With our integrated Service and Consulting portfolio, we accompany you along the entire lifecycle.

Additive Minds  
Consulting

Additive Minds  
Academy

Global Services  
Ramp-up, preventive care, troubleshooting, original spare parts, myEOS customer portal

Financial Services  
Renting & leasing models, refurbished system

FACILITATE

Your transformation to AM success

ENABLE

Your way to AM excellence

EXCEL

Your AM success with reliable manufacturing solutions
Additive Minds supports our customers in all stages of their development

Key benefits:

→ Enable your people faster and better to become the next industry champions
→ Face lack of competence in additive manufacturing in your existing organization
→ Gain competitive advantage through additive manufacturing
→ Accept economical pressure as a challenge for faster innovation
Additive Minds Academy
We make our knowledge accessible

Trainings, seminars and workshops

Interactive programs, designed to transfer know-how as fast as possible.
- Trainings covering all relevant AM knowledge areas
- Hands on and “Edutainment” trainings
- Adaptable to your specific needs
- Get tangible results within a few days
- Choose from a variety of levels: beginners, advanced and expert courses
- Range includes everything from system operation trainings to Software and Quality courses

NEW Learning Paths

Take advantage of your whole potential by becoming an expert in your AM Field.
- structured and result driven learning paths covering all roles required to successfully build your AM business
  → Now available: Add. Man. Data Preparation Specialist Metal
- Hybrid teaching technology
  Combining online education with traditional classroom methods for individual learning needs and work situations

The best way to ensure a successful additive manufacturing production is to build up and maintain the necessary know-how and expertise.
Our Learning Paths for you
Take Advantage of your whole potential

Additive Manufacturing Business Engineer
Find your diamonds

Additive Manufacturing Designer
Create complex designs

Additive Manufacturing Data Preparation Specialist
Build in sustainable quality

Additive Manufacturing Application Specialist
Tweak your application to its best

Additive Manufacturing Production Manager
Boost your production

Additive Manufacturing Quality Engineer
Drive quality

Additive Manufacturing Machine Operator
Master the system

Covering all roles required to successfully build your AM Business
# Training Catalog Overview

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<th>System related Trainings</th>
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<td>Training Topology Optimization</td>
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<td>Training Advanced User Level 1</td>
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<td>Training Advanced User Level 2</td>
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<tr>
<td>EOS AM Data Preparation Specialist</td>
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</table>

**General Polymer**

- Training System Operation
- Training System Operation & Data preparation
- Training Maintenance Level 1
- Dental Special: Dental Review
- Dental Special: Training Crowns & Bridges
- Dental Special: Training Partial Dentures
- Reference Point Calibration Initial set-up
- Training Reference Point Calibration
- Training EOSTATE MeltPool
- Training EOSTATE ExposureOT
- Training EOSTATE ExposureOT & MeltPool
- Training Volume Reduction
- Training High Temperature Part Building
- EOS AM Machine Operator Certification

**General Metal**

- Training System Operation
- Training System Operation & Data preparation
- Training Maintenance Level 1
- Dental Special: Dental Review
- Dental Special: Training Crowns & Bridges
- Dental Special: Training Partial Dentures
- Reference Point Calibration Initial set-up
- Training Reference Point Calibration
- Training EOSTATE MeltPool
- Training EOSTATE ExposureOT
- Training EOSTATE ExposureOT & MeltPool
- Training Volume Reduction
- Training High Temperature Part Building
- EOS AM Machine Operator Certification

**Klick on the trainings to learn more about the contents.**

**With the home symbol in the upper right corner you get back to the overview.**
Find Your Application Trainings

Find Your Application

Develop Your Application

Ramp Up Your Production

Certify and Scale Your Production
# Training Innovation with 3D Printing

## Find Your Application

## Develop Your Application

## Ramp Up Your Production

## Certify and Scale Your Production

### General

**Your fast track to understand additive manufacturing (AM), its possibilities and limitations.**

**Objectives**

- Identify and understand the key benefits of AM
- Become the AM thought leader within your company and inspire others
- Discover how to optimize for the AM production process by learning from best-in-class business cases
- Unleash your creativity and find innovative AM applications
- Analyze your value chain and see how AM can positively influence it
- Know how to screen and select parts from your portfolio

**Target Group / Job Role**

- Everyone interested in AM

**Prerequisites**

- None

### Content

**Part 1: Introduction to additive manufacturing**

- Experiencing 3D printing
- Getting to know the different materials, systems and technologies

**Part 2: Development & production with AM**

- Freedom of design and production
- Understanding the advantages and potentials of AM
- Discussing case examples taken from industry

