



## New Testing Methods for Microprinting



*“The high flexibility of the manufacturing technology and the fine tolerances were major advantages for the application planned by UpNano. Due to the great lithography network of Vienna University of Technology, it was evident that this test setup would be realized with the innovative technology from Incus.”*



**Denise Mandt, Founder & Head of Marketing & Business Development, UpNano**

Comprehensive testing is essential in the design and the development of new materials to make the translation from research to customer applications. In materials science, the physical testing methods are well established and standardized. However, to fit the needs for novel manufacturing processes, such as Micro- and MesoPrinting by

UpNano, the testing methods need to be adapted. As printed parts are scaled down in size, the dimensions of testing specimens need to be adapted accordingly. With the aim to bridge the gap between microprinting, mesoprinting and nanoprinting, UpNano expands the size scale of accessible printed parts. In scaling down test specimens accordingly, well defined material performance at low dimensions can be guaranteed.

The stamp and the die used in the UpNano test method are designed to be multi-functional and integrate four three-point-bending test arrangements into one setup, making this method the “Swiss army knife of 3-point bending”. The Incus metal 3D-printing approach was the ideal production technology for UpNano, as it enables the quick redesign and production of the parts needed for the test setup.

The Incus technology offers additive manufacturing at the highest resolution with the ability to use the parts without comprehensive post-processing, producing a functional component directly after the sintering step. These aspects set Incus apart from other metal AM providers and provided a more cost efficient and flexible material testing suited for the needs of UpNano.

### **UpNano**

### **GmbH**

*Founded in September 2018 as a spin-off of Vienna University of Technology, UpNano is a Vienna-based high-tech company with focus on development, manufacturing and commercialization of high-resolution 3D-printing systems based on two-photon polymerization. With the first commercial product, the printing system NanoOne, microparts with structure details  $\geq 170$  nm can be printed. Due to the very fast printing process, also meso scale parts up to several centimeters in height can be realized.*

### **Incus**

### **GmbH**

*Incus GmbH is an Austrian engineering company founded in 2019 and a system provider for the unique Lithography-based Metal Manufacturing (LMM) technology. The novel 3D-printing process developed by Incus offers an economic method for prototyping and the small to mid-scale production of components in metal injection moulding (MIM) quality.*

#### **Incus GmbH**

Christine-Touaillon-Str. 11 / Top 18  
Technologiezentrum Seestadt / Building 2  
AT - 1220 Vienna



+43 1 280340 – 311



office@incus3d.com

[www.incus3d.com](http://www.incus3d.com)

Oberbank AG

Acc.: 4601-0266.20, BLZ 15 000

IBAN: AT54 1500 0046 0102 6620 | SWIFT / BIC: OBKLAT2L  
FN517175b | Commercial Court Vienna | UID: ATU 74751315