplastic Foam Injection Moulding

ARBURG FDC , Processing of long fibres

Processing of thermosets

Processing of LSR

Industry 4.0 Injection Moulding Cell

Colouring with Masterbatch and Liquid Colours

Injection molding

Adhesion of hard/hard and hard/soft composites (TPE, VDI2019)

Fiber Length Distribution (SKZ- "FiVer")

Determination of fiber fractions and orientations

Inline thermography for 100% component inspection (SKZ "TDI")

DOE: Statistical Design of Experiments (SKZ- "MESOS")

Testing & Analysis

Practical courses

Workshops

Courses

In-house training

Master craftsman and technician training

Online training

Creation and provision of WBT's

Individual training and further education concepts

EDUCATION

Production of standard and individual test specimens

Simulation of injection moulding processes (Moldex3D, SIGMASOFT)

Material and mould sampling

Processing of PVC and high-temperature thermoplastics

Customer-specific material/mould tests

On-site (process) consulting

Feasibility studies

Industrial Services

Publicly funded projects (e.g. ZIM, IGF, BMBF ...)

Bilateral R&D projects

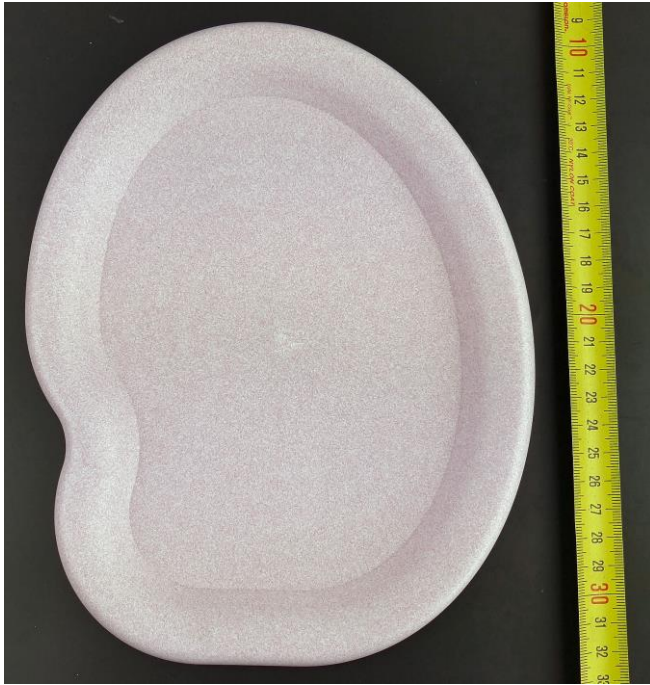
Research

Industry Consortium Projects (SKZ Trailblazer)

Research

Tablet

Hot runner nozzle, immersion edge

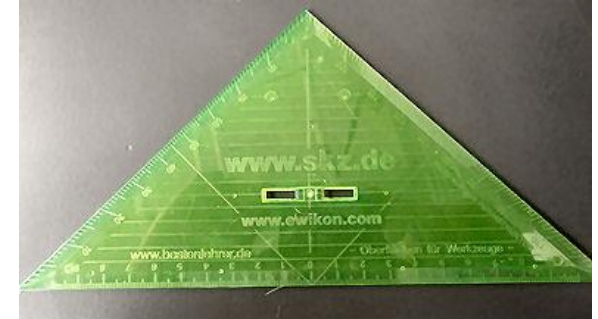


Spoon

Hot runner with cold runner sub-distributor, 8-fold



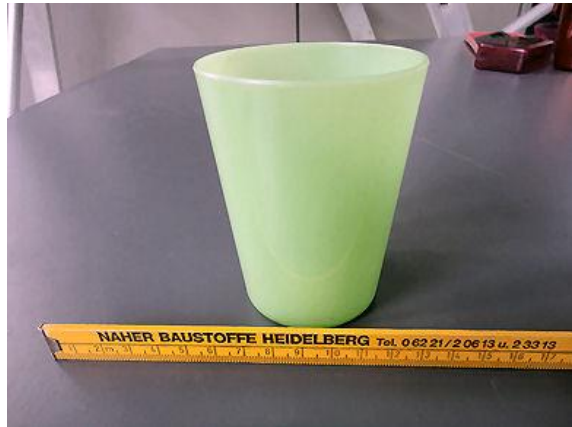
Radio receiver - Soap dish - Geotriangle - ½ Stacking Box - Cover



- From top left to bottom right
- Tunnel sprue
- Three-platen tool
- Hot runner nozzle
- Hot runner nozzle
- Tunnel sprue



