LMP 300

Industrial Metal Additive Manufacturing System

1 GENERAL SYSTEM DESCRIPTION

The Gekonn LMP300 is an industrial metal 3D printing system designed for demanding engineering applications where precision, repeatability, and process flexibility are essential. 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 trial series
- repair and optimization of existing tools

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

Functional prototyping
- mechanically loaded prototypes
- validation of designs before serial production
- production of complex geometries without compromise

Benefits:
- real mechanical properties (comparable to 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	300 mm x 300 mm
Technology	Laser Powder Bed Fusion (LPBF)
Laser	Yb Fiber laser
Power	up to four 400 W
Beam diameter	dynamic 50 - 100 µm
Scanning speed	up to 9 m/s

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

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4 PROCESS FLEXIBILITY AND OPEN SYSTEM

Tthe Gekonn LMP300 is designed as an open industrial system, which clearly positions it in the segment of advandec AM solutions.

Software compatibility
- compatible with most industrial slicer software on the market
- support fot 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 knowledge and requirements:
- Operator level (production mode)
  - predefined materials and parameters;
  - stable and repeatable production
- Engineering level (engineering mode)
  - adjustment of key process prameters;
  - optimization according to the application
- R&D level (open parameter access)
  - full access to process settings;
  - development of new materials nad processes

Process parameter customization
Users can indicidually adjust:
- laser power
- scanning speed
- hatch spacing
- scanning strategies
- layerthickness
- energy density

This enables:
- optimization of mechanical properies (strenght, density)
- control of material microstructure
- adaptation to specific industrial requirements

5 MATERIALS

Supported materials:
- tool steels (for tooling)
- stainless steels
- titanium alloys
- aluminum alloys
- CoCr
- nickel superalloys

Suitable for applications requiring:
- high strength
- wear resistance
- temperature stability

6 POWDER SYSTEM (INDUSTRIAL SAFETY)

Parameter	Description
Type	closed systmem
Atmosphere	internal
Gases	argon / nitrogen
O_2 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 a protective gas atmospher. It ensures excellent powder quality and optimum material utilization.

Provides:
- 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 CONTROL

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

9 DIMENSIONS AND INTEGRATION

Parameter	Description
Dimensions	2050(l) × 890(d) × 2550 mm(h)
Weight	~650 kg
Power	380 V, 50-60 Hz

The compact design enables:
- 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 slicers
- multi-level workflow (operator R&D)
- high process repeatability
- reduced product development time
- cost-effective small-batch production