SLM SOLUTIONS

SLM®800

Selective Laser Melting Machine

High-Performance Machine
for Large Components
with Manual and Full Automation Options

SLM®800 Selective Laser Melting Machine

With an extended z-axis **build envelope measuring 500 x 280 x 850 mm** and available in a quad-laser configuration with four 400 W or 700 W lasers, the SLM®800 efficiently builds large components at up to 171cm³/h. This efficient build rate and large build envelope, combined with **integrated powder handling** and the design freedom afforded by selective laser melting, open new possibilities **for large-scale production parts.**

A clean process chamber is essential to successful builds with acceptable mechanical properties, especially in a process chamber where longer build times increase the amount of soot in the chamber. The **optimized inert gas flow** of the SLM®800 efficiently removes soot from the build chamber, ensuring excellent process conditions. With a continuous stream through a sintered chamber wall, the enhanced gas flow creates constant conditions at the work surface as well as protecting the beam entry glass from contamination to not hinder the lasers.

The SLM®800 is also equipped with a **Permanent Filter Module** to further maintain a clean process chamber resulting in consistent atmosphere conditions that ensure **optimal build quality.**

Offered with a manual unpacking station for single-machine setups, the SLM®800 combined with the SLM®HUB fully automated handling station maximizes machine uptime and offers a **no-contact powder solution** for production processes.

Technical Specifications

Build Envelope (L x W x H)	500 x 280 x 850 mm incl. substrate plate thickness 25mm
3D Optics Configuration	Quad (4 x 400 W) Quad (4 x 700 W) IPG Fiber Laser
Build Rate (Twin 700 W)	up to 171 cm³/h*
Variable Layer Thickness	20 µm - 90 µm
Min. Feature Size	150 µm
Beam Focus Diameter	80 - 115 µm
Max. Scan Speed	10 m/s
Average Inert Gas Consumption in Process	5 - 7 l/min (argon)
Average Inert Gas Consumption Purging	70 l /min (argon)
E-Connection / Power Input	400 Volt 3NPE, 64 A, 50/60 Hz, 8-10 kW
Compressed Air Requirement / Consumption	ISO 8573-1:2010 [1:4:1], 50 l/min @ 6bar
Dimensions (L x W x H)	dependent on setup

Machine configuration for all types of metal powders /
Technical changes reserved

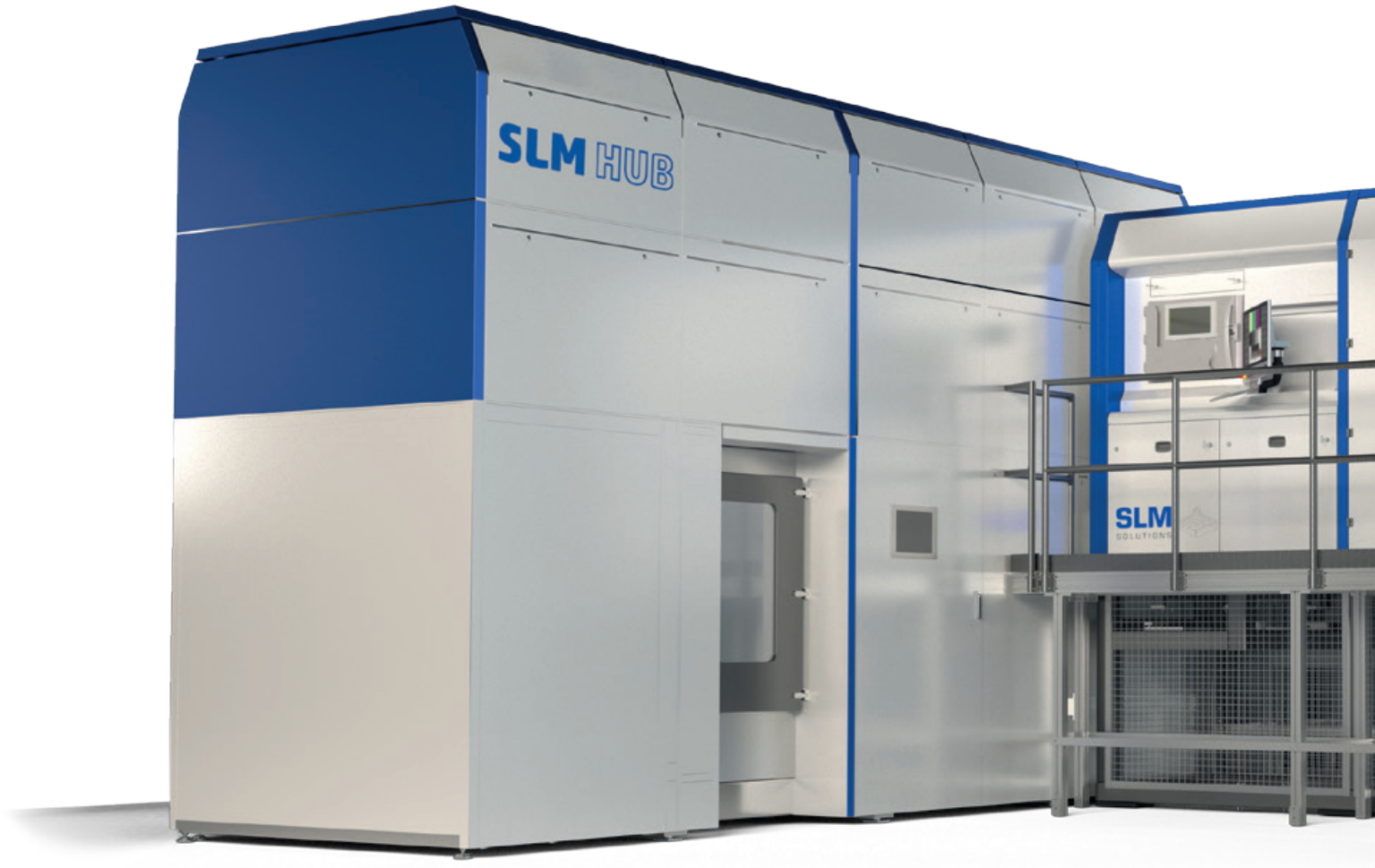
*depending on material and part geometry