Bowl round – bowl – mug - funnel



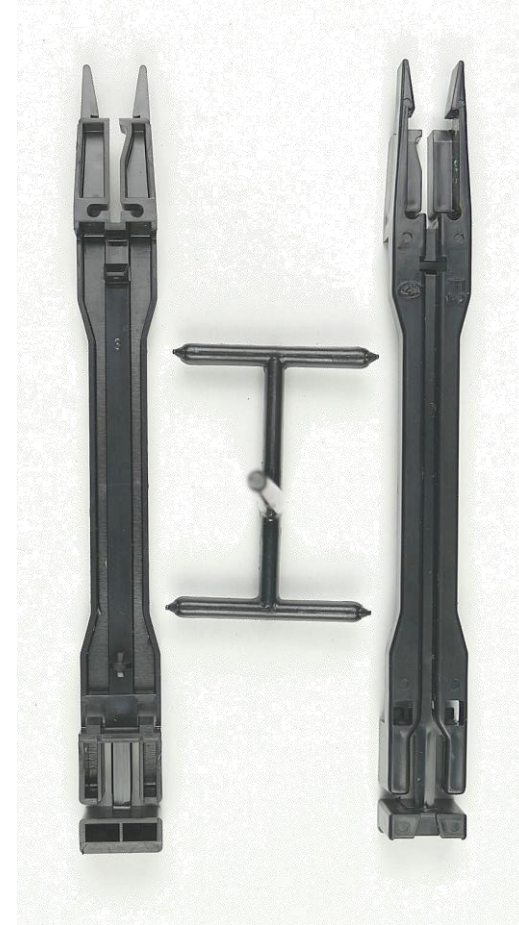
4-fold Mould

- Injection via hot runner
- Wall thicknesses 0.3 – 1 mm



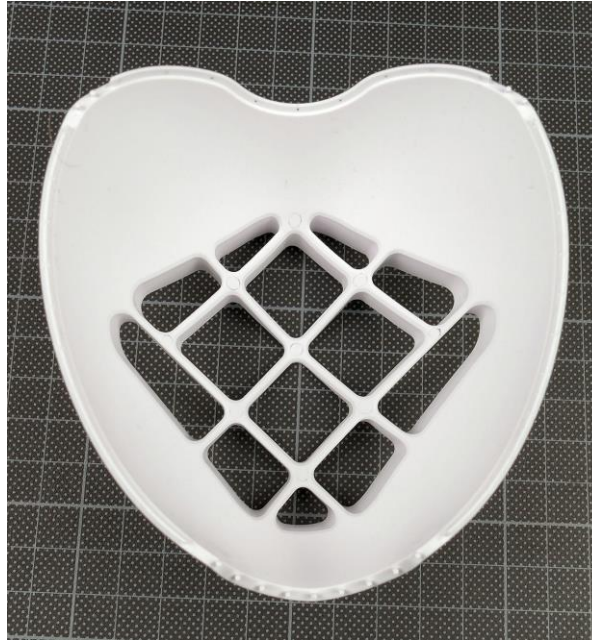
2-fold Mould

- Cold runner
- Tunnel gate, two gates/parts



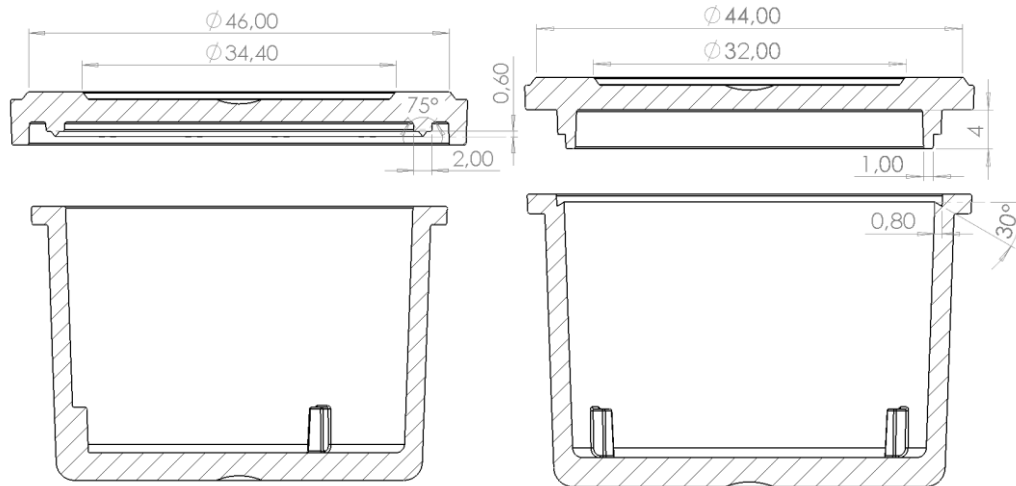
1-fold Mould

- Injection via hot runner nozzle



