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Enhancing EAF safety and efficiency

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The collaboration between Tenova and Polytec at ORI Martin's Electric Arc Furnace (EAF) facility represents a major advancement in the use of robotics and intelligent monitoring in steelmaking. At the core of the project is the PolySAMPLE robotic solution —a 6-axis industrial robot with heavy-duty protection and tool-changing capability —designed to automate critical EAF operations such as temperature measurement and steel sampling. These high-risk tasks, once performed manually, are now executed safely and repeatably under full remote control.
A patented furnace inspection system, co-developed with Tenova, complements the robot by providing a 360° internal view of the EAF shell and refractory lining through high-definition imaging. This enables early detection of wear or damage, improving reliability and minimizing downtime.
Beyond this specific application, similar robotic systems can be employed in other process phases, including EBT servicing, oxygen lancing, and secondary refining automation, further extending the benefits of safety, precision, and process continuity across the entire steelmaking cycle.

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