

# SLM<sup>®</sup> 280 PS

SELECTIVE  
LASER MELTING



**MULTIPLE LASERS AND  
PROCESS STABILITY**



**2x 700W**



**280MM**  
X-AXIS

**280MM**  
Y-AXIS

**365MM**  
Z-AXIS



# PREMIUM QUALITY AND HIGHEST PRODUCTIVITY

Welcome to the SLM®280 - Our mid-size platform covering all needs from first steps in the world of metal AM all the way up to production systems. With a build envelope of 280 x 280 x 365 mm<sup>3</sup>, the SLM®280 product family offers a 25% larger build plate than comparable machines. Shifting gears to the next level of reliable, mid-size production - the SLM®280 PS (short for Production Series). The same philosophy as the SLM®280 2.0, but with automated powder handling and integrated process gas filtration allow the professional user to concentrate on production. Maximizing uptime by prolonged filter lifetimes, vacuum unpacking, and sufficient powder reservoir for multiple builds. Welcome to metal AM production.

## **LARGER BUILD CHAMBER AND MULTIPLE LASERS INCREASE PRODUCTIVITY WITHOUT SACRIFICING BUILD QUALITY**

With a build plate 25% larger than standard mid-sized machines to fit more parts per build, high-power and multi-laser machines further promote production-oriented additive manufacturing. The leader in systems, Nikon SLM Solutions offers a patented multi-laser scan strategy to minimize soot interference, alter layer stitching and deliver results with the same density and mechanical properties as single-laser builds.

## **OPEN ARCHITECTURE PUTS SELECTIVE LASER MELTING USERS IN CONTROL; YOUR POWDER, YOUR PARAMETERS**

This gives users the freedom to source qualified metal powder from Nikon SLM Solutions or from their own supplier, as well as the flexibility to develop new alloys. The integrated SLM® Build Processor and open software architecture offer the freedom to run standard parameters or optimize them to meet specific production needs and gain a competitive advantage. Refined parameters and an identical bench allow processes to be directly transferred to other machines, such as scaling up to SLM®500.

## **POWDER MANAGEMENT**


PSV is our automated powder management solution designed for continuous production. It stores, sieves, and transports powder to and from the machine using an efficient vacuum-based conveying system. The entire process operates under fully inert conditions, preventing powder oxidation, ensuring the best part quality, and maintaining the highest level of safety. The reservoir tank holds up to 90 liters of powder, sufficient for several full-height build jobs. Integrated scales provide the operator with current fill levels, and dew point sensors monitor and log relative humidity. Specifically for the SLM®280 PS, PSV also functions as an integrated depowdering solution, enabling fast and safe powder removal after a build job using an integrated vacuum hose.

## **FREE FLOAT**

Free Float's breakthrough technology empowers the creation of previously impossible designs and fewer costs by eliminating support structures and allowing more complex designs. It brings together the best of the best, culminating in a fully proven and validated functional part.

## **INDUSTRY-LEADING GAS FLOW DELIVERS QUALITY**

**TWO  
700  
WATT  
LASERS**



# POWERFUL AND COMPACT

## TECHNICAL SPECIFICATIONS



<b>BUILD ENVELOPE (L x W x H)</b>	280 x 280 x 365mm <sup>3</sup> , reduced by substrate plate thickness
<b>3D OPTICS CONFIGURATION</b>	Twin (2x 700W)
<b>THEORETICAL SYSTEM BUILD RATE</b>	up to 173 cm <sup>3</sup> /h*
<b>VARIABLE LAYER THICKNESS</b>	20 - 90 µm, more available on request
<b>MINIMUM FEATURE SIZE</b>	150 µm
<b>BEAM FOCUS DIAMETER</b>	80 - 115 µm
<b>MAXIMUM SCAN SPEED</b>	10 m/s
<b>AVERAGE INERT GAS CONSUMPTION IN PROCESS</b>	13 L/min (Argon)
<b>AVERAGE INERT GAS CONSUMPTION IN PURGING</b>	160 L/min (Argon)
<b>E-CONNECTION / POWER INPUT</b>	400 Volt 3NPE, 63 A, 50/60 Hz, 6.1.5 kW
<b>COMPRESSED AIR REQUIREMENT</b>	ISO 8573-1:2010 [1:4:1] 7 bar
<b>MACHINE DIMENSIONS (L x W x H)</b>	4150 x 1170 x 2525 mm <sup>3</sup>
<b>GAS FILTRATION</b>	PFM (Permanent Filter Module)

\*Theoretical system build rate = layer thickness x scan speed x hatch distance x number of lasers. The value represents a com-parable indicator but remains a theoretical value after all. It does expressly not reflect true build rates, which are influenced by part geometry, ratio between hatch and contour areas, area of exposure, recoating times, and more.