2-fold Mould

- Injection via hot runner
- With pulse generator for ultrasonic welding tests

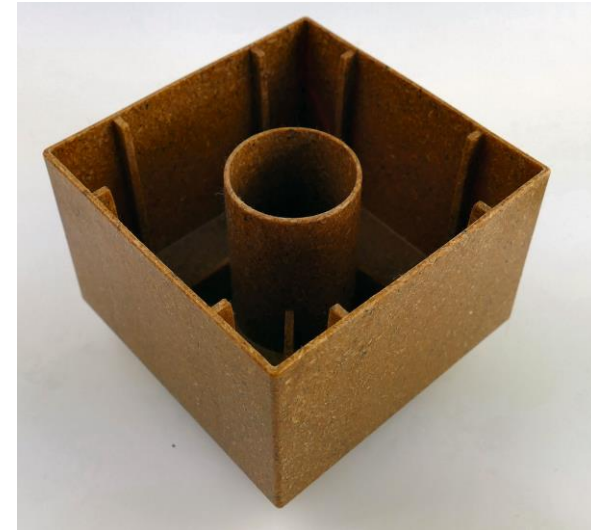
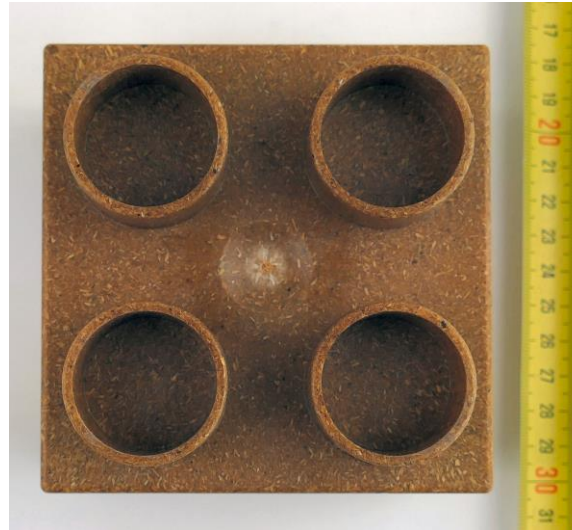


2-fold Mould



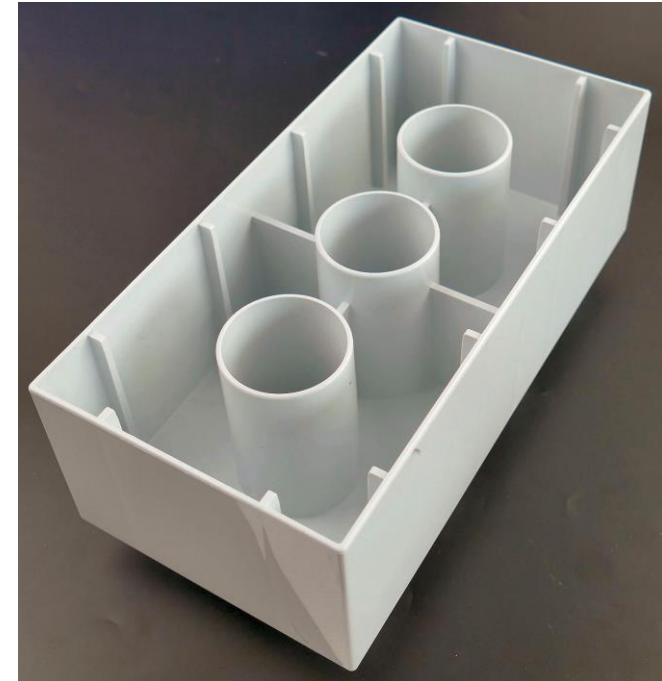
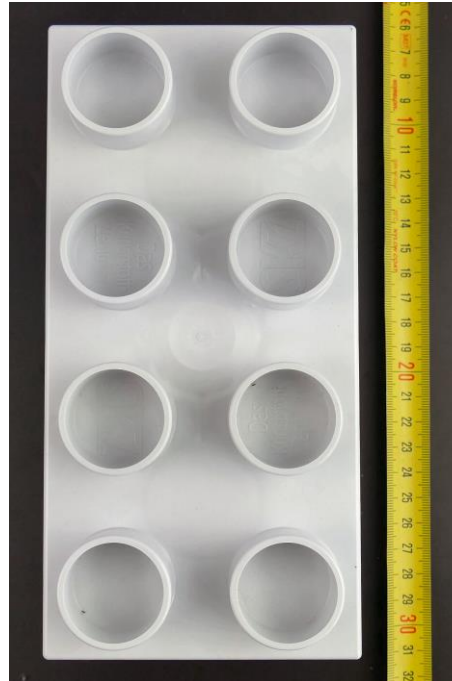
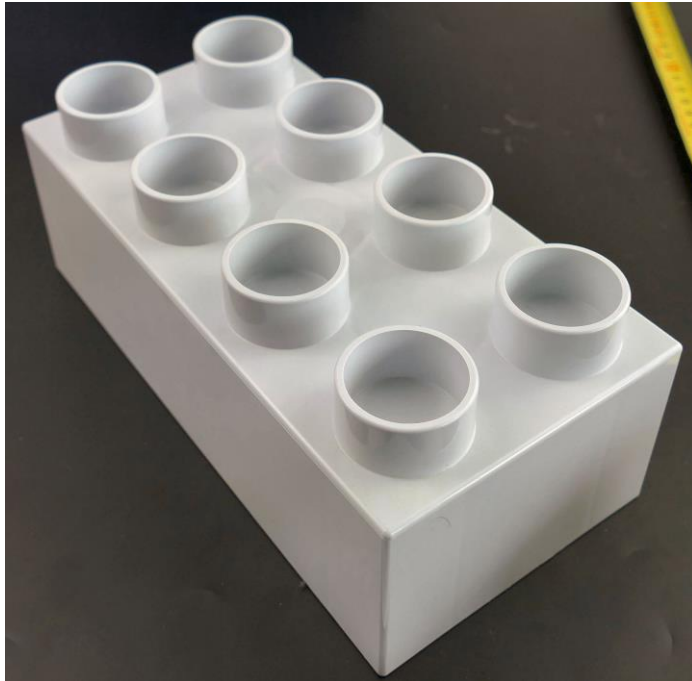
1-fold Mould

