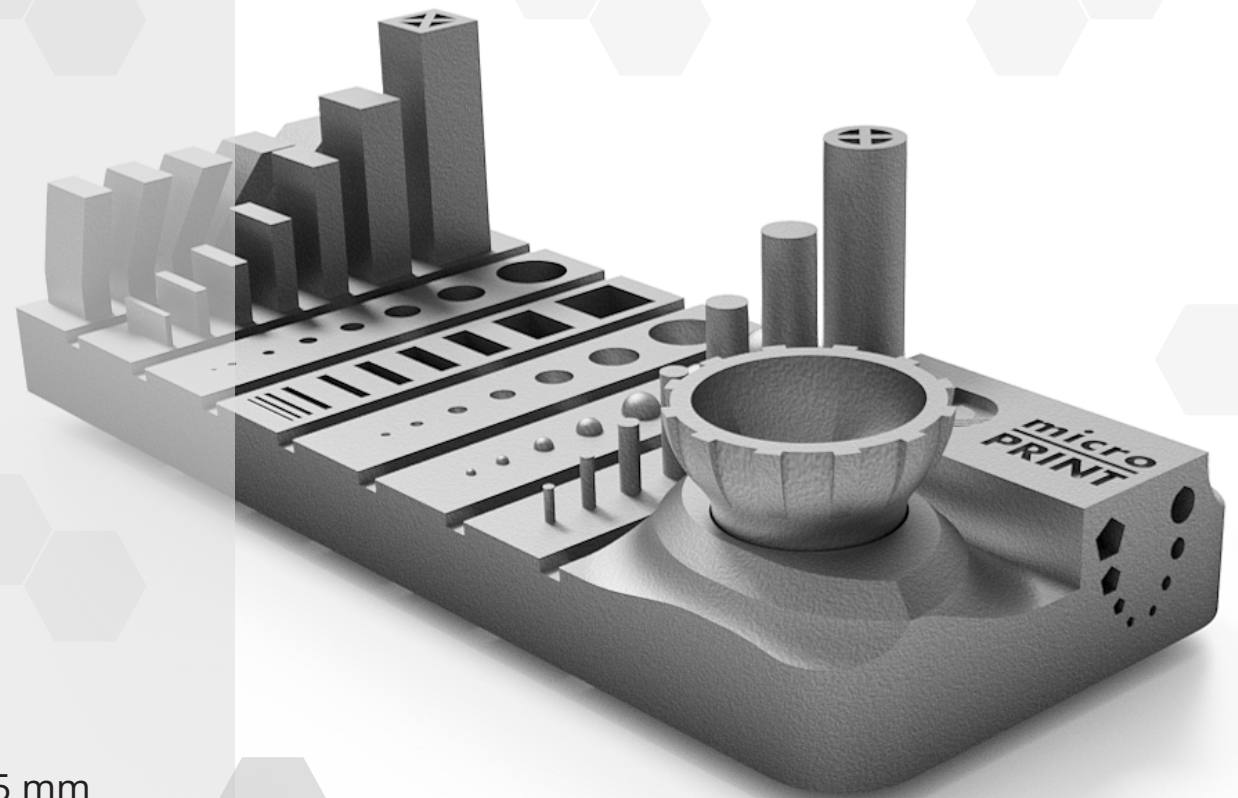


## Benchmark Part

3D MicroPrint metal benchmark part to show various feature capabilities und technical specifications:

maximum load build plate	6 parts
printing time/part	32 min
component density	>99 %
layer thickness	9 $\mu\text{m}$
number of layers	~ 450
material	Stainless Steel 1.4404
material consumption/part	2 g
surface	Ra 2 - 3 $\mu\text{m}$
total size of the part	19.1 x 8.0 x 5.5 mm



### 1. Wall thickness

The thicknesses of the 7 walls vary from 0.15 mm to 1.20 mm. To further reduce print volume, the biggest wall feature is hollowed with reinforcement elements - offers stability, print volume reduction for lightweight purposes or fluid applications.

### 2. Vertical holes

The holes have a diameter of 0.10mm, 0.15 mm, 0.20 mm, 0.30 mm, 0.40 mm, 0.60 mm, 0.80 mm and 1.20 mm.