# SLM<sup>®</sup>280 PS

## POWERFUL AND COMPACT

1

The patented, enhanced gas flow, flowing through a sintered wall, creates a clean process environment to increase build quality, and also reduces consumption, an important cost.

2

The permanent filter module traps soot in a sintered plate filter and coats the waste material with an inhibitor for dry disposal. Machine uptime is increased, gas flow is stabilized, and consumable costs are reduced while increasing safety.

3

The automated Powder Supply Vacuum (PSV) uses independent routes to supply sieved powder directly to the SLM<sup>®</sup>280 during a build and allows unpacking through a glove box sending powder back to the PSV at the completion the process for closed-loop powder handling. Powder transport, sieving and storage is contained within an inert gas atmosphere to maintain material quality.





# INNOVATION BECOMES STANDARD

## **QUALITY ASSURANCE OF THE SELECTIVE LASER MELTING PROCESS**

Comprehensive monitoring and quality assurance enable a high degree of process documentation and verification. Chamber temperature, oxygen, gas flow and other variables are constantly monitored and logged. This level of process control results in consistent, high-quality builds.

## **LAYER CONTROL SYSTEM**

Layer Control System (LCS), standard with any SLM®280, is a testing and documentation system that examines the performance of each powder layer by monitoring the powder bed and detecting possible coating irregularities.

## **INNOVATION COMES STANDARD**

Nikon SLM Solutions is known as the innovation leader in selective laser melting, being the first to introduce both twin- and quad-laser production systems. Features such as bi-directional powder recoating to reduce manufacturing time, open powder architecture allowing use material from any supplier and full process parameter access for custom development come standard on every selective laser melting machine.

## **QUALIFIED MATERIAL SOLUTIONS**

Nikon SLM Solutions offers expert know-how that drives unique specifications to assure mechanical properties through the combination of machine, parameters and powder audited for composition, quality and flowability. Our material experts are always collaborating with customers to develop and source new alloys optimized for selective laser melting.

## **CONSULTATIVE DEVELOPMENT AND EXPERT KNOWLEDGE-SHARING**

Nikon SLM Solutions' consulting, applications, training and service teams put customer success first to ensure their return on investment is maximized. Our experts work with customers every step of their additive journey, from application identification and development to factory layout and full serial production ramp-up.



# TECHNOLOGY PIONEERS INNOVATION LEADERS



 **2000+ LASERS  
INSTALLED GLOBALLY**

 **9 CENTERS**

Country	City	Type
Germany	Lübeck	Management, Engineering, Production, Application
USA	Long Beach, CA	Application
USA	Greenville, SC	Production
Japan	Tokyo	Application, Sales
China	Shanghai	Sales
Singapore	Singapore	Sales
India	Bangalore	Sales
South Korea	Seoul	Sales
Italy	Bologna	Engineering

## NIKON SLM SOLUTIONS

The laser powder bed fusion process was the first to offer multi-laser systems, and all its selective laser melting machines offer patented quality, safety and productivity features. Taking a vested interest in customers' long-term success in metal additive manufacturing, Nikon SLM Solutions' experts work with customers at each stage of the process to provide support and knowledge-sharing that elevate use of the technology and ensure customers' return on investment is maximized. Optimally paired with Nikon SLM Solutions' software, powder and quality assurance products, the SLM® technology opens new geometric freedoms that can enable lightweight construction, integrate internal cooling channels or decrease time to market.

Nikon SLM Solutions Group AG focuses exclusively on metal additive manufacturing and is headquartered in Germany with offices in China, France, India, Italy, Singapore and the United States and a network of global sales partners.

GO FASTER.  
GO MULTI-LASER.  
GO END-TO-END.  
GO SUPPORT-FREE.  
GO INDUSTRIAL SCALE.  
GO BOLDER.  
GO FOR GOLD.  
GO **NIKON SLM SOLUTIONS.**



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