

# SuPACom

Unlock sustainable high volume production for advanced high-performance metal composites for applications in eMobility, aerospace and semiconductor industries

The background is a collage of industrial machinery, including a lathe and a drill press, with a semi-transparent green overlay. The logo consists of a green Greek letter sigma symbol followed by the word 'smart' in white lowercase letters, and 'advanced manufacturing' in smaller white lowercase letters below it.

**Σ smart**  
advanced manufacturing

# ORGANISATION PROFILE

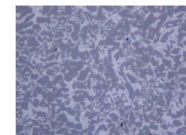
Company: EPOS Technologies SA  
Location: 1 in Villaz-St-Pierre (FR), Switzerland  
Number of employees: 6 (4 in R&I)  
Sales 2023: n.a.  
R&I expenses % of sales: 350%

## Competences and products:

- Technologies: Owner of eForging, a unique high-speed powder metal processing technology
- Target applications: Electrical and thermal conductors in various industries
- Markets: Conductors, Precious, (Special Magnets, Filters)
- Products: Semifinished components

## R&I experience:

Manunet EDS-Cut (EU), TINET, Granasol, Innocheque ESF-Magnet, Multiple industry projects



Mix



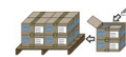
eForging



Deburr



Quality



Pack

# PROPOSAL INTRODUCTION (I)

## **Vision:**

Cost effective and sustainable production of advanced material components for automotive (e.g. electrical busbar), aerospace (adv. thermal management) and semiconductors (adv. thermal management) industries.

## **Motivation:**

- Power devices for **DC to DC converters** are limited in maintaining high power density operation.
- Highly electrical conductive materials beyond standard copper are required to overcome limitations in e.g. **EV charging speed** and for **weight reduction**.
- **GaN and SiC technologies** today are significantly de-rated to prevent thermal issues degrading reliability.
- Tightly spaced **stacks for satellites, telecom and AI** need enhanced heat removal from of the components.

**Cu-composites and Al-Graphite/Graphene are a solutions to these challenges** and lab-scale manufacturing has been proven, but actual processing technologies lack cost effective scalability.

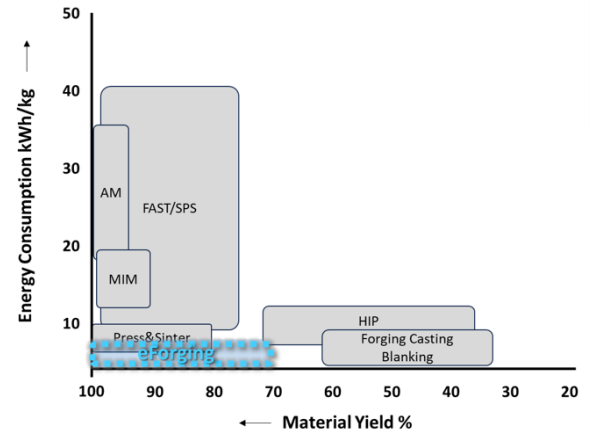
The novel **eForging (Electro-Sinter-Forging) technology can produce** these components **cost effective** and is the most **sustainable** powder based technology with respect to energy consumption, material utilization and waste.

# PROPOSAL INTRODUCTION (I)

**Content:** which are the developments to be made in the project

The project target is **reliable production readiness** for **advanced High-Performance Materials in Europe**

- Benchmark best-in-cost vs performance vs requirements composites (Cu-based/Al-based/Diamond /Graphite/others...)
- Qualify raw material quality of selected materials
- Qualify eForging production reliability with prototype manufacturing
- Develop multi-tool concepts for productivity enhancement (design and FEA simulations)
- Design and integrate equipment (electrical circuit) extensions and controls for larger components
- Produce larger components prototypes
- Validate product reliability for different applications
- Design and integrate single-piece-quality traceability
- Develop product LCA
- Evaluate future techno-economical potentials and transfer to other material compositions (e.g. Titanium based)



## PROPOSAL INTRODUCTION (II)

**Expected outcome:** descriptions of the results to be obtained in the project

- Defined best-in-cost vs performance vs requirements **material specifications**
- Qualified **raw material and production value chain**
- **Reliable cost-effective eForging production** capability, **ramp-up capacity and scalable equipment**
- **Single-piece-part identification** for quality and recycling traceability
- Product **LCA**

**Impacts:** what will be the expected market impact of the project

- **Reduced charging times** in e-Mobility
- **Weight reduction** for automotive and aerospace applications
- **High performance packaging** for semiconductors
- **European manufacturing and sales of component**
- **Leading the market** by being first movers
- **Create strong patent portfolio** to protect the solutions
- **Increase European employment** at machine and component producers

**Schedule:** start and end dates for the project. Duration.  
*24-36 month, 4-7M€*

## PARTNERS

**Current Consortium:** list of partners already involved in the project

Fraunhofer IFAM (R&I)

**Partner search:** type of partner searched and countries of origin (if necessary).

Project coordination (R&I, SME, large company)

Materials characterization and analysis (R&I)

Simulation experts (R&D centers, R&I)

Tool shop (SME, R&I, large company)

Electrical circuit extensions and controls (SME, large company, R&I)

Traceability experts (SME, R&D center)



## CONTACT INFO

**Contact info:** of the person coordinating the project proposal

ANDREAS ZELLER  
Dr.-Ing.

mobile: +4915111652054

email: [andreas.zeller@eposintering.com](mailto:andreas.zeller@eposintering.com)

Z.I. du Vivier 22, CH-1690 Villaz-St-Pierre, Switzerland

[www.eposintering.com](http://www.eposintering.com)





