

PRESS RELEASE

European Commission backs RINA's Hydra Project to Drive 100% Hydrogen fuelled Steel Production

Genoa (Italy), 10 October 2023 – The multinational engineering consultancy, inspection and certification company, RINA, has announced the commencement of the six-year research “Hydra” project to build a 100% hydrogen-fuelled pilot-plant capable of producing up to seven tonnes of different grades of steel per hour. This ambitious open research project will provide ground-breaking near-zero carbon technology and capabilities to the international steel industry.

Funded by the European Commission NextGenerationEU and backed by the Italian Ministry of Enterprises and Made in Italy through RINA's Centro Sviluppo Materiali (CSM) in Castel Romano (Italy), the €88M Hydra project is part of the IPCEI (Important Projects of Common European Interest) and will involve a dedicated team of 120 people.

The steel industry accounts for around 8% of global emissions with every tonne of steel produced currently emitting 1.63 tonnes of CO₂ on average. The aim of the Hydra project is to reduce emissions to mere kilograms and making this a world-changing technology on our way to net zero.

Hydra will involve the design and construction of an operational pilot-plant that will utilize hydrogen in every stage of the steel production cycle. The structure, scheduled for completion by 2025, will consist of a 30m high direct iron ore reduction (DRI) tower using hydrogen as a reducing agent, an electric furnace (EAF) and a reheating furnace. Through a testing and qualification hub, the project will also characterise the materials, equipment and internal infrastructure required by steel producers, as well as those required for hydrogen transportation to the plant and storage, to transition to 100% hydrogen fuelled steel production, ensuring a comprehensive and validated shift to hydrogen-based processes.

As part of Hydra, RINA, thanks to the extensive experience in hydrogen-based decarbonisation technologies among which the world first test of 30% gas-hydrogen blend in steel forging, will also establish a training centre to gather and disseminate know-how related to the design, implementation, and deployment of hydrogen-based decarbonization technologies. The centre will become a permanent international research and development platform open to all stakeholders in the steel and energy industries.

Ugo Salerno, Chairman and CEO of RINA, stated: “Beyond the technological advancements, the truly unique nature of this project is its position as an open research facility. It is not intended or designed to provide commercial advantage to any one steel producer, rather move the industry, and the world, forward in the use of 100% hydrogen production with near zero emissions. This is why the Hydra project has been supported, since its inception,



by leading European steel producers, plant suppliers, utilities, and major stakeholders in the sector.”

“Ultimately, the technology will rely on the availability of hydrogen to power the steelmaking processes. By backing Hydra as an IPCEI project the European Commission has underscored its commitment to the broader adoption of hydrogen as a sustainable energy source. With many industry projects underway for the use of hydrogen we hope that this project will help move these forwards by establishing the hydrogen infrastructure and supply chain needs of the steel industry.” concluded Mr. Salerno.

RINA, leading certification company and engineering company in Italy, provides a wide range of services across the Energy, Marine, Certification, Infrastructure & Mobility, Real Estate and Industry sectors. With revenues in 2022 of 725 million euros, 5,300 employees and 200 offices in 70 countries worldwide, RINA is a member of key international organizations and an important contributor to the development of new legislative standards. www.rina.org

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