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230424	30.9.2023	0:56	IR	(27-02)
230413	28.9.2023	21:14	IR	(25-45)
230072	21.4.2023	0:04	IR	(35-11)
220129	30.12.2022	3:09	IR	(02-17)
220128	30.12.2022	0:58	IR	(01-57-06)
220121	28.12.2022	19:48		

Reveal TAP Metal/Slag detection

Description

Detecting and separating metal from slag during tapping in metal production is important when considering such as product quality, cost efficiency, energy efficiency, and worker safety. Reveal TAP offers a versatile range of applications, including metal/slag detection.

The system uses high-resolution infrared cameras and adaptable detection algorithms to identify the transition between metal and slag during the tapping process, triggering an alarm when a predefined metal/slag threshold is reached. The user gets real-time information about the ongoing process, enabling them to better control and optimize the operation.

Application

The system has been successfully implemented for different metals and can be used in processes like **Argon Oxygen Decarburization (AOD)**, **Electric Arc Furnace (EAF)**, **Basic Oxygen Furnace (BOF)**, and **copper converting**. The advantages resulting from automatic metal/slag detection include, for example, improved product quality and increased yields.

The setup for stand-alone system is simple, comprising just a few key components. One infrared camera is positioned to monitor the tapping stream. The Reveal software is installed on a camera controller for data processing, which is also used to store short-term data. Additionally, the system can also be integrated with the customer's automation system which improves the process traceability and overall efficiency, and the produced data and signals can be further used to improve the automation of the tapping procedure.

Videos from the tapping process are displayed in Sapotech user interface for the users to review the process data later.

Benefits

1. Metal/slag free tapping

The system detects metal/slag in the tapping stream, alerting the operators.

2. Higher yields

Efficient detection ensures that only the desired metal is processed further, leading to improved yield in the metal production process.

3. Better product quality

Slag/metal detection ensures that the product meets the required quality standards.

4. Reduced treatment costs

By optimizing the process, treatment costs can be reduced as the system helps to avoid excessive use of deoxidizers and reduces phosphorous pick-up.

5. Systematic documentation

Tapping process tracking and documentation enable data-driven decision-making.

