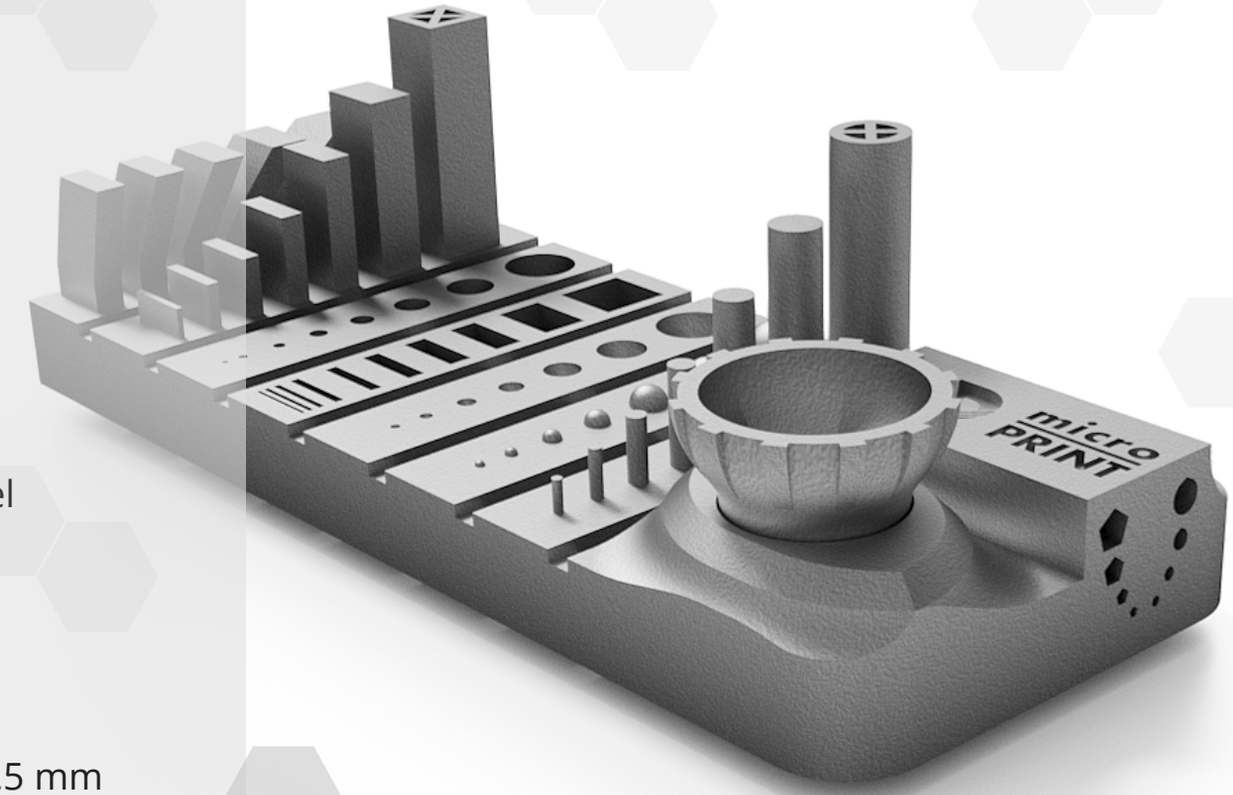
Benchmark Part

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 µm
number of layers	~ 450
material	Stainless Steel 1.4404
material consumption/part	2 g
surface	Ra 2 - 3 µm
total size of the part	19.1 x 8.0 x 5.5 mm



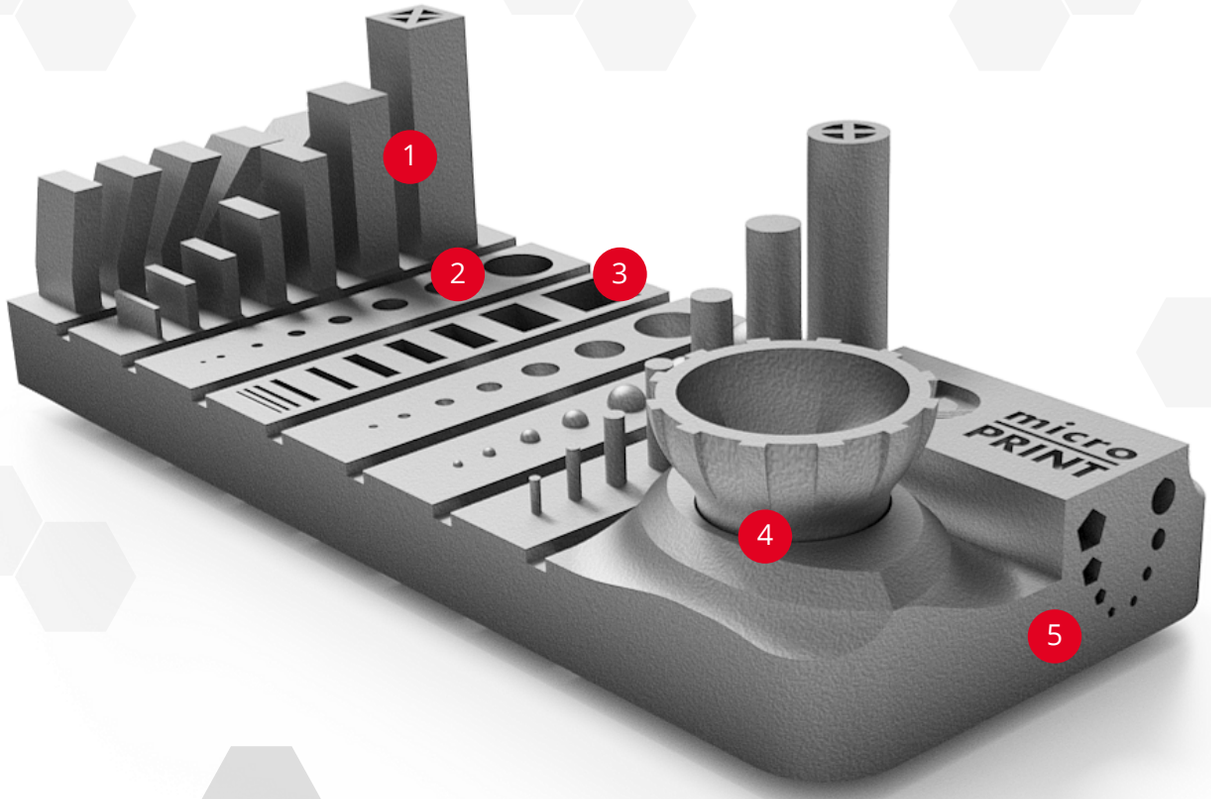
1. Wall thickness
The thicknesses of the 7 walls vary from 0.15 mm to 1.20 mm. To further reduce print volume, the biggest wall feature is hollowed with reinforcement elements - offers stability, print volume reduction for lightweight purposes or fluid applications.

