



NAUTILUS

D6.3 – Drawings and layout for the design of FC cabinet

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Deliverable D6.3 – Drawings and layout for the design of FC cabinet

Short summary: The present Deliverable deals with the main technical information (specification, drawings, schemes) related to the SOFC system will be installed within Nautilus project as functional demonstration, in a hybrid configuration within batteries and other electrical components, to be deployed within WP6.

The Deliverable is mainly prepared by SolydEra, technology provider and responsible for the SOFC system deliver, and focus exclusively on the SOFC system. All the other components (batteries, UPS, etc) of the functional demonstrator, as other key features of installation, are out of scope of the Deliverable. As well, the interfaces of the different systems are not described here, focusing more on drawings and layout information for the SOFC system, based on stack manufacturing by SolydEra in the automated production facility in Italy.

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WP, leader: WP 6, MAN-ES

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Dissemination Level

- PU** Public
- PP** Restricted to other programme participants (including the Commission Services)
- RE** Restricted to a group specified by the consortium (including the Commission Services)
- CO** Confidential, only for members of the consortium (including the Commission Services)

Document history

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* SolydEra SA is fully owned by SolydEra SPA

Table of Contents

Table of Contents.....	4
1 Introduction.....	6
2 System description.....	7
2.1 General Overview	7
2.2 SOFC system specifications	11
2.3 Input/Output SOFC system	13
2.3.1 Air intake.....	13
2.3.2 Fuel in.....	13
2.3.3 Power input.....	15
2.3.4 Exhaust	15
2.3.5 Power output	16
2.3.6 Cooling circuit	17
2.3.7 Electrical schemes.....	17
2.3.8 Signals.....	18
3 Drawings.....	20
3.1 Dimensional Drawings	20
3.2 Installation area and requirements.....	20
3.3 Interfaces.....	21
3.3.1 Ground interfaces	22
4 Compliance.....	24
List of Figures	25
List of Tables	25
List of Abbreviations.....	25
References	26

1 Introduction

The marine industry is currently interested to any solution addressing very ambitious decarbonization levels, as indicated by IMO (International Maritime Organization) striving to reduce CO₂ emissions by 40% by 2030 and 70% by 2050, compared to 2008, with other limits on NO_x, SO_x and PM emissions. (IMO, 2018).

In this scenario, SOFC are seen as a valid alternative to existing options, because high efficiency, reduced emission, fuel flexibility, high heat value, and other significant characteristics making SOFC technology a good option and raising high interest for some demo projects (Berend van Veldhuizen, 2023).

In this scenario, Nautilus project aims to develop, evaluate and validate a highly efficient power generation system for cruise ships. The concept consists of a SOFC-battery hybrid system, with a specific work package (WP6) dealing with the design and construction of a functional demonstrator, with a total power of >60kW_{el} including fuel cell system and batteries, of which 60kW coming from SOFC system, to be tested and operated for 3 months.

This document reports the key figures of the SOFC system will be deployed within Nautilus project, particularly regarding dimensions, technical drawings and basic technical information, useful for integration with the other components of the entire system (i.e. electrical box provided by MAN-ES and utilities and installation scope of DLR supply).

The document is also intended to provide a general overview of the SOFC system and its main specifications; even if several information have been already shared within the consortium with the other members, a structured document like this Deliverable is anyway useful and somehow required, in order to provide main points related to system drawings, interfaces and other technical documentations.

It's structured in several chapter, starting from more general overview information getting deeper into drawings and high level safety concepts.