- Injection via hot runner nozzle with valve gate
- Two variants for wall thicknesses of 2.5 & 4 mm (145 cm^3 & 207 cm^3)

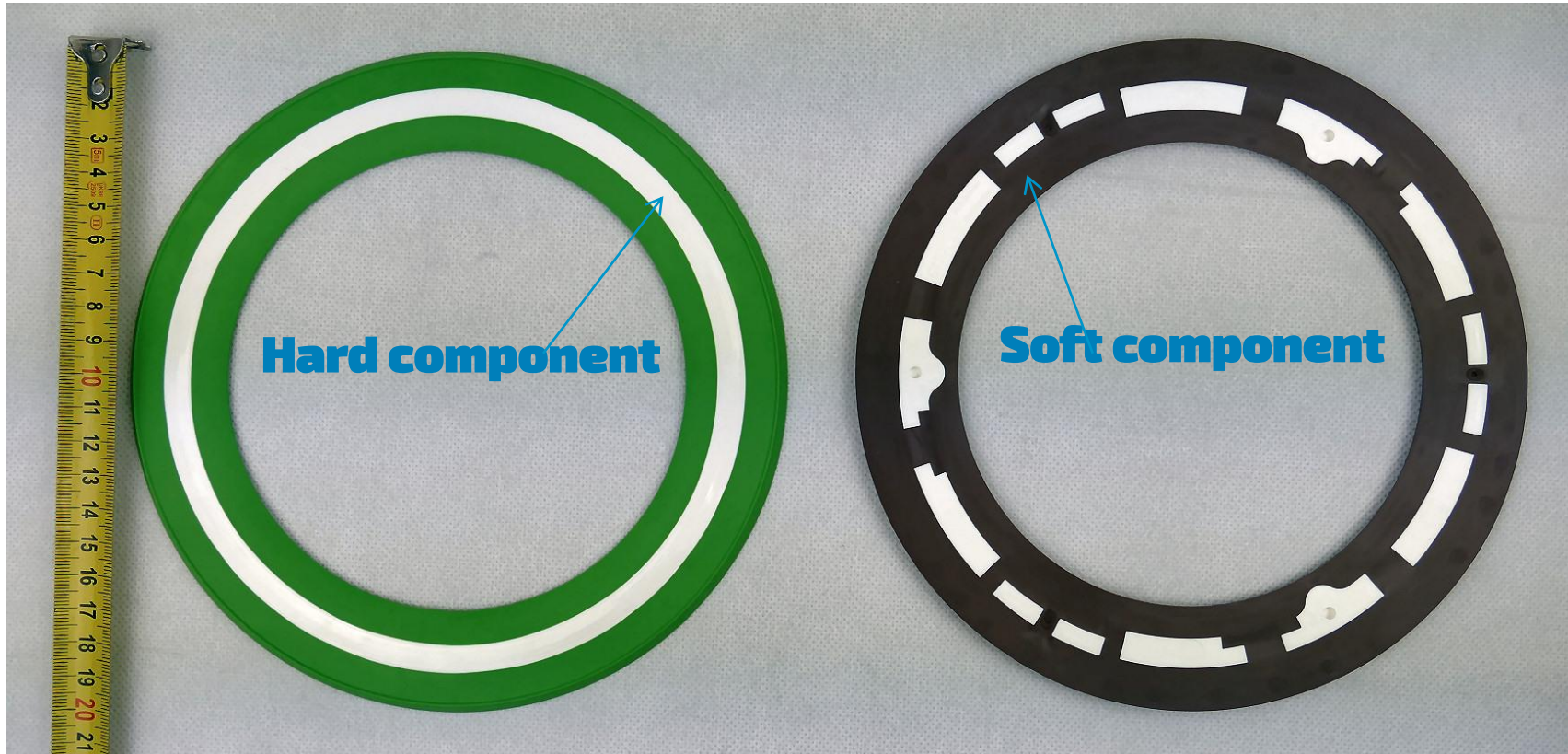


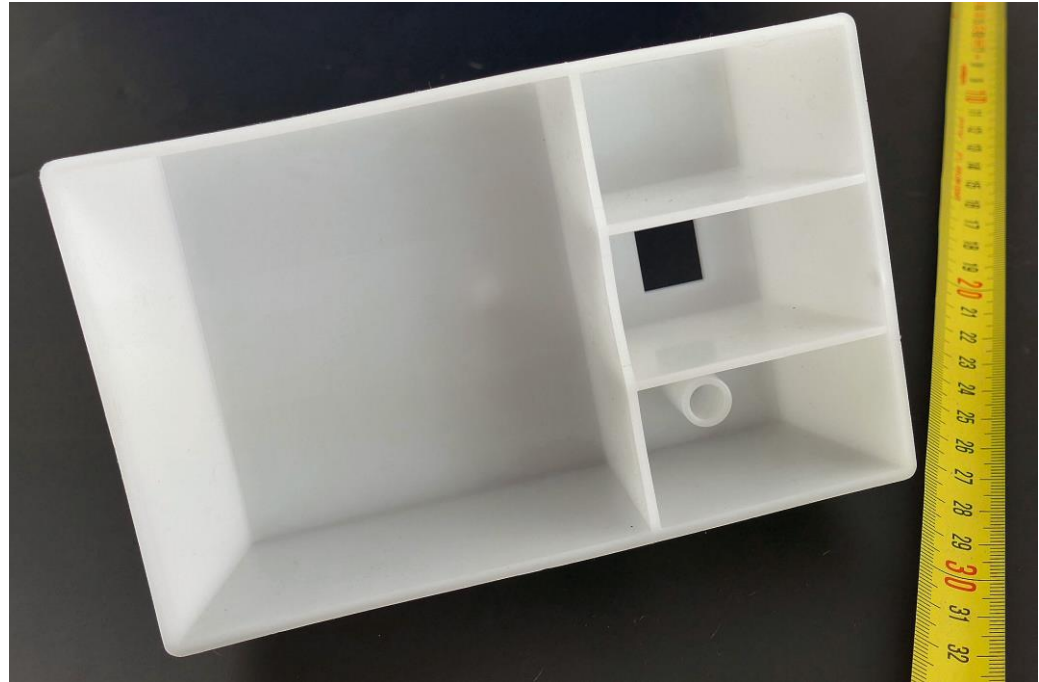
1-fold Mould

