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INNOVATIVE APPROACH IN STEELMAKING REFRACTORY APPLICATIONS

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The challenges in the field of electric steelmaking have increased in recent years, especially in terms of the rising quality requirements of the steels to be produced.
These challenges have not only grown, but have also significantly changed due to various factors such as sustainability considerations and carbon footprint. Therefore, some processes, e.g. desulphurization will be shift from primary steelmaking to the ladle metallurgy, which causes intensive slag-metal interaction linked with higher corrosion and erosion of refractory materials.
Additionally, the competitive pressure on European steel producers, especially from the Asian market, is constantly increasing, making it necessary to increase steel production efficiency. In addition to energy prices or scrap and raw material availability, refractory products are also key factors influencing efficient, safe, and effective steel production.
In collaboration with various customers, we recently developed numerous solutions aimed at simplifying lining work, reducing downtime as much as possible, and increasing the safety of refractory linings in operational use.
In the field of the electric arc furnace, prefabricated slag door elements have been successfully tested and introduced. Also prefabricated blocks have been successfully tested and introduced for the taphole area.
To increase operational safety of ladles, tongue-and-groove bricks have been introduced in permanent lining. This significantly extends the service life of the lining and, through careful material selection, also improves the breakthrough prevention properties.
For the AOD converter, our comprehensive refractory solutions have been complemented by specialized logistical strategies designed to simplify material handling and improve installation efficiency.
This paper provides a detailed overview of these innovative solutions and presents practical results.

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