



## 1 GENERAL SYSTEM DESCRIPTION

The Gekonn LMP200 is an industrial metal 3D printing system designed for demanding engineering applications where precision, repeatability, and process adaptability are critical. It is based on Laser Powder Bed Fusion (LPBF / SLM) technology and enables the production of complex metal components directly from a digital model, without the need for conventional manufacturing processes.

The system is specifically optimized for:

- tooling
- functional prototyping
- product development and validation
- small-batch and specialized production

## 2 INDUSTRIAL APPLICATIONS

Tooling

- production of injection molding inserts
- conformal cooling channels for improved thermal management
- rapid production of tools for pilot or test series
- repair and optimization of existing tools

Benefits:

- shorter development cycles
- improved tool productivity
- optimized service life

Functional prototyping

- mechanically loaded prototypes
- design validation before serial production
- manufacture of complex geometries without compromise

Benefits:

- real mechanical properties comparable to serial-production materials
- rapid development iteration
- reduced development costs

Small-batch production

- production of specialized metal components
- individualized products
- on-demand spare parts manufacturing

## 3 PROCESS TECHNOLOGY

Parameter	Description
Build area	Fi 125 mm
Tehnology	Laser Powder Bed Fusion (LPBF)
Laser	Yb Fiber laser
Power	200 W
Beam diameter	-50 µm
Scanning speed	up to 7 m/s

The tehnology enables the production of topologically optimized structures, weight reduction, and the integration of multiple functions into a single part.

#### 4 PROCESS FLEXIBILITY AND OPEN SYSTEM

The Gekonn LMP200 is designed as an open industrial system, clearly positioning it in the segment of advanced AM solutions.

Software compatibility

- compatible with most industrial slicer software on the market
- support for standard CAD/CAM formats (STL, 3MF)
- easy integration into existing production processes

Multi-level workflow

The system can be used according to the user's expertise and requirements:

- Operator level (production mode)
  - predefined materials and parameters;
  - stable and repeatable production
- Engineering level (engineering mode)
  - adjustment of key process parameters;
  - optimization according to the application
- R&D level (open parameter access)
  - full access to process settings;
  - development of new materials and processes

Process parameter customization

Users can individually adjust:

- laser power
- scanning speed
- hatch spacing
- scanning strategies
- layer thickness
- energy density

This enables

- optimization of mechanical properties (strength, density)
- control of the material microstructure
- adaptation to specific industrial requirements

#### 5 MATERIALS

Supported materials:

- tool steels (for tooling)
- stainless steels
- titanium alloys
- aluminum alloys
- CoCr
- nickel-based superalloys

Suitable for applications requiring:

- high strength
- wear resistance
- temperature stability

#### 6 POWDER SYSTEM (INDUSTRIAL SAFETY)

Parameter	Description
Type	closed system
Atmosphere	internal
Gases	argon / nitrogen
O <sub>2</sub> level	≤ 100 ppm*
Material utilization	up to 95 %

\*Optional installation of a laboratory sensor ≤10 ppm

The system has an integrated powder recycling system operating under protective gas, ensuring excellent powder quality and optimal utilization.

This ensures:

- safe handling of reactive materials
- stable powder quality
- production repeatability (process validation)

#### 7 PRODUCTIVITY AND QUALITY

- layer thickness: 15 - 100 μm
- high material density
- fine surface quality
- high dimensional accuracy

The system enables the production of functional industrial components suitable for real-world use.

#### 8 SYSTEM AND MONITORING

- HMI (touchscreen)
- integrated camera
- real-time monitoring
- remote access
- remote diagnostics

#### 9 DIMENSIONS AND INTEGRATION

Parameter	Description
Dimensions	770(l) × 960(d) × 1950 mm(h)
Weight	~400 kg
Power supply	230 V, 50-60 Hz

The compact design allows:

- easy integration into production
- use in laboratories or workshops
- rapid system installation

#### 10 KEY INDUSTRIAL ADVANTAGES

- optimized for tooling and functional parts
- open system for development and research
- compatibility with industrial slicer software
- multi-level workflow (operator -> R&D)
- high process repeatability
- reduced product development time
- cost-effective small-batch production