**Part 3: Analyzing the value chain**

- The impact of AM on the participants’ industries, companies and competitors

**Part 4: Fundamentals of the production process**

- Detailed consideration of the process chain in AM
- How technology works

**Part 5: Design for additive manufacturing**

- Introduction to the design rules for AM
- Design Thinking method

**Part 6: Component selection**

- Introduction to the methodology of component selection & assessing the potential
- Unit cost calculation

**Part 7: Technological implementation roadmap**

- Production planning from the idea through to manufacturing
- Organization and team set-up
- Employee training
- Change Management
- Technology development

### Information

**Venue**

- At your site or at EOS Training Center

**Duration**

- 1-3 days (excl. travelling days)

**Participants**

- max. 10 participants

**Languages**

- English, German, other languages to be agreed

**Article N°**

- Please get in contact with our Additive Minds Team
Develop Your Application Trainings

Certify and Scale Your Production
Ramp Up Your Production
Develop Your Application
Find Your Application
Training Data Preparation Metal

Find Your Application | Develop Your Application | Ramp Up Your Production | Certify and Scale Your Production

General

Learn basic data preparation in Magics RP®, part placement and job preparation in EOS processing software for EOS metal and polymer systems.

Objectives
- Understanding of basic principles of data preparation for Additive Manufacturing
- Enabling participants for basic data preparation for EOS Metal systems using Magics RP®

Target Group
- Data Preparation Experts
- AM Designers

Prerequisites
- Basic know how of handling Windows PCs
- Basic training of Magics RP® or other third party data preparation software accomplished
- Recommendation to participate in a system operation training

Content

Part 1: Data preparation
- Data preparation in Magics RP® related to EOS systems
- Whole work-flow including data import, part placement and orientation, part repair with fix wizard, support structure generation and data transformation

Part 2: Job preparation
- Job preparation using EOS processing software and transfer of data to machine
- Scaling & Shrinkage, Positioning, Multiplication of parts
- Beam offset compensation

Part 3: Operation of machine and peripherals
- Handling of EOS processing software
- Set-up, job-start and observation of process
- Post processing procedures

Information

Venue
- At your site or at EOS Training Center

Duration
- 2 days (excl. travelling days)

Participants
- max. 4 participants

Languages
- English, German, other languages to be agreed

---

Material | Article N°
--- | ---
Metal | 0105-0102
Part 1: Data preparation
→ Data preparation in Magics RP® related to EOS systems
→ Whole work-flow including data import, part placement and orientation, part repair with fix wizard and data transformation

Part 2: Job preparation
→ Job preparation using EOS processing software and transfer of data to machine
→ Scaling & Shrinkage, Positioning, Multiplication of parts
→ Beam offset compensation

Part 3 - Optional: Operation of machine and peripherals
→ Handling of EOS processing software
→ Set-up, job-start and observation of process
→ Post processing procedures
Training System Operation

General

**Intense training on the safe and efficient operation of EOS systems.**

**Objectives**

- Learn the safe handling of EOS Laser-Sintering Systems
- Work safety and handling procedures of the machine itself and its peripherals

**Target Group / Job Role**
- System Operators
- Other Users

**Prerequisites**
- Basic know how of handling Windows PCs

**Content**

**Part 1: Work safety instructions**
- Rules and procedures for safe working
- Safety equipment of machine and peripherals

**Part 2: Laser Sintering Process**
- Workflow and main system components
- Overview of EOS Materials

**Part 3: Operation of machine and peripherals**
- Handling of EOS processing software
- Set-up, job-start and observation of process
- Post processing procedures

**Part 4: Daily System Care**
- Cleaning and Maintenance

**Part 5: Handling of EOS laser-sintering materials**

**Part 6: Check and adjustment of machine settings**
- Building and Evaluation of EOS Reference job
- Evaluation of parts built

**Information**

**Venue**
- At your site or at EOS headquarter Germany

**Duration**
- 2.5 days (excl. travelling days)

**Participants**
- max. 4 participants

**Languages**
- English, German, other languages to be agreed

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</table>

* Training duration excl. travelling days
**General**

*Intense training on the safe and efficient operation of EOS systems including basic data preparation for laser-sintering process.*

**Objectives**
- Learn the safe handling of EOS Laser-Sintering Systems
- Intensive practicing of all handling procedures including Data preparation

**Target Group**
- System Operators
- Data Preparation Experts
- AM Designers
- Other users

**Prerequisites**
- Basic know how of handling Windows PCs

**Content**

**Part 1: Work safety instructions**
- Rules and procedures for safe working
- Safety equipment of machine and peripherals

**Part 2: Laser Sintering Process**
- Workflow and main system components
- Overview of EOS Materials

**Part 3: Data Preparation**
- Data preparation in Magics RP®
- Part placement, job preparation, scaling, shrinkage and beam offset compensation
- Post processing procedures

**Part 4: Operation of machine and peripherals**
- Handling of EOS processing software
- Set-up, job-start and observation of process
- Post processing procedures

