Phone: +49 211 881 4449
Fax: +49 211 881 774449
E-mail: thilo.sagermann@sms-group.com
Thilo Sagermann

PRESS RELEASE

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Delegation from Japanese steel institute visits SHARC furnace plant at Hellenic Halyvourgia

Cost-effective steel production with low-grade scrap

Delegation from the Iron and Steel Institute of Japan in front of the SHARC electric arc furnace at the Hellenic Halyvourgia plant in Greece.

In December 2017 a delegation from the Iron and Steel Institute of Japan visited the SHARC electric arc furnace plant (Shaft Arc - electric arc furnace with scrap preheating in the shaft) at Hellenic Halyvourgia (HLV) in Volos, Greece. Hellenic Halyvourgia was founded in 1938 and is one of the country's largest electric steel producers for long products.

The delegation comprised 19 representatives of eight Japanese electric steel producers. It was headed by Shigehiro Oi, Director, Member of the Board, Managing Executive Officer of Sanyo Special Steel.

The delegation was welcomed by Andreas Metzen, Technical Director of Hellenic Halyvourgia. He and his team of engineers showed the delegation around the electric steel plant.

The delegation was organized with the aim of exchanging ideas and information on the cost-effective production of steel, with special emphasis on steel production with low-grade scrap in the SHARC electric arc furnace.

The SHARC at HLV is a 54-MW direct-current electric arc furnace with a tapping weight of 100 tons. It features two symmetrically arranged preheating shafts for drying and preheating the scrap. Other available scrap preheating systems are asymmetrical and have just one shaft. The design of the SHARC, however, generates a fully symmetrical distribution of heat, meaning that also in the furnace shell the heat distribution is homogeneous, producing minimum thermal load.

Especially the SHARC's unique two-shaft design, which doubles the available volume, allows the use of

inexpensive, low-density scrap. The shafts with the built-in post-combustion systems make the furnace not only highly productive and efficient, but also easy on the environment. With a potential charge of up to 65 percent of hot briquetted iron (HBI) in the shafts, the SHARC can also be used for the production of high-quality long and flat products.

The delegation observed several heats using the SHARC process with low-density scrap of 0.25 tons per cubic meter. The SHARC features the most economic and efficient scrap preheating technology of all electric arc furnace types. It is the only electric arc furnace in the world operating with two shafts. Thus it can be charged with the least expensive scrap available in Greece, currently at a purchase price of USD 15 per ton. The price advantage varies depending on where in the world the scrap is purchased. In Turkey, for example, the same scrap grade costs around USD 30, in certain regions of China up to USD 50 per ton.

Over the past ten years, in Greece the market volume for long products has decreased from 2.2 million tons to 350,000 tons annually. Nevertheless, Hellenic Halyvourgia has been able to maintain its profitability thanks to liquid steel production in the SHARC furnace.

The SHARC achieves maximum energy savings compared to conventional electric arc furnaces - without any coal in the charge. With less than 280 kilowatt hours and an electrode consumption rate of 0.57 kilograms per ton of liquid steel, the SHARC process is a very cost-effective steelmaking route. Not only that, due to the symmetrical design of the SHARC, the coal rate for foaming slag is only nine

kilograms per ton.

Interested customers may coordinate a tour of Hellenic Halyvourgia with SMS group. Please contact jan.bader@sms-group.com.

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