AMULET: Contact pads in low voltage switchgear products

Summary

Profile type
Research & Development Request

Company's country
Slovenia

POD reference
RDRSI20220606017

Profile status
PUBLISHED

Type of partnership
Research and development cooperation agreement

Targeted countries
• World

Contact Person
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Term of validity
6/6/2022
6/6/2024

Last update
06/06/2022

General Information

Short summary

Slovenian producer of electric switchgear is looking for solution to the following challenge. Improving the balance of conductivity in low voltage switchgear products by improving existing or providing alternative materials (metal or ceramics).
Call: H2020 AMULET cascade financing, budget 120.000 EUR, deadline 30.6.2022

Full description

Slovenian company is a globally recognized provider of intelligent industrial solutions and cutting-edge electrotechnical products. The company is looking for two or three SMEs which would address the following scopes and objectives within AMULET Open call.

The company wants to improve the materials (currently used are AgSnO2and AgW) with which it achieves the mechanical properties required in low voltage switchgear, especially by improving the balance of transportability by changing the hardness, strength, resistance of contact surfaces to welding in electric arcs, weight and CO2 friendliness.

Scope: When we are switching load, contact pads hit with each other and electric arc is created. This electric arc burns out contact pads and lifespan of the switch is shortened.
The company wants to develop materials that will be more resistant to contacts, while the comapny wants to meet the new market requirements for the implementation of new advanced materials and internal and external needs to

reduce CO2 footprint.

The standards IEC/EN 60947-4-1 and IEC 62955 specify:
- short-circuit tests (3000 A with pre-fuse): At short-circuit tests very high tempera-tures are generated which can melt or evaporate copper and the contact materi-al/pads.
- switch on test at full load (high switching currents, high inrush current): electric arcs are created burning down the contact material.
- allowable heat on the contacts: Contact material such as AgW can have higher contact resistance causing non-conduction through the pole and overheating.
- switches' mechanical durability: 3 million cycles with no load.

Objectives:
- Improving the balance of conductivity – mechanical properties (hardness, strength,
- resistance of contact surfaces to welding in electric arcs and CO2 emissions)
- Improving technology of production targeting CO2 footprint reduction
- utilization with standard category AC-1 and category AC-3

IMPORTANT: This technical cooperation request refers to an innovation challenge published within the AMULET project (financed within the Horizon 2020 INNOSUP-01-2018-2020 call). If an organization (eligible are SMEs only) expresses interest before the closing date, it will be guided towards the AMULET project website (https://amulet-h2020.eu/), where all additional information and guidelines for submission are published. With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Advantages and innovations

Stage of development

Concept stage

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

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Type of partnership

Type and size of the partner

Research and development cooperation agreement

- **SME <=10**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **02007015 - Properties of Materials, Corrosion/Degradation**
- **02007010 - Metals and Alloys**
- **02007003 - Ceramic Materials and Powders**
- **02007011 - Non-ferrous Metals**
- **02002008 - Jointing (soldering, welding, sticking)**

Market keywords

- **08001013 - Ceramics**
- **08001012 - Speciality metals (including processes for working with metals)**

Targeted countries

- **World**

Sector groups involved

- **Materials**