- Injection via hot runner nozzle with valve gate
- Two variants for wall thicknesses of 2.5 & 4 mm (282 cm³ & 387 cm³)

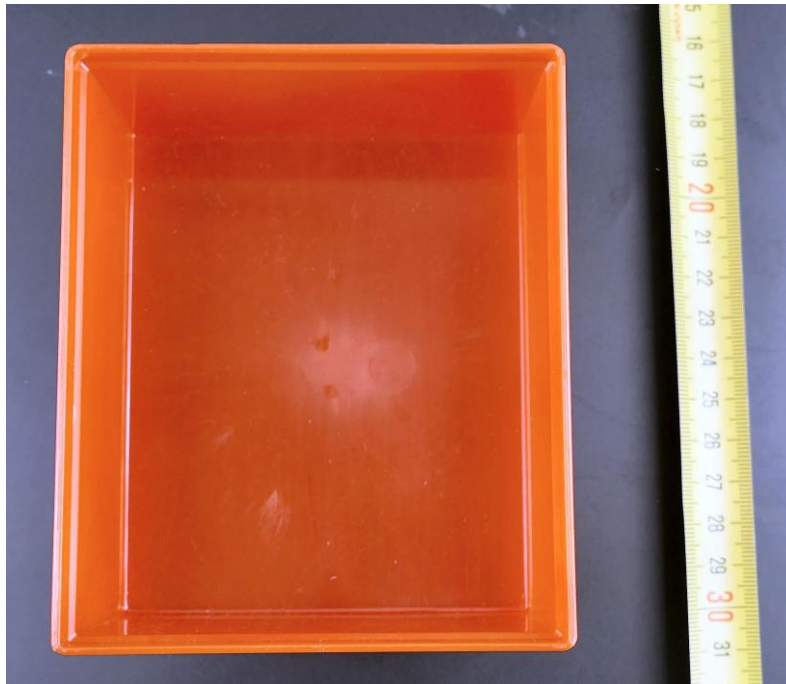


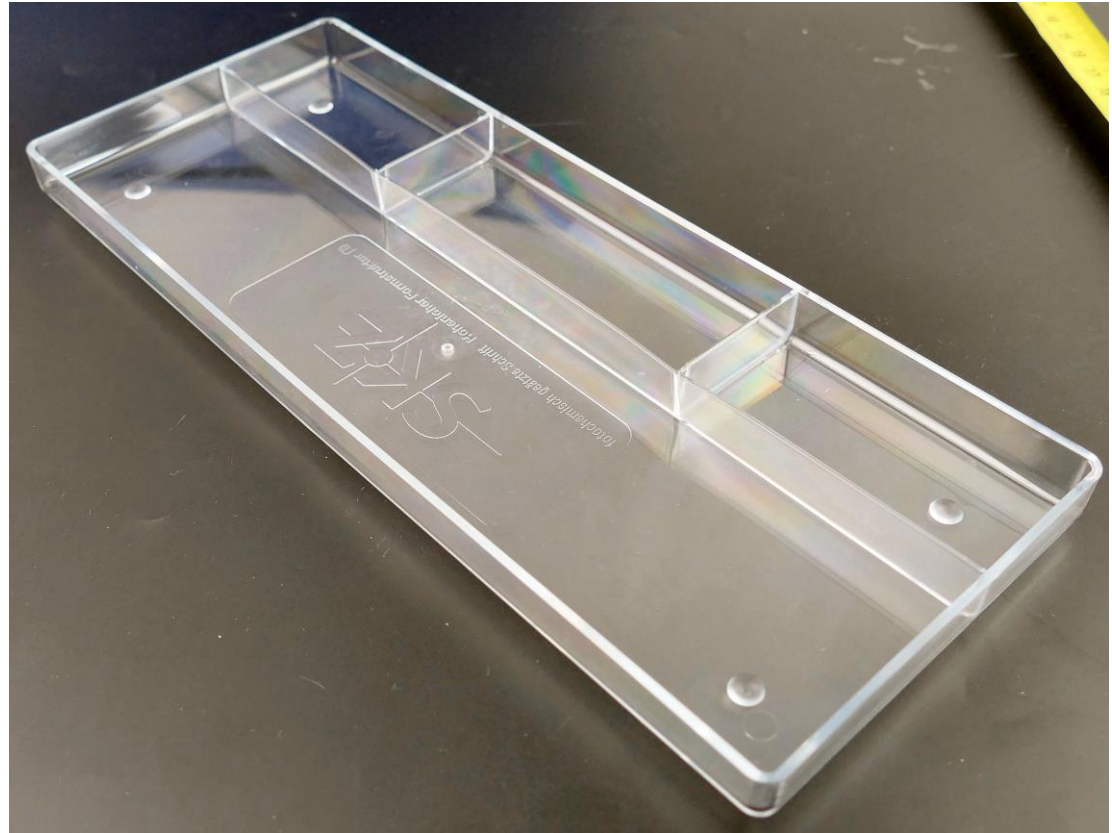
(whiter) Inner ring can be individually printed