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 µ 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.



10 mm

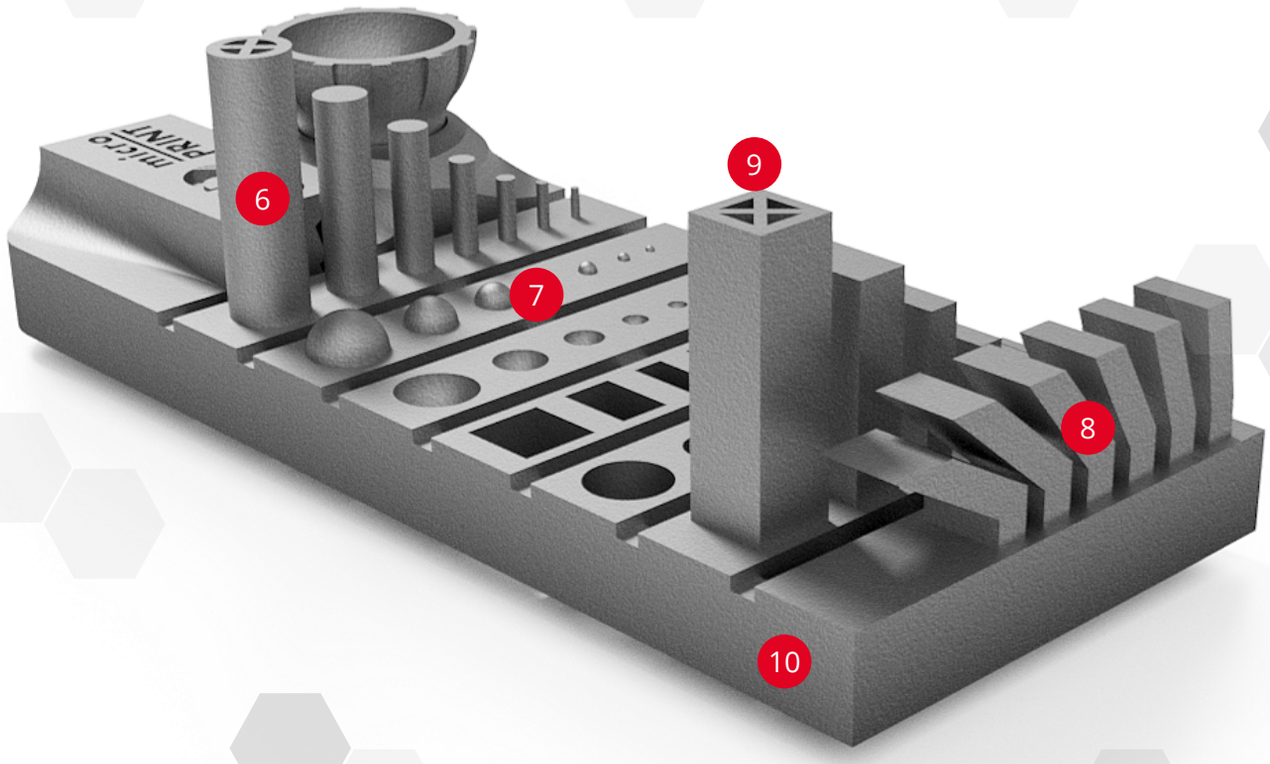
6. Pins
The seven pin diameters vary from 0.15 mm to 1.2 mm. To further reduce print volume, the biggest pin feature is hollowed with reinforcement elements - offers stability, print volume reduction for lightweight purposes or fluid applications.

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 µm.



10 mm