**Part 5: Daily System Care**
- Cleaning and Maintenance

**Part 6: Handling of EOS laser-sintering materials**

**Part 7: Check and adjustment of machine settings**
- Building and Evaluation of EOS Reference job
- Evaluation of parts built

**Information**

**Venue**
- At your site or at EOS headquarter Germany

**Participants**
- max. 4 participants

**Languages**
- English, German, other languages to be agreed

<table>
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<td>0105-0147</td>
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</table>

* Training duration excl. travelling days
Training Maintenance Level 1

General

*Intense training on the regular maintenance of EOS systems and peripherals.*

**Objectives**
- Learn to maintain EOS Laser-Sintering Systems and their peripheral components.
- Work safely while maintaining the machine itself and its peripherals.
- Learn to keep the systems up and running properly.

**Target Group / Job Role**
- System Operators
- Maintenance personal

**Prerequisites**
- Training System Operation on the respective EOS system and peripherals.

Content

**Part 1: Work safety instructions**
- Rules and procedures for safe working
- Safety equipment of machine and peripherals

**Part 2: Components and maintenance procedures**
- Overview of maintenance checkpoints and procedures

**Part 3: Hands on maintenance procedures**
- Cleaning of EOS system components
- Regular maintenance check-ups
- Exchange of wearing parts
- Check-up and maintenance of peripherals

**Part 4 - Optional: System calibration**
- EOS Smart Calibration
- EOS LMK
- EOS LPM

**Part 5: Documentation and further maintenance**
- EOSTATE Database and Monitoring-Tools
- EOS maintenance and service products

Information

**Venue**
At your site or at EOS Training Center

**Duration**
1 day (excl. travelling days) ¹

**Participants**
max. 4 participants

**Languages**
English, German, other languages to be agreed

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<th>System</th>
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<td>0105-0121</td>
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<tr>
<td>EOS P 500</td>
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</table>

¹ The exact duration of the training may vary depending on the very EOS systems and peripherals in the customer facility.

Intense training on the regular maintenance of EOS systems and peripherals.

Objectives

- Learn to maintain EOS Laser-Sintering Systems and their peripheral components.
- Work safely while maintaining the machine itself and its peripherals.
- Learn to keep the systems up and running properly.

Target Group / Job Role

- System Operators
- Maintenance personal

Prerequisites

- Training System Operation on the respective EOS system and peripherals.
Training Advanced User Level 1

General

Cross check your first AM experiences with our experts for a deeper understanding of the system, material and process.

Objectives

✓ Deepen your skills of machine set-up
✓ Evaluate the cause-effect relationship of build jobs
✓ Gain insight application knowledge through our AM experts
✓ Broaden your knowledge of orientation, part placement and support*
✓ Review your AM build experiences so far and get practical tips and techniques
✓ Experience a hands-on workshop with 1 build job over night

Target Group

▪ System Operators
▪ Data Preparation Experts

Prerequisites

▪ System Operation and Data preparation training accomplished
▪ System has been installed 4-6 weeks before

Content

Part 1: Advanced system handling
→ Repetition of machine set-up
→ Efficient handling of EOS laser sintering systems and their peripheral components
→ Improve dimensional-accuracy with fine-tuning
→ Powder handling

Part 2: Advanced data preparation
→ Match orientation with technical requirements
→ Efficient and productive part placement
→ Choose the right parameters/best fitting for part demands**
→ Advanced handling of EOS processing software

Part 3: Basic trouble shooting
→ Learn how to find underlying causes for application problems
→ Time for questions on parts you have built so far

Information

Venue
At your site

Duration
Metal 1.5 days (excl. travelling days)
Polymer 2 days (excl. travelling days)

Participants
max. 4 participants

Languages
English, German, other languages to be agreed

Material | Article N°
---|---
Metal | 0106-0105
Polymer | 0106-0106

* Metal only  ** Polymer only
## General

*Learn how to design combining topology optimization for additive manufacturing in a hands-on workshop.*

### Objectives
- Knowing the possibilities and limitations of AM
- Learn innovative design approaches and processes applicable to AM technology
- Learn how to apply simulation technology in order to design lightweight structures
- Learn the background and theory of design optimization
- Understand the design workflow
- Learn and apply organic design approaches to produce bionic like structures
- Using AM design on practical exercises

### Target Group / Job Role
- AM Design Experts

### Prerequisites
- Data preparation Training accomplished

## Content

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<tbody>
<tr>
<td>→ Design challenges and opportunities for AM</td>
<td>→ Theoretical background</td>
<td>→ Theoretical background of computational optimization</td>
</tr>
<tr>
<td>→ Optimization-driven design and use cases</td>
<td>→ Setting up a linear static stress analysis and practical exercises</td>
<td>→ Optimization types</td>
</tr>
<tr>
<td></td>
<td></td>
<td>→ Application of topology</td>
</tr>
</tbody>
</table>

