

PRESS RELEASE

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Innovative Charging, Melting and Electromagnetic Stirring Solution for Arvedi's EAF

ABB and Tenova receive final acceptance for innovative charging, melting and electromagnetic stirring solution on a large electric arc furnace (EAF)

- Record-breaking melting unit in operation at steelmaker Acciaieria Arvedi in Italy, with a furnace tapping size of 300 metric tons
- Tenova's Consteel® EAF continuous scrap charging system is complemented by Consteerr®[®], an innovative ArcSave®-based electromagnetic stirring technology jointly developed by ABB and Tenova for continuously charging EAF systems
- Application of electromagnetic stirring results in 5 percent productivity increase and 3.6 percent reduction in electrical energy consumption
- Additional improvements include increased flexibility in the operation of the furnace and in the use of the raw materials mix with significant improvement of the metallic charge yield

Castellanza, April 13, 2022 - Leading metals industry suppliers ABB and Tenova have now obtained final acceptance from their customer Acciaieria Arvedi, after partnering to deliver an innovative technology package, enabling optimal charging, melting and electromagnetic stirring for the world's highest-yielding EAF. The powerful solution combines a Tenova Consteel® EAF continuous scrap charging system with Consteerr®[®], a model of the well-established ABB ArcSave® electromagnetic stirrer designed specifically for continuous charging EAF systems.

The record-breaking electric arc furnace has a 300-ton tapping size and utilizes a charge mix which includes Hot Briquetted Iron (HBI). It was installed to meet the demand for increased output following the recent revamp of the continuous Endless Strip Production (Arvedi-ESP) casting and rolling mill line at the plant.

"We're really thankful for the seamless collaboration between Tenova, ABB and the Arvedi technicians and site personnel, and for the great efforts our teams have made during this world-class project. We're very proud of the contribution our technologies are making to Acciaieria Arvedi's ambitions as a steel industry trailblazer," said **Silvio Reali**, Tenova Senior Vice President.

"The metals industry is essential for the transition to a net zero world. Working together on this milestone project will support Acciaieria Arvedi to have one of the most sustainable, efficient and modern steel operations," said **Zaeim Mehraban**, Global Sales Manager, Metallurgy Products at ABB.

"We are already working with a modern plant based on Arvedi patented technologies, fulfilling productivity, technological, environmental, and safety objectives. An important achievement has now been reached on the melting side thanks to the work with our partners Tenova and ABB," said **Andrea Bianchi**, R&D Director at Acciaieria Arvedi. *"We are showing that it is possible to produce high-quality steel for our customers with the highest output from a single EAF, reducing the resources and the energy we need to use, and minimizing CO2 emissions."*

Acciaieria Arvedi chose Tenova Consteel® EAF for the second time in 2018, strengthening the plant supplied in 2008. The new installation, built to comply with the higher productivity of the recently improved continuous casting and rolling line, takes into account the requirement for increased productivity and operational flexibility, particularly in relation to the metallic charge mix that is of strategic importance in the EAF process.

The careful design of the equipment and the operational results achieved demonstrate the reliability of the technology involved and the validity of this approach for the safe production of steel with minimal environmental impact. The new electric arc furnace has a diameter of 9.1 meters and is continuously fed by a Consteel® conveyor and the latest generation of Tenova injection system. A plant of advanced and innovative technology, as demonstrated by the integration, since the beginning of the project, of the Consteerr® system designed in collaboration between ABB, Arvedi and Tenova.

At the core of Consteerr® is a unique, patented, non-contact electromagnetic stirring technology that has repeatedly been shown to deliver a wide range of metallurgical improvements. Site results confirm that the Consteerr® electromagnetic stirring system has delivered a range of process improvements, thereby increasing EAF productivity, energy and resource efficiency at Acciaieria Arvedi. These include an 18 degrees Celcius lower tapping temperature and a 3.6 percent reduction in electrical energy consumption resulting in a 38,000-tonne annual reduction in CO₂ emissions at the plant. EAF productivity has increased by 5 percent and final oxygen content in the EAF steel has decreased by 17 percent. Other benefits can be seen in increased scrap yield, reduced electrode use, lowered refractory wearing, reduced carry-over slag while processing is more stable and final tapping conditions more easily controlled.

About Tenova

Tenova, a Techint Group company, is a worldwide partner for sustainable, innovative and reliable solutions in the metals and – through the well-known TAKRAF and DELKOR brands – in the mining industries. Tenova leverages a workforce of over 2,000 forward-thinking professionals located in 19 countries across 5 continents, who design technologies and develop services that help companies reduce costs, save energy, limit environmental impact and improve working conditions.

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