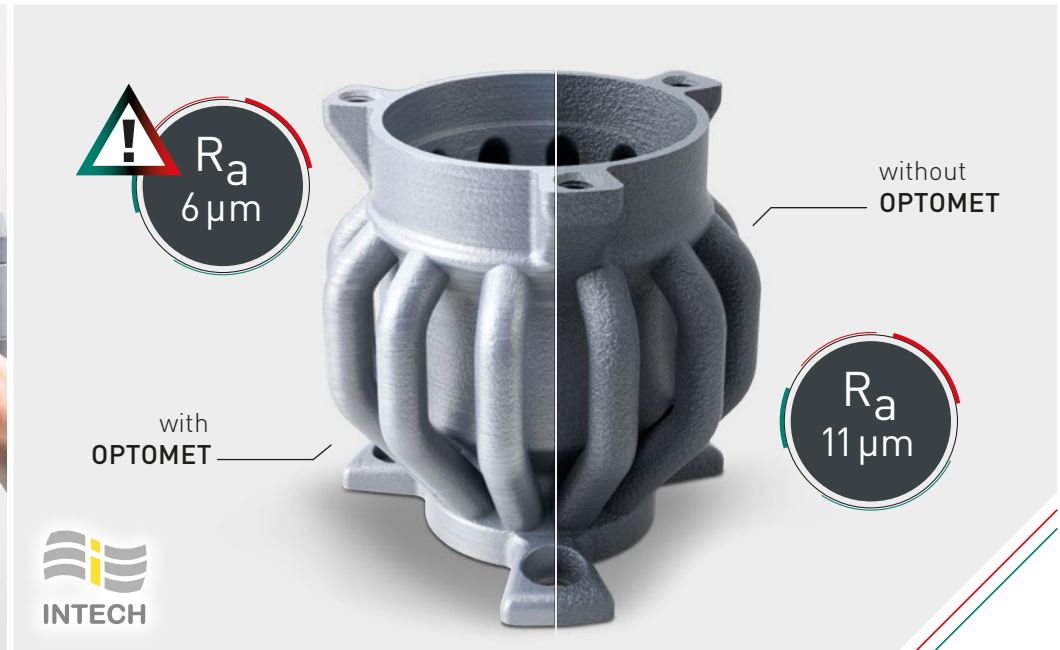


OPTOMET

NEW: OPTOMET – First time right

Parameter Optimization Software for SLM Technology





Highlights

Automatic calculation of process parameters in the powder bed process

- + **Parameter development** for new and existing materials within minutes instead of days
- + Up to **50% more efficiency** with OPTOMET Max. Power*
- + **Advance calculation** of mechanical properties for selected materials
- + **70% shorter material development cycles** with unrestricted choice of the material supplier
- + **Better after every print job** – “Machine learning” with integrated database

*Exclusive function for LASERTEC *SLM*

Create your own parameter sets by mouse click!

Calculation of:

1. Laser power
2. Scan speed
3. Hatch spacing

Each for:

- + Hatch
- + Up-/Downskin
- + Top-Skin
- + Outer-/Inner-Contour

Range of functions

Parameter development

Automatic process parameter calculation and optimization for new and existing Additive Manufacturing materials incl. advance calculation of the material properties and mechanical properties for OPTOMET standard materials:

- + Aluminum AlSi10Mg0.5
- + Stainless steel 1.4404
- + Stainless steel 17-4 PH
- + Tool steel 1.2709
- + Inconel 625
- + Inconel 718
- + Cobalt chrome
- + Titanium Ti64

INDIVIDUAL PARAMETER ADJUSTMENT FOR MAXIMUM FLEXIBILITY

- + **Change of layer thickness**
- + **Adaptation** of mechanical properties like density or hardness
- + **Parameter correction** for recycling powder
- + **Switching** to new powder suppliers for an unrestricted choice of material manufacturer



Powder Properties (PSD)		
D10	<input type="text" value="12"/>	µm
D50	<input type="text" value="28"/>	µm
D90	<input type="text" value="52"/>	µm
Peak	<input type="text" value="22.36"/>	µm
Mean	<input type="text" value="30.3"/>	µm
Apparent Density	<input type="text" value="4.53"/>	g/cm³
Flowability	<input type="text" value="1.24"/>	g/sec