### Part 4 & 5: Topology Optimization for AM
- Common strategies
- Generation & Evaluation of concepts
- Orientation definition and manufacturing process design
- Practical exercises

### Part 6: Introduction to topology re-engineering
- Organic design and approach
- Software
- Practical exercises

## Information

<table>
<thead>
<tr>
<th>Venue</th>
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<tr>
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<td>max. 8 participants</td>
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<tr>
<td>Article N°</td>
<td>Please get in contact with our Additive Minds Team</td>
</tr>
</tbody>
</table>

### Part 7: Practical session for organic design
- Apply concepts learned regarding organic design approaches

### Part 8: Open lab and conclusion
- Open discussion
- Q&A Session
Training Design for Additive Manufacturing

Content

Part 1: Possibilities and limitations of AM
→ Functional integration
→ Mass customization
→ Complexity for free

Part 2: Workflow
→ Design and data processing
→ Job preparation and building
→ Post-processing

Part 3: Material, system and process fundamentals
→ Material properties
→ System set-up
→ Thermal process
→ Layer building, Shrinkage and distortion
→ Laser and powder interaction

Part 4: Design guidelines
→ Wall thicknesses
→ Gap dimensions
→ Removability of powder

Part 5: Mindset AM Design
→ Methodology & Way of thinking
→ Case examples

Part 6: Part optimization
→ Parts and job analysis
→ Redesign potentials through bionic and topology optimization

Part 7: Best practices and insights into the application
→ Optimized data handling
→ Party quality
→ Cost reduction by design

General

Learn how to design for additive manufacturing (AM) in a hands-on workshop for metal or polymer.

Objectives
✓ Knowing the possibilities and limitations of AM
✓ Learn how to successfully design, optimize, build and apply AM
✓ Discover the AM Design Thinking methodology
✓ Experience AM process chain with a hands-on approach
✓ Understanding the design workflow
✓ Learn technical and design guidelines
✓ Learn innovative designs like bionics and lightweight
✓ Using AM design on practical exercises

Target Group / Job Role
- AM Design Experts

Prerequisites
- Data preparation Training accomplished

Information

Venue
at EOS Training Center

Duration
2 days (excl. travelling days)

Participants
max. 8 participants

Languages
English, German, other languages to be agreed

Article N°
Please get in contact with our Additive Minds Team
Training Parameter Editor

General

Enabling the use of Parameter Editor for EOS systems and understanding the cause and effects of parameter modifications

Objectives

✓ Introduction of basic principles of parameter-set creation using EOS Parameter Editor functionalities
✓ Learn how to save and organize parameter sets with self-created values
✓ Experience a hands-on workshop with one build job over night

Target Group

▪ Data Preparation Experts
▪ AM Designers

Prerequisites

▪ System Operation and Data preparation training accomplished
▪ Advanced User Level 1 training accomplished
▪ Deep process understanding needed
▪ System has been installed 4-6 weeks before

Content

Part 1: Introduction to parameters
→ Theory of Parameter Editing
→ Cause and effect explanation of individual parameter settings

Part 2: Parameter Editor Functionality in EOS processing software
→ Overview of Parameter Editor features
→ Software user interface for parameter set creation
→ Creation of parameters to show software proficiency and understanding

Part 3: Illustration of parameter impact
→ Running a training job with varied parameters to explore influences

Information

Venue
At your site or at EOS Training Center

Duration
Metal 2 days (excl. travelling days)
Polymer 1.5 days (excl. travelling days)

Participants
max. 4 participants

Languages
English, German, other languages to be agreed

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# Training Lattice Structures

## Content

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<td>→ Software package</td>
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<th>Part 2: Analysis of customer’s application goal</th>
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</thead>
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<td>→ Understand specific needs</td>
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<tr>
<td>→ Highlight limitations of standard parameters</td>
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</table>

<table>
<thead>
<tr>
<th>Part 3: Highlight lattice exposure strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ Parameter modification cause and effect</td>
</tr>
<tr>
<td>→ Limitations and optimization opportunities</td>
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<tr>
<td>→ Manufacturability</td>
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<tr>
<td>→ Laser-driven design</td>
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<table>
<thead>
<tr>
<th>Part 4: Definition of optimization potential related to selected application levels</th>
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<tbody>
<tr>
<td>→ Build rate</td>
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<tr>
<td>→ Mechanical properties</td>
</tr>
<tr>
<td>→ Surface roughness</td>
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<table>
<thead>
<tr>
<th>Part 5: Selection of critical parameters for test scope</th>
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<tbody>
<tr>
<td>→ Lattice design &amp; exposure strategies</td>
</tr>
<tr>
<td>→ Cleanability &amp; manufacturability</td>
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<tr>
<td>→ Mechanical properties</td>
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<table>
<thead>
<tr>
<th>Part 6: Definition of “test scope” based on several iterations and execution of test</th>
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<tbody>
<tr>
<td>→ Lattice porosity</td>
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<tr>
<td>→ Lattice roughness</td>
</tr>
<tr>
<td>→ Manufacturability</td>
</tr>
<tr>
<td>→ Mechanical properties</td>
</tr>
</tbody>
</table>