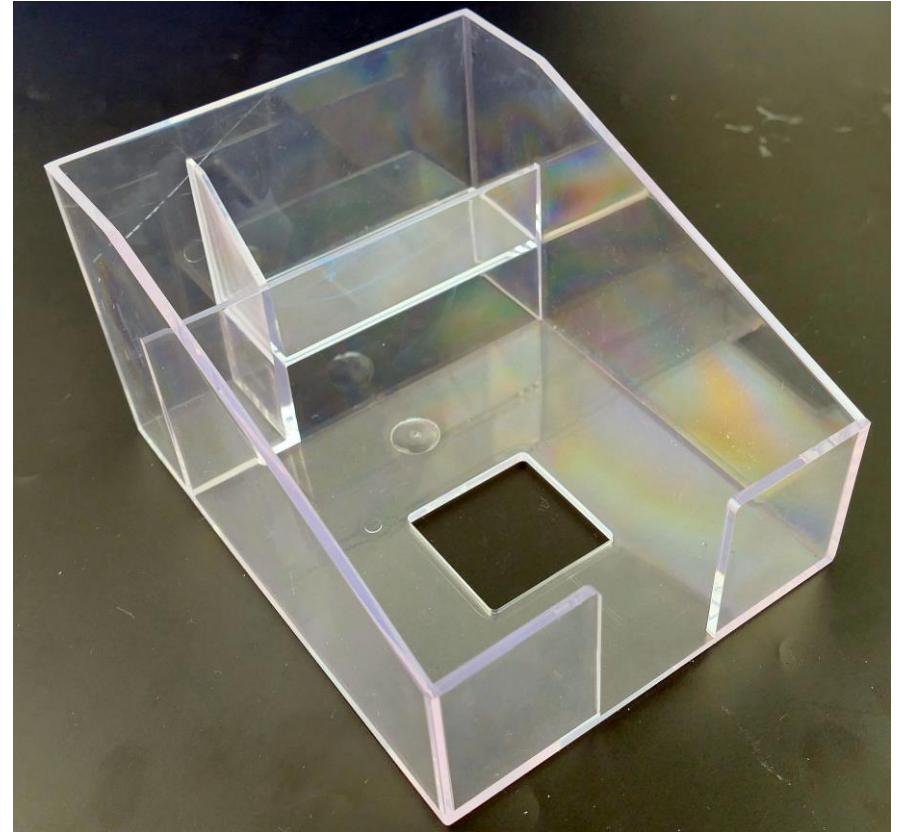
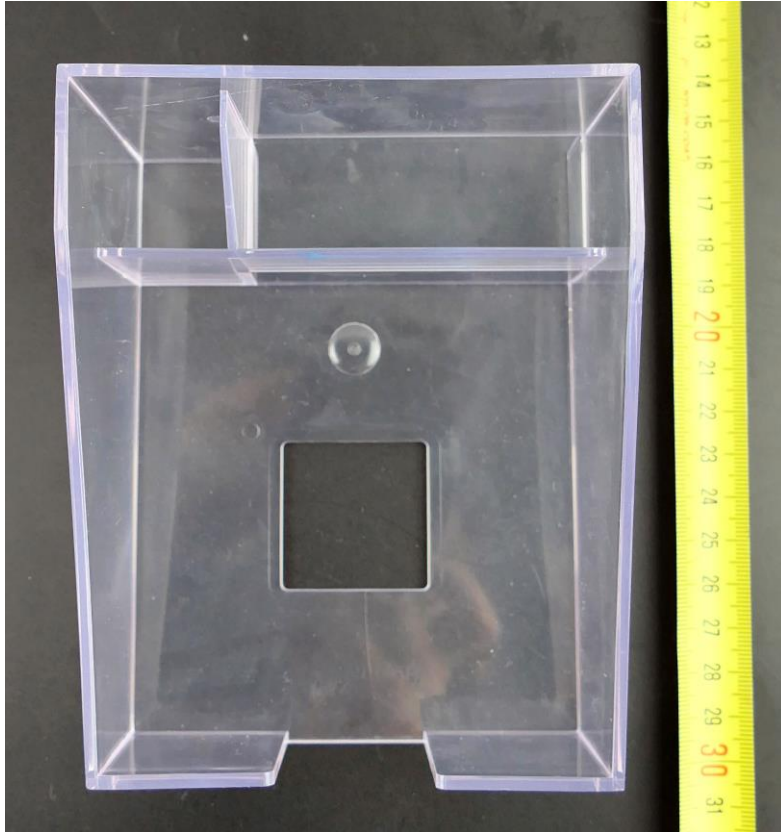