### 3. Gap

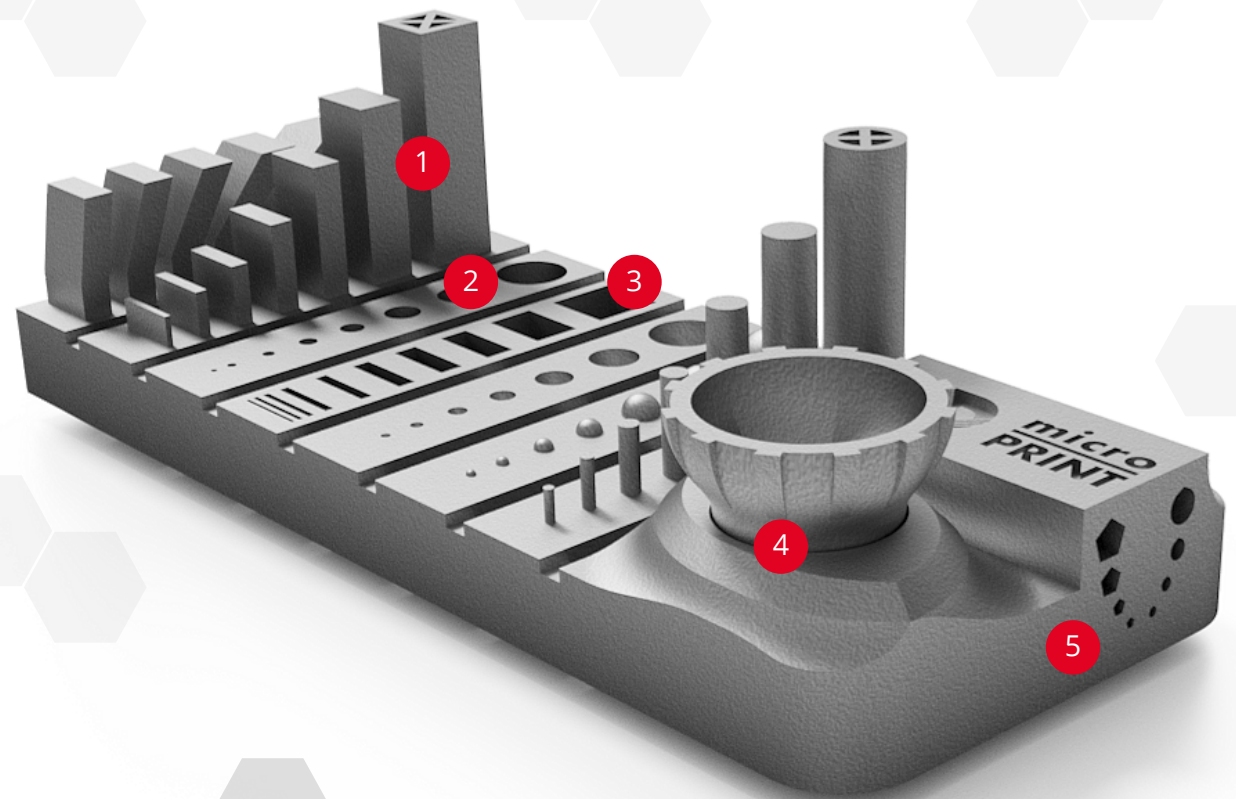
The smallest functional gaps can be achieved to realise the clearance fit of moving geometries. The dimensions of the gaps can be as small as 50  $\mu$  in diameter.

### 4. Function integration

Elements such as the moveable and rotatable pin joint can be printed together in one process.

### 5. Horizontal holes

Shape like gothic arch or drop and hexagonal-shape has a self-supporting function. A great advantage, especially for channels. The smallest internal channels have a diameter of 0.15 - 0.5 mm.



1 mm

## 6. Pins

The seven pin diameters vary from 0.15 mm to 1.2 mm. To further reduce print volume, the biggest pin feature is hollowed with reinforcement elements - offers stability, print volume reduction for lightweight purposes or fluid applications.

## 7. Half sphere - Stair effect

Due to our precise resolution, we have a very low stair effect. Basically, the lower the layer thickness, the less the stair effect. The radius of the half sphere are 0.08 - 0.6mm.

## 8. Overhangs

The overhangs on the component are 80°- 40°. Depending the material support free construction of overhangs with an angle down to < 30°, is possible.

## 9. Inner structure

One of the greatest benefits of 3D printing is the ability to produce complex internal structures that add functional engineering value.

## 10. Surface as printed

The as printed, unblasted surface has a surface roughness of 2 - 3  $\mu\text{m}$ .