## General

**Using lattice structures to generate the next generation of medical implants, bionic-inspired lightweight components, etc.**

### Objectives
- Analyzing the customer’s application goal
- Definition of the optimization potentials
- Selection of critical parameters for test scope
- Definition of “test scope” based on several iterations and execution of test
- Documentation of results and follow-up

### Target Group / Job Role
- AM Design Experts

### Prerequisites
- Installed EOS Metal system
- Training Parameter Editor accomplished

## Information

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<tr>
<th>Venue</th>
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<td>Article N°</td>
<td>Please get in contact with our Additive Minds Team</td>
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</table>

Part 6: Definition of “test scope” based on several iterations and execution of test:
- Lattice porosity
- Lattice roughness
- Manufacturability
- Mechanical properties
Ramp Up Your Production Trainings

- Find Your Application
- Develop Your Application
- Ramp Up Your Production
- Certify and Scale Your Production
**General: Expand your skills to build successful AM metal parts by choosing the modules you are most interested in.**

### Objectives
- Use your system more efficiently
- Get quickly your newest part up and running
- Discuss your AM experience with our AM Experts and get direct feedback
- Learn the most common mistakes and techniques how to avoid them

### Module 1: Application specific support

**Content**
- Deeper analyses of part/system specific problems
- Get help to build challenging parts

**Information**
- **Venue**: At your site
- **Duration**: On Demand (excl. travelling days)
- **Participants**: max. 4 participants
- **Languages**: English, German, other languages to be agreed
- **Article No**: 0106-0111

### Module 2: Advanced Support and Orientation

**Content**
- Understanding advanced data preparation in Magics RP® (hands-on exercises and material specific recommendations)
- Expert knowledge transfer on Support & Support strategies
- Deeper understanding of the correlation between Orientation and process/ part quality
- Optimize efficiency, success-rate and cost-per-part

**Information**
- **Venue**: At your site
- **Duration**: 2 days (excl. travelling days)
- **Participants**: max. 4 participants
- **Languages**: English, German, other languages to be agreed
- **Article No**: 0106-0112

### Module 3: Post processing for AM

**Content**
- Learn about the possibilities surface finish specific to AM
- Understand the implications it has on building parts
- Discuss options for post processing chains for your application
- Learn more about powder and support removal, conventional and non-conventional post processing

**Information**
- **Venue**: At your site
- **Duration**: 1 day (excl. travelling days)
- **Participants**: max. 4 participants
- **Languages**: English
- **Article No**: 0106-0114
Expand your skills to build successful AM plastic parts by choosing the modules you are most interested in.

**Objectives**
- Use your system more efficiently
- Get quickly your newest part up and running
- Discuss your AM experience with our AM Experts and get direct feedback
- Learn the most common mistakes and techniques how to avoid them
- Experience a hands-on Workshop

**Target Group**
- System Operators
- Data Preparation Experts

**Prerequisites**
- Training Advanced User Level 1 accomplished

**Module 1: Evaluation of existing parts**
- Bring your existing part and discuss the success and improvements with our AM Experts
- Focus on machine and data preparation (excl. parameter)

**Module 2: Troubleshooting**
- Learn about the most common mistakes in machine handling and how to avoid them
- Get help to build challenging parts

**Module 3: Orientation for customer specific applications**
- Understand advanced data preparation in Magics RP®
- Learn how to achieve better results for your requirements
- Reduce Powder consumption

**Module 4: Deep Dive EOS Software**
- Understand the features of EOS processing software for polymer

**Module 5: Pre- and Post processing for AM**
- Learn about the possibilities of pre and post processing specific to AM
- Understand the implications it has on building parts
- Discuss options for pre and post processing chains for your application

**General**

**Content**

**Information**

**Venue**
- At your site or at EOS Training Center

**Duration**
- Depending on the chosen modules (excl. travelling days)

**Participants**
- max. 4 participants

**Languages**
- English, German, other languages to be agreed

**Article No**
- Please get in contact with our Additive Minds Team to find your individual package

---

**Find Your Application**

**Develop Your Application**

**Ramp Up Your Production**

**Certify and Scale Your Production**
Dental Special: Dental Review

General

Cross check your first AM experiences with our dental experts for a deeper understanding of the system, material and process.