Exclusive functions for LASERTEC *SLM*

OPTOMET Max. Power and Temperature Control

50 % INCREASED EFFICIENCY WITH
UNCHANGED COMPONENT QUALITY

- + **Optimized exposure strategies** by using the full laser power and adjusting the scan speed as well as hatch spacing
- + Optimum utilization of the machine performance with up to **50 % higher build-up rates**

OPTOMET TEMPERATURE CONTROL

Reduced residual stresses in the component due to active control of the build platform temperature for constant conditions at process level



Component quality

First time right

Consideration of powder and machine properties for perfect results

- + Chemical composition
- + Powder flowability
- + Powder density
- + Layer thicknesses for support and component
- + Focus diameter (min./max.)
- + Build platform temperature (max.)

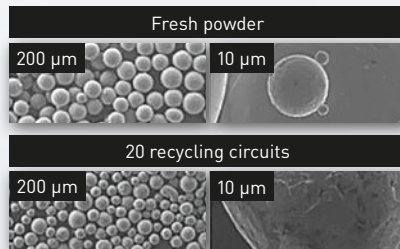
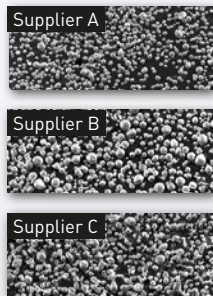
Advance calculation of the material properties and mechanical properties for selected materials*

1. Density
2. Hardness
3. Tensile strength
4. Yield strength
5. Elongation at break
6. Notch impact strength

*Currently only for OPTOMET standard materials

“Machine learning”

The integrated material database can be extended with the results of each material test and thus creates the basis for a self-learning machine, which keeps getting better with each print job.



Powder Properties (PSD)		
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Apparent Density	<input type="text" value="4.53"/>	g/cm³
Flowability	<input type="text" value="1.24"/>	g/sec

Hardware: *rePLUG reSEARCH*

70 % shorter material development cycles



OPTOMET ADVANCED + *rePLUG reSEARCH*

- + Perfectly coordinated **software and hardware** particularly for the material development
- + Minimization of required **material tests and machine runtime**
- + Optimized for **small material quantities** with cleaning times <1 day
- + **Parameter development** on the series system



Create your own parameter sets!
OPTOMET Advanced: Choice of any alloy compositions* by mouse click based on the periodic table



*Weldable materials within the chemical and physical limits/only in connection with OPTOMET Advanced Version

OPTOMET Basic and Advanced

Range of functions/material selection	Basic	Advanced
Automatic calculation of process parameters	✓	✓
Individual parameter adjustment and optimization	✓	✓
Advance calculation of mechanical properties*	✓	✓
OPTOMET Max. Power Function**	✓	✓
OPTOMET Temperature Control**	✓	✓
Machine Learning: Feedback of the measuring results to the local OPTOMET material database	✓	✓
OPTOMET standard materials Aluminum AlSi10Mg0.5, Stainless steel 1.4404, Stainless steel 17-4 PH, Tool steel 1.2709, Inconel 625, Inconel 718, Cobalt chrome, Titanium Ti64	✓	✓
Material development for any alloy compositions*** Selection of material components via the periodic table	–	✓

*Currently only for OPTOMET standard materials **Exclusive function for LASERTEC **SLM** machines

***Weldable materials within the chemical and physical limits

OPTOMET

Your Global Partner in Additive Manufacturing

TECHNOLOGY CHANGER FOR SLM TECHNOLOGY

OPTOMET enables a calculation of process parameters in the powder bed process within minutes, thus creating the basis for efficient production with maximum flexibility and at the same time independence from the material supplier.



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- + **20 years of experience** in SLM-Technology with REALIZER
- + **> 100 technology experts** around the globe

- + **Additive Pioneer in India** with over 6 years of experience
- + **Application and Software knowledge**
- + **70 technology experts** in Bangalore

GLOBAL FOOTPRINT – 5 ADDITIVE MANUFACTURING EXCELLENCE CENTER (AMECs):



AMEC Bielefeld, Germany



AMEC Pfronten, Germany



AMEC Shanghai, China



AMEC Tokyo, Japan



AMEC Chicago, USA