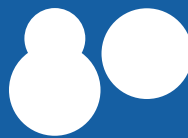




ROSATOM
ADDITIVE
TECHNOLOGIES



75
YEARS
OF RUSSIA'S
NUCLEAR INDUSTRY

RUSMELT 600M

SLM System for Metal 3D Printing



RusMelt 600M

The machine is designed for manufacturing metal parts with dimensions up to 600×600×600 mm using the Selective Laser Melting (SLM) method from metal powders based on stainless steels, heat-resistant nickel alloys, cobalt-chrome, aluminum, and titanium alloys.

Main advantages

- ▶ Large build volume in the 3D printer segment
- ▶ Stable part printing parameters
- ▶ Intelligent melt pool monitoring system
- ▶ High printing speed
- ▶ Easy part removal and cleaning
- ▶ Reliable machine operation and easy maintenance thanks to modular design

Printing materials

- ▶ Stainless steels (12Cr18Ni10T, AISI 316L, H15N5D4B or equivalents)
- ▶ Heat-resistant nickel alloys (VZh159, KhN55M3B5TYu or equivalents)
- ▶ Titanium alloys (VT1-0, VT6, PT-3V or equivalents)
- ▶ Aluminum alloys (AK9ch or equivalents)
- ▶ Cobalt-chrome alloys (KH28M6 or equivalents)

Fields of application



Aviation and space industries



Nuclear industry



Oil and gas industry



Shipbuilding



Automotive industry and others



Main characteristics of RusMelt 600M

Build area (in X-Y-Z axes)	600x600x600 mm
Type of laser used	ytterbium fiber single mode (TEM00) laser
Number of lasers used	4
Power of lasers used	500/700/1000W (optional)
Type of scanning optical system	three-axis scanning system with dynamic focus along the Z axis
Nominal laser beam spot diameter (focal plane)	85±5 μm
Laser radiation parameters	wavelength 1070±10 nm; beam quality M2 no more than 1.2
Maximum scanning speed of the laser beam	10 m/s (along the plane of the worktable)
Positioning accuracy of the laser beam along the plane of the worktable (along the X-Y axes)	at least 20 μm
Adjustable layer thickness	in the range of 20÷200 μm
Minimum element size	85 μm
Build platform heating	up to 200 °C
Fusion performance (per laser)	at least 40 cm ³ /h
Video surveillance system for the printing process	real-time, (1080p, 60 frames per second)
Energy consumption of the machine	45 kW
Area occupied by the machine, dimensions (W×H×D)	11900×6700×5300 mm
Machine weight	not more than 15000 kg
Software	a set of software for setting mode parameters, visualizing active controls and the current state of the build process, maintaining logs of the printing and equipment event log

Company services

As part of Rosatom's Additive Technologies business line, Additive Technology Centers have been established as integrated engineering and production hubs. These centers serve as demonstration and manufacturing sites, offering access to advanced 3D printing technologies, helping solve complex industrial challenges, and driving innovation across diverse sectors.



3D scanning

3D scanning is the process of creating a digital copy of a physical object, enabling the generation of highly accurate 3D mathematical models. The use of 3D scanners is effective for replicating unique, one-of-a-kind parts and for restoration and repair work.



Audit of enterprises for the implementation/optimization of additive technologies

Services for the implementation of additive technologies in enterprises: analysis and development of recommendations on how to restructure production chains and maximize the benefits of adopting additive manufacturing.



Topological optimization of the part

Topological optimization is the process of optimizing product development through digital modeling. This approach allows standard part geometry to be adapted for additive manufacturing while preserving and even enhancing the functionality of the final product.



Additive Technologies R&D

Research and development (R&D) work on the design of equipment for additive technologies, the creation of new materials for 3D printing and their manufacturing methods, and the improvement of integrated printing and post-processing regimes.



3D printing

Additive Technologies Center provides 3D printing services for metal and polymer parts of varying complexity and volume. The work is carried out using in-house developed equipment and systems from partner companies.



Service maintenance of equipment

Warranty and post-warranty service for additive manufacturing equipment, both in-house and third-party produced. Services include diagnostics, troubleshooting, and repair of additive systems.






Post-processing

The equipment at the Additive Technologies Center allows the heat treatment of workpieces after a 3D printing cycle, finishing the external and internal surfaces of products (including internal complex-profile channels and cavities).



Trainings and education

Training programs in Additive Manufacturing – from theoretical foundations to practical application, including 3D scanning and software usage.

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