Objectives
- Improve know-how of safe and efficient operation of EOS dental systems
- Main aspect is the efficient handling of the workflow
- Data preparation in Cambridge®

Target Group / Job Role
- System Operators
- Data preparation experts for dental applications

Prerequisites
- System Operation and Data preparation training accomplished

Content

Part 1: Advanced system handling
- Repetition of machine set-up
- Efficient handling of EOS laser sintering systems and their peripheral components
- Support structure generation
- Data transformation to sli files

Part 2: Advanced data preparation with Cambridge®
- Match orientation with technical requirements
- Optimization of data preparation for dental

Part 3: Advanced part placement
- Handling of EOS processing software for advanced part placement

Information

Venue
- At your site or at EOS Training Center

Duration
- 1.5 days (excl. travelling days)

Participants
- max. 3 participants

Languages
- English, German, other languages to be agreed

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Dental Special: Training Crowns & Bridges

**General**

*Proceeding of data preparation with Cambridge® and building of dental geometries from CoCrSP2 material.*

**Objectives**
- Understand the basic principles of data preparation for Additive Manufacturing
- Proceed data preparation with Cambridge®
- Build dental geometries from CoCrSP2 material

**Target Group / Job Role**
- Data preparation experts for dental applications

**Prerequisites**
- Basic know how of handling Windows PCs

**Content**

**Part 1: Data preparation in Cambridge®**
- Data import into Cambridge®
- Part placement and orientation
- Support structure generation
- Data transformation to sli files

**Part 2: Job preparation in EOS processing software**
- Data transfer to the machine
- Load files
- Job configuration

**Part 3: Post-processing methods for parts**
- Blasting
- Heat treatment

**Information**

- **Venue**: At your site or at EOS Training Center
- **Participants**: max. 3 participants
- **Languages**: English, German, other languages to be agreed

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* Training duration excl. travelling days
Dental Special: Training Partial Dentures

**General**

*Proceeding of data preparation with Cambridge® and building of dental geometries from CoCrRPD material.*

**Objectives**
- Understand the basic principles of data preparation for Additive Manufacturing
- Proceed data preparation with Cambridge®
- Build dental geometries from CoCrRPD material

**Target Group / Job Role**
- Data preparation experts for dental applications
- Basic know how of handling Windows PCs

**Prerequisites**

**Content**

**Part 1: Data preparation in Cambridge®**
- Data import into Cambridge®
- Part placement and orientation
- Support structure generation
- Data transformation to sli files

**Part 2: Job preparation in EOS processing software**
- Data transfer to the machine
- Load files
- Job configuration

**Part 3: Post-processing methods for parts**
- Blasting
- Heat treatment
- Solution Annealing

**Information**

- **Venue**: At your site or at EOS Training Center
- **Duration**: 2.5 days (excl. travelling days)
- **Participants**: max. 3 participants
- **Languages**: English, German, other languages to be agreed

**System** | **Article No**
--- | ---
EOSINT M 270 | 0105-0047
## Calibration Special:
**Reference Point Calibration Initial set-up & Training**

### General

**Be able to carry out absolute placement of parts for hybrid building and post machining, using EOS Reference Point Calibration functionality.**

### Target Group / Job Role

- Quality Engineers
- System Operators
- Data Preparation experts

### Prerequisites

- Installed Metal system

### Package consist of:

- Reference Point Calibration Initial Set-up
- Training Reference Point Calibration

Both parts are needed to conduct Reference Point Calibration.

### Content

**Reference Point Calibration Initial Set-up**

- Alignment of machine co-ordinates system with co-ordinates system of fixture/clamping system which has to be taught in.
- Introduction into EOS Reference Point Calibration functionality

**Training Reference Point Calibration**

- Features in EOSPRINT
- Absolut Positioning
- Reference Point Calibration for Hybrid Building
- Integration into post machining process
- Machine Calibration & Teach-in Process

### Information

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### Initial Set-up

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### Training

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Monitoring Special: Training EOSTATE MeltPool

**General**

*Implement EOSTATE MeltPool monitoring in your quality assurance chain to generate true added value.*

**Objectives**
- Knowing what EOSTATE MeltPool is and how it works
- Introduction to the physics of the MeltPool, signal theory and algorithms
- Understanding the complexity of correlations between part quality, process and MeltPool data
- Awareness of evaluation job geometries, design of experiments and possible pitfalls
- Strengthening basic knowledge about analysis and correlation.