Customizable Unpacking Solutions

PRS 800

For single machine operation the PRS 800 is available for the **manual unpacking of the build cylinder.** After the completion of a build the build cylinder is removed from the machine and into an unpacking station across a linear axis. The powder is manually removed from the build with an integrated blasting tool and vacuum operated through a glovebox in the unpacking station. The inert atmosphere of the PRS 800 and powder management system ensures the **quality of the powder** is maintained for future builds and minimizes any potential powder contact by the operator.

The PRS 800 offers users a manual **entry into large-scale part production**. The basic unpacking station is upgradeable to the SLM®HUB to facilitate ease-of-use and minimize machine downtime when ramping up to production or integrating a multi-machine setup.



SLM®HUB

The SLM®800 reaches peak performance when paired with the SLM®HUB **fully-automated handling station.** This integrated solution features automated transport of build cylinders with dedicated locations for pre-heating and cooling in an inert atmosphere. The SLM®HUB also removes manual powder handling from the production process with a centralized powder supply and a powder removal chamber that rotates and vibrates the finished substrate plate to automatically separate all unused powder from the finished part and recycle it back to the sieving station for reuse in future builds. All machines connected to the SLM®HUB are fed metal powder through vacuum technology from the central powder station creating a completely closed-loop powder management system.

Up to **five SLM®800 systems** can be modularly connected to and operated from a single SLM®HUB. With a build cylinder magazine (BCM) multiple build cylinders can be handled in parallel to **optimize machine uptime** and **scale to full production.**

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Quality Assurance of the Production Process

A comprehensive monitoring and quality assurance system enables a **high degree of process documentation and verification.** The Additive.Quality product family is key to a controlled, high-quality build.

Melt Pool Monitoring (MPM) is an available on-axis tool for visualizing the melt pool in the SLM® process. Data from MPM can be used as a resource for efficiently developing and evaluating the process parameters. In the production of safety-critical parts, the data collected serves as documentation for quality assurance in the production process. The recorded data enables conclusions to be drawn regarding irregularities during fusion, which can lead to anomalies in the manufactured parts.

Laser Power Monitoring (LPM) is an available on-axis monitoring system that continuously measures and documents target and actual emitted laser output throughout the production process. On the one hand, the module can be used as an early warning system for preventing machine downtime with targeted measures when irregularities occur. On the other hand, it makes an important contribution to quality assurance thanks to its process documentation.

Layer Control System (LCS) is a testing and documentation system that examines the performance of each powder layer. Developed specifically for the SLM® process, it monitors the powder bed and detects possible irregularities in coating. The LCS visually detects powder preparation and execution after each cycle and, if necessary, reacts before damage occurs in the process.

Software Solution – Additive.Designer®

A scalable software solution for the **easy data preparation** of complex components, Additive.Designer® offers **full process-chain integration** with each step from machine selection to post-processing taken into consideration during data preparation. The **intuitive user interface** offers efficient and simple data preparation, in addition to the software's optimized part orientation guidance, and SLM Solutions' unique support structures. For users scaling to series-production Additive.Designer® offers production management options such as administration via web browsers, user rights management and processes traceability.

About SLM Solutions

The Lübeck-based SLM Solutions Group AG is a leading provider of metal-based additive manufacturing technology. SLM Solutions focuses on the development, assembly and sale of machines and integrated system solutions in the field of selective laser melting.

SLM® technology offers diverse options in the metal-based additive manufacturing of parts, such as a new design and geometric freedom, lightweight construction through the reduction of metal part weight, significant advantages in terms of production speed and the manufacturing of internal undercut parts in low quantities.

Our products are utilized globally by customers from the most varied sectors, particularly in the aerospace, automotive, tooling, energy and healthcare industries, as well as in research and education.

They particularly value the following advantages of our technology partnership:

- Highest **productivity** using patented multi-laser technology
- Highest material density and **part quality** through our innovative gas stream management
- Completely closed **powder management** in an inert gas atmosphere
- Cutting-edge process monitoring using various **quality control modules**
- Multilingual open **software architecture** with customer adaptability
- Ultracompact **modular design**
- Long-term and **confidential customer relationships**
- **A technological leader and pioneer** in metal-based additive manufacturing with decades of market experience

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