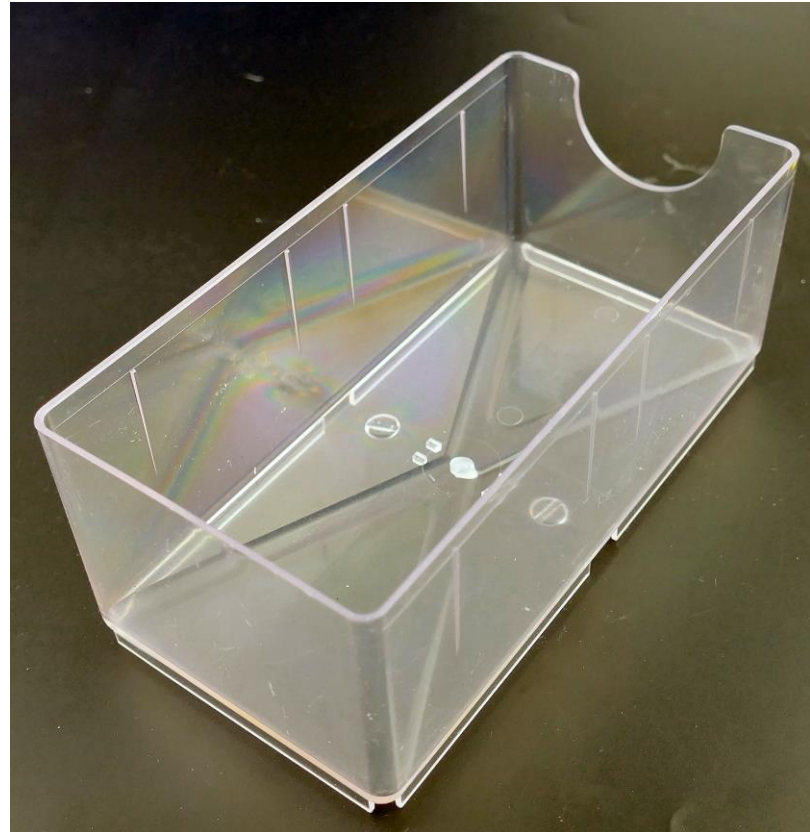




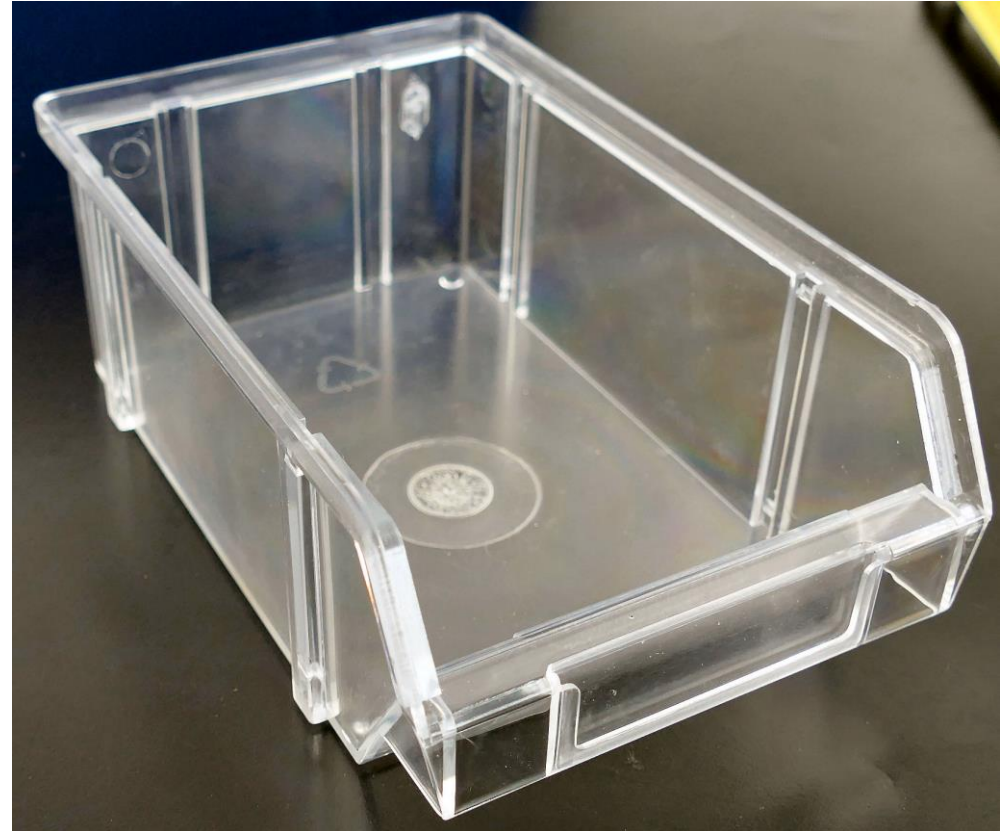








Stacking box

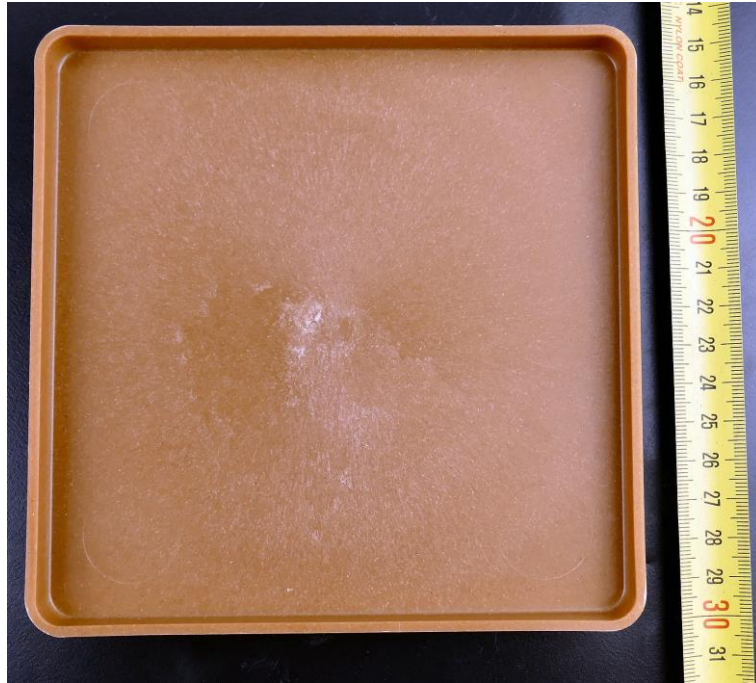


2-fach Werkzeug

