

Gripper

- Dimensions: 30x3.0 mm
20x1.7 mm
10x1.2 mm
6x0.8 mm
- material: 1.4542 (17-4 PH)
 - micro moveable elements print-as-one
 - specially designed joint
 - adapted tooth construction

Hexagonal grid

- Dimensions: 11.5x10x5 mm
- material: 1.4404 (316L)
 - wall thickness: 100 μ m
 - individual design/surface finish

Contacts

- Dimensions: 20x1.4x10.5 mm
- material: 2.0040 (Cu-OF)
 - wall thickness: min. 140 μ m
 - weight: ~750 mg

Skull

- Dimensions: 8.8x16.2x9.5 mm
- material: precious metal
 - material: 3.7165 (Ti6Al4V)
 - anodised
 - filigree structures
 - freedom of design
 - building without support

Jewellery pendant

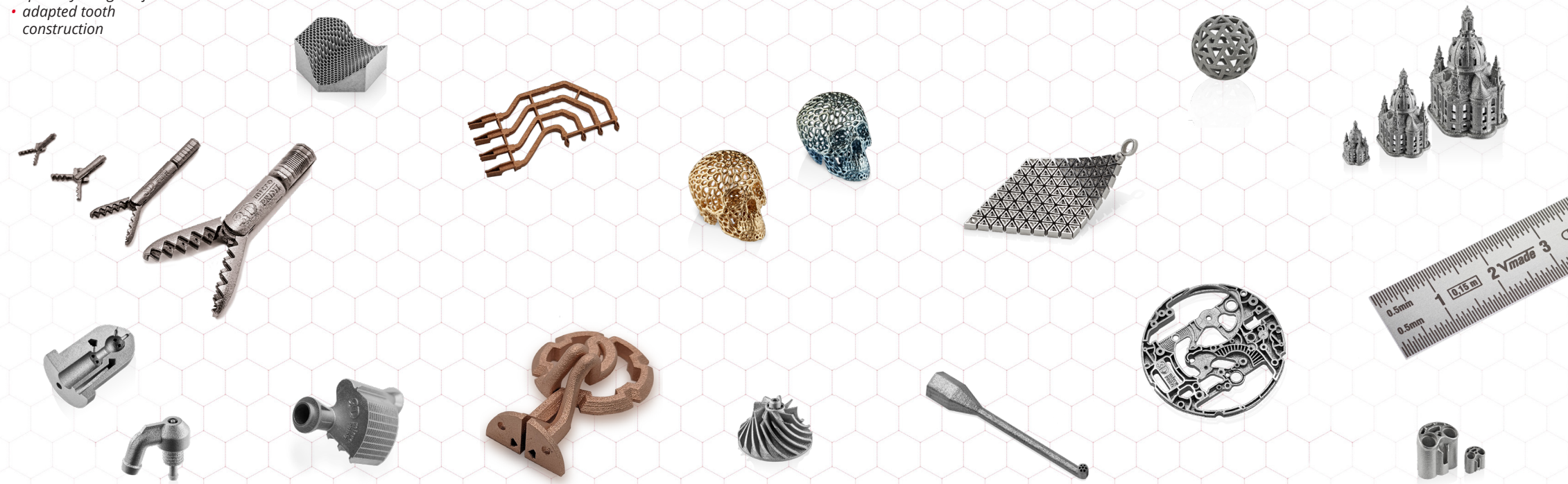
- Dimensions: 9.5x20.1x1.8 mm
- material: 3.7164 (Ti6Al4V)
 - movable elements print-as-one
 - elements movable to each other

Sphere

- Dimensions: \varnothing 9 mm
- material: tungsten
 - wall thickness: 400 μ m
 - weight: ~1 g
 - spherical shape from lattice structure

Frauenkirche

- Dimensions: 11.5x10x5 mm
- material: 1.4404 (316L)
 - scale: 1:6100
 - height: 17; 11.9; 6.3 mm
 - true to scale high precision and detailed resolution