**Target Group / Job Role**
- Quality Engineers

**Prerequisites**
- Training System Operation accomplished
- Training Parameter Editor accomplished
- Advanced knowledge of laser-sintering process

**Content**

**Part 1: First steps**
- Software set-up and calibration
- Introduction to EOSTATE MeltPool online software
- MeltPool Monitor Hardware

**Part 2: Software Functions**
- Introduction, revision
- Algorithms, theory
- First steps
- General parameters and settings

**Part 3: Data analysis**
- Visualizations
- Analysis parameters
- Indications
- 3D visualization
- Extra features

**Information**

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<td>EOS M 400-4</td>
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Implement EOSTATE MeltPool monitoring in your quality assurance chain to generate true added value.

Objectives
- Knowing what EOSTATE MeltPool is and how it works
- Introduction to the physics of the MeltPool, signal theory and algorithms
- Understanding the complexity of correlations between part quality, process and MeltPool data
- Awareness of evaluation job geometries, design of experiments and possible pitfalls
- Strengthening basic knowledge about analysis and correlation.

Target Group / Job Role
- Quality Engineers

Prerequisites
- Training System Operation accomplished
- Training Parameter Editor accomplished
- Advanced knowledge of laser-sintering process
## Implement optical tomography (EOSTATE ExposureOT) in your quality assurance chain to generate true added value.

### Objectives
- Knowing what EOSTATE ExposureOT is and how it works
- Introduction to the physics of the process, detection mechanisms and analysis methods
- Holistic understanding of usage of the OT client
- Awareness of evaluation job geometries, design of experiments and possible pitfalls
- Strengthening basic knowledge about analysis and correlation.

### Target Group / Job Role
- Quality Engineers

### Prerequisites
- Training System Operation accomplished
- Training Parameter Editor accomplished
- Advanced knowledge of laser-sintering process

## Content

### Part 1: First steps
- Software set-up and calibration
- Introduction to EOSTATE ExposureOT

### Part 2: Software Functions
- Introduction, revision
- Process basics and measurement set-up
- Algorithms
- First steps

### Part 3: Data analysis
- Visualizations
- Analysis parameters
- Indications
- 3D visualization
- Extra features

## Information

### Venue
- At your site or at EOS Training Center

### Duration
- 3 days (excl. travelling days)

### Participants
- max. 4 participants

### Languages
- English, German, other languages to be agreed

### System | Article No*
--- | ---
EOS M 290 | 0106-0100
EOS M 400-4 | 0106-0100
**Monitoring Special: Training EOSTATE ExposureOT & MeltPool**

**General**

*Implement EOSTATE MeltPool monitoring and optical tomography (EOSTATE ExposureOT) in your quality assurance chain to generate true added value.*

**Objectives**
- Knowing what EOSTATE ExposureOT & MeltPool is and how it works
- Introduction to the physics of the process, detection mechanisms and analysis methods
- Holistic understanding of usage of both monitoring methods
- Awareness of evaluation job geometries, design of experiments and possible pitfalls
- Strengthening basic knowledge about analysis and correlation.

**Target Group / Job Role**
- Quality Engineers

**Prerequisites**
- Training System Operation accomplished
- Training Parameter Editor accomplished
- Advanced knowledge of laser-sintering process

**Content**

**Part 1: First steps**
- Software set-up and calibration
- Introduction to EOSTATE ExposureOT
- Introduction to EOSTATE MeltPool
- MeltPool Monitor Hardware

**Part 2: Software Functions**
- Introduction, revision
- Process basics and measurement set-up
- Algorithms
- First steps

**Part 3: Data analysis**
- Visualizations
- Analysis parameters
- Indications
- 3D visualization
- Extra features

**Information**

- **Venue**: At your site or at EOS Training Center
- **Duration**: 5 days (excl. travelling days)
- **Participants**: max. 4 participants
- **Languages**: English, German, other languages to be agreed

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EOS P 800 Special: Training Volume Reduction

**Content**

**Part 1: Introduction to BRR**
- Possibilities
- Types of BRR
- Differences and limitations
- Usage on the system

**Part 2: Installation of components (if applicable)**
- Hardware installation
- Practical exercise

**Part 3: Data preparation**
- Modifications in Magics RP®
- Setup building temperature and dosing factor in EOS Processing Software

**Objectives**
- Operate the system using Build Room Reduction (BRR)
- Installation of BRR module

**Target Group / Job Role**
- System operators
- Data preparation specialists
- Material developers

**Prerequisites**
- Training System Operation for P 800 accomplished
- Installed P 800

**Venue**
At your site

**Duration**
0.5 days (excl. travelling days)

**Participants**
max. 4 participants

**Languages**
English, German, other languages to be agreed

---

**General**

*Installation of hardware module for build volume reduction and preparation of configuration in Magics RP®.*

**Objectives**
- Operate the system using Build Room Reduction (BRR)
- Installation of BRR module

**Target Group / Job Role**
- System operators
- Data preparation specialists
- Material developers

**Prerequisites**
- Training System Operation for P 800 accomplished
- Installed P 800

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Exploit the full potential of high temperature build functionalities. Learn advanced part placement, process influencing factors and impacts on mechanical properties when building parts with high temperature.

