AMPS

AUTOMATED MASS PRODUCTION OF SOC STACKS

Project ID	101111882
PRR 2024	Pillar 7 – Supply chain
Call topic	HORIZON-JTI-CLEANH2-2022-04-01: Design and industrial deployment of innovative manufacturing processes for fuel cells and fuel cell components
Project total costs	EUR 8 711 520.00
Clean H_2 JU max. contribution	EUR 6 606 098.26
Project period	1.6.2023–31.5.2027
Coordinator	Teknologian tutkimuskeskus VTT Oy, Finland
Beneficiaries	Aktsiaselts Elcogen, Dosetec Exact Oy, Elcogen Oy, Fincoat Oy, Haiku Tech Europe BV, Politecnico di Torino, Rocksoft OÜ, SITEC Automation GmbH, SITEC Industrietechnologie GmbH, Smartal Engineering OÜ, VÚTS AS

https://www.amps-project.eu/

PROJECT AND GENERAL OBJECTIVES

The objectives of AMPS are:

- automated high-speed cell production with integrated quality control;
- automated high-speed interconnect plate production and coating, with integrated quality control;
- automated high-speed stack assembly with integrated quality control;
- complete component tracking and optimised mass manufacturing by using virtual twins;
- assessment and demonstration of target stack manufacturing cost of < EUR 800/kWe at a production volume of 100 MW/year;
- establishment of a European supply chain of solid-oxide-cell-manufacturing equipment;
- automation of cell manufacturing process: > 80 %;
- automated visual inspection of cells: 5 s/cell;
- automation of interconnect-manufacturing process: > 90 %;
- stack assembly time (> 3 kWe, solid oxide fuel cell, 9 kWe, solid oxide electrolyser cell): < 1 hour;
- detection of critical defects (missing or misaligned components) in stack assembly: > 99.8 %;
- accuracy of component marking, reading, and tracking of selected parts: > 99 %;
- number of new products related to manufacturing solid oxide fuel cells / solid oxide electrolysis / components and quality control developed and commercialisation started: > 4.

NON-QUANTITATIVE OBJECTIVES

Circularity assessments and life-cycle assessments of the developed technologies, processes and methods are an integral part of the project.

PROGRESS AND MAIN ACHIEVEMENTS

The plan for a method to recycle cell production waste has been defined. In addition, specification and requirements for the interconnect laser welding process have been defined.

FUTURE STEPS AND PLANS

The next steps are the validation of automated raw material handling in cell production and the definition of methods for automated handling of stack components.

Clean Hydrogen Partnership
Co-funded by the European Union