Nozzle

- Dimensions: 7x10x8 mm
- produces fine, defined spray mist from compressed air and water
 - integrated functions (thread, hose attachments)
 - diameter: 80 μ m
 - printed thread: M3

Heat exchanger cross section

- Dimensions: 21x13x7.2 mm
- material: 1.4404 (316L)
 - web width: 130 μ m
 - channel width: 870 μ m
 - channel height: 170 μ m
 - high surface area to weight ratio

Inductor

- Dimensions: 27.7x18x7.7 mm
- material: 2.1293 (CuCr1Zr)
 - relative density: > 99.5 %
 - electrical conductivity (with heat treatment): 93 % IACS
 - wall thickness: 500 μ m
 - inner channels: \varnothing 1 mm
 - weight: 3.2 g

Impeller

- Dimensions: \varnothing 12x7.8 mm
- material: 1.4404 (316L)
 - 200 μ m thin impeller blades
 - applications for miniaturisation of gas liquefaction systems

Probe

- Dimensions: 31.6x5.4x4.9 mm
- material: 1.4404 (316L)
 - thin, individually shaped channels of 120 μ m
 - probe tip with 7 holes
 - fluid flow measurement
 - low volume and aerodynamic design

Watch plate

- Dimensions: \varnothing 26x2.2 mm
- material: 3.7164 (Ti6Al4V)
 - high customisability
 - wall thickness: 150 μ m
 - precision of many small bores with \varnothing 200 μ m
 - thread hole: M1.2

Oculus

- Dimensions: 8x6x8 mm
4x3x4 mm
- material: 1.4542 (17-4PH)
 - thin wall structures
 - medical applications - fiber optic guide / endoscope

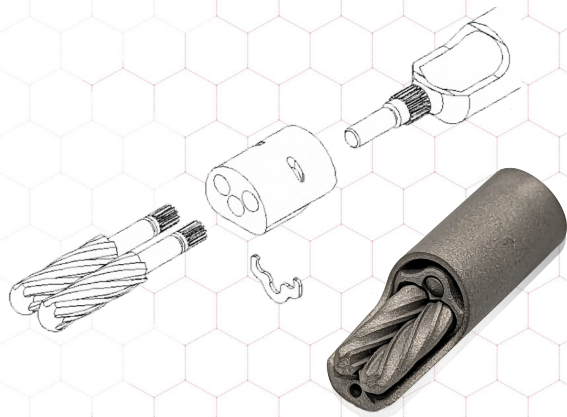
Twin-tipped Arthroscopic Shaver

Task

To print parts for an arthroscopic shaver for veterinary medicine based on a novel technical idea and concept draft. Redesign of the 6-parts assembly to create a print-as-one solution with the twin shavers, gear set, body, clip and outer shell.

Solution and added value

- print-as-one solution instead 6-parts assembly
- improved functionality by sturdy design
- integrated water flushing and suction channels for shavings
- integrated channel for lighting
- single part production without assembly
- less total cost for the final part
- reduced lead time to market availability
- diameter: 6 mm



Micro Forceps / Gripper

Task

Conventional 5 parts assembly design has to be transformed to a print-as-one concept without assembly.

Solution and added value

- one piece instead of 5 single parts and multiple suppliers
- integrated channel for lighting
- single part production without assembly
- reduced lead time to market availability
- length: 20 mm
- diameter: 1.6 mm



Spot-jet Nozzle

Task

Reduction in acquisition costs and lead times by reducing the number of individually manufactured parts from 7 to 1.

Solution and added value

- print-as-one solution instead of 7 parts assembly
- reduced quality inspection and post processing steps
- improved functionality with self alignment feature and printed M3 fixing thread
- all stainless steel without galvanic corrosion issues
- production cost reduced by 60 %
- lead time reduction from 6 weeks to 2 days