Objectives
✓ Awareness of specifics of high temperature part building
✓ Understanding the complexity of correlation between part quality, process and building temperature
✓ Gain insight application knowledge through our AM experts

Target Group / Job Role
▪ Data Preparation Experts
▪ AM Designers

Prerequisites
▪ Training System Operation and Data preparation for P 800 accomplished
▪ Advanced knowledge of Magics RP® usage

Part 1: Review current practice
→ Efficient handling of EOS Laser-Sintering Systems and their peripheral components
→ Theoretical process know-how and influencing variables
→ Optimization of data preparation for laser-sintering process
→ Advanced part placement and handling of EOS processing software

Part 2: Parameter Editor
→ Influencing factors on part properties
→ Contour & Edge, Beam offset, Up- & Down-skin
→ Handling of EOS processing software

Part 3: Specific characteristics of EOS materials for high temperature
→ Impact on mechanical properties
→ Typical surface influences and color variations

Part 4: Building of test jobs
→ Visualization of editing functions on built parts
→ Evaluation of built parts
→ Adjustment of parameter settings

Venue
At your site or at EOS Training Center

Duration
3 days (excl. travelling days)

Participants
max. 4 participants

Languages
English, German, other languages to be agreed
Periphery: Training IPM M Powder Station L Operation

General

Intense training on the safe and efficient handling of IPM M Powder Station L.

Objectives

✓ Learn the safe handling of IPM M L
✓ Daily system care and filter exchange
✓ Manual and automatic mode

Target Group / Job Role

- System Operators
- Other Users

Prerequisites

- Training System Operation for M 400 or M 400-4 accomplished

Content

Part 1: Work safety instructions
- Rules and procedures for safe working
- Safety equipment of IPM M L

Part 2: IPM M L General
- Intelligent Powder Management
- EOS process sequence with IPM M L

Part 3: Operation of IPM M L
- Machine and components, Software
- Set-up, job-start and observation of process
- Start automatic process
- Taking out of operation

Part 4: Daily System Care
- Cleaning and Maintenance
- Sieve & Filter exchange

Part 5: Working with IPM M L
- Checking parameters
- Manual and automatic mode
- Practical exercise

Information

Venue
At your site or at EOS Training Center

Duration
3 days (excl. travelling days)

Participants
max. 4 participants

Languages
English, German, other languages to be agreed

Find Your Application
Develop Your Application
Ramp Up Your Production
Certify and Scale Your Production

Customer Training Catalog | EOS | 33
Certify and Scale Your Production
Learning paths and certifications

Find Your Application

Develop Your Application

Ramp Up Your Production

Certify and Scale Your Production
Additive Manufacturing Machine Operator Personnel Certification according to DIN 35225 by TÜV SÜD

General

Proof your knowledge on operating laser sintering machines with a certificate provided by TÜV SÜD Akademie GmbH.

Objectives
✓ Certify system users according to DIN 35225
✓ Proof your quality of services with this certification

Target Group / Job Role
▪ System Operators
▪ Other Users

Prerequisites
▪ Accomplished system operation training

Content

Part 1: Theoretical Examination
→ Rules and procedures for safe working
→ Safety equipment of machine and peripherals
→ Powder Handling
→ System Operation

Part 2: Practical Examination
→ Demonstrate important steps in machine handling
→ Demonstrate important safety procedures

Information

Venue
At your site or at EOS Training Center

Duration
1 day (excl. travelling days)

Participants
max. 4 participants

Languages
English, German, other languages to be agreed

Article N°
EOS M 400 500000687
EOS M 400-4

What is DIN 35225?
Welding for aerospace applications – Qualification testing of operators for powder bed laser beam machines for additive manufacturing. A recertification is required every two years.

Certification by
Add. Man. Data Preparation Specialist Metal
Build in sustainable quality

General

Become an EOS certified Additive Manufacturing Data Preparation Specialist for Metal and gain skills in
✓ Quick and efficient data preparation for metal 3D printing
✓ Recognizing the main challenges of applications
✓ Generating smart support
✓ Using software to make the impossible possible

Phases

1. Gather first experiences
   Generate knowledge about the EOS System and Software

2. Build up your know-how
   Master data preparation software

3. Use your knowledge in daily life
   Increase the complexity of your build jobs and create sustainable quality

4. Proof what you have learned
   Bring everything together and excel your personal skills

Information

Venue
Online and at EOS Training Center

Online & Self Study
75 h

Classroom
3 days (excl. travelling days)

Ideal length
1 – 1,5 months

Languages
English

Article N°
500003168

Learning methods

E-Learning  Webinar  Video  Classroom  Practice  Q&A Session
Thank You!

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