

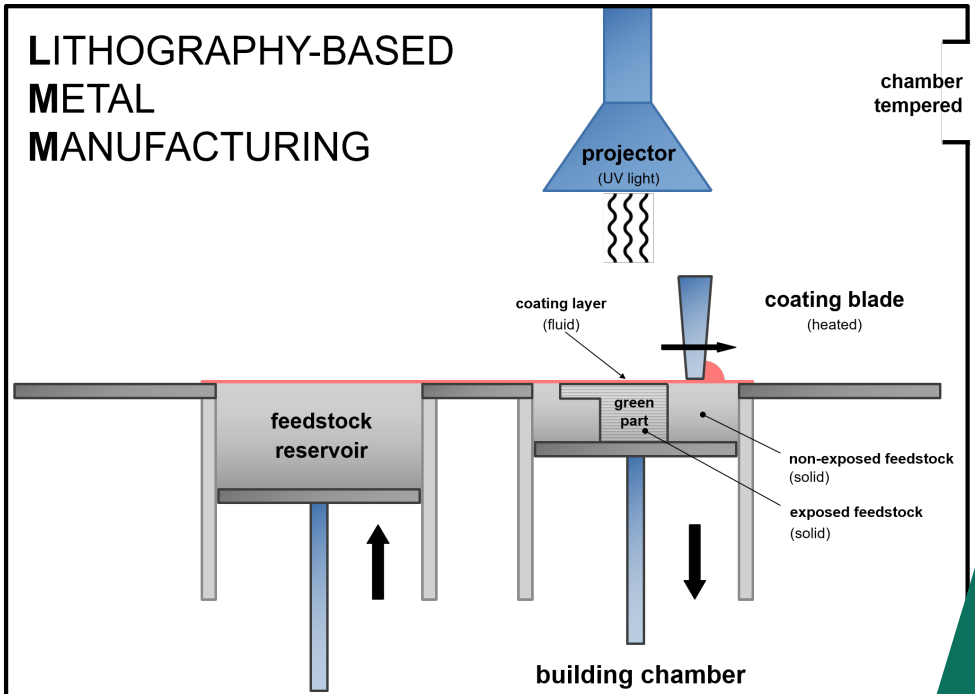


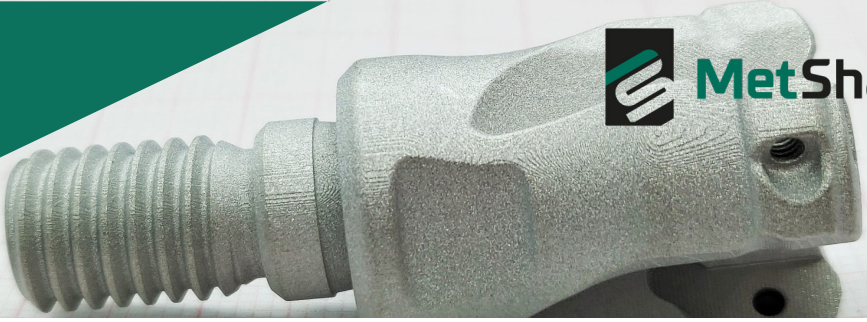
# LITHOGRAPHY-BASED METAL MANUFACTURING

## PROCESS DESCRIPTION

In the first process stage, a high-precision green part is produced based on the photopolymerization principle. The starting material, the so-called feedstock, is a combination of metal powder and photosensitive polymer binder, which is applied in layers with a heated blade. Through a projector exposure (DLP), which allows a precise and fast exposure of an entire layer surface, the photosensitive binder is local-

ly polymerized and in this way the metal powder is bound. Gradual lowering of the building platform results in a three-dimensional green part layer by layer. The green part is transferred to the sintering furnace, where in the first step the polymeric binder is removed thermally. In a second step, the now fully metallic green part is sintered to its final density.





## SPECIALITIES

Due to its precision, LMM technology is particularly suitable for small and very small metallic components. With layer thicknesses of up to 50 µm, minimum wall thicknesses of approximately 0.1 mm and micro-borers with a minimum diameter of 100 µm can be realized. With LMM technology, no support structures are required for the printing process, as the supporting capability of the feedstock enables a three-dimensional arrangement of components in the entire

building space. This allows optimum use of the build chamber, resulting in high cost-effectiveness.

As LMM needs no support structures, time consuming reworking is not necessary. The components are removed from the building space in the form of a feedstock block. The green parts contained therein are extracted by a simple low-temperature demoulding process without manual intervention.



## ADVANTAGES OF LMM TECHNOLOGY

- Wide range of materials
- No thermal stresses
- Highest precision and resolution
- Very good mechanical properties
- No support structures required for the printing process
- Production of component overhangs
- Three-dimensional arrangement of the components in the building space allows optimum use of the building space
- Processing of non-weldable materials possible (e.g. hard metals)