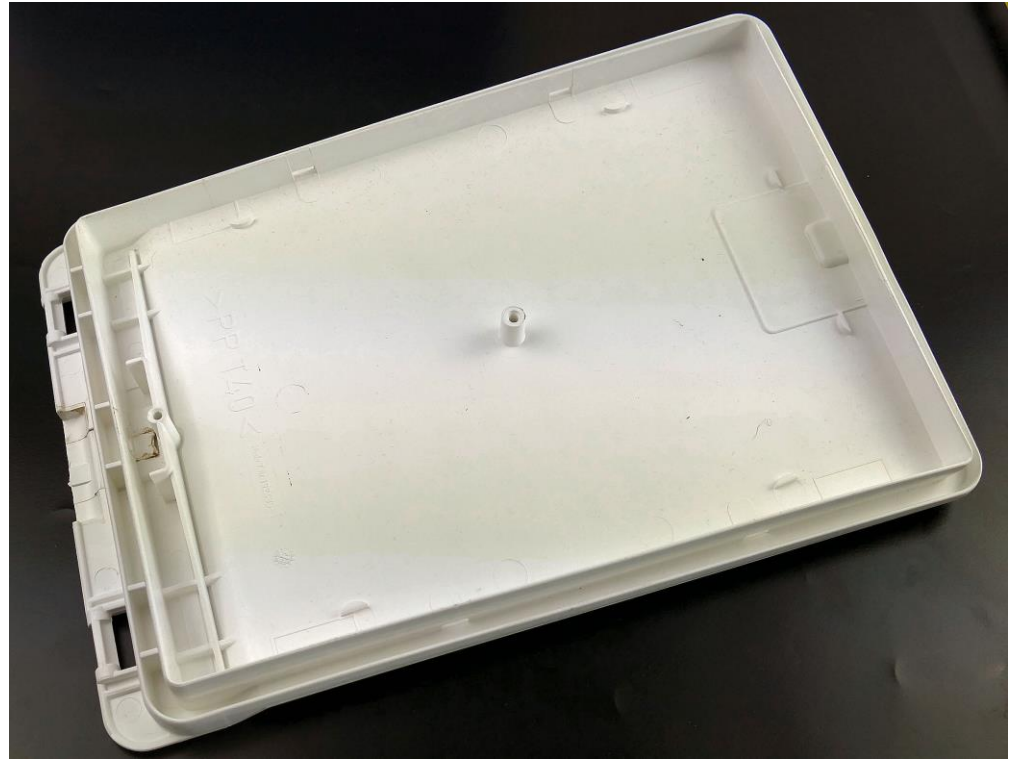
- Unterschiedliche Boden-Wandstärken
- Film- & Tunnelanschnitt, Abspritzung über Heißkanaldüse mit Kaltkanalunterverteiler



Bowl large







Vacuum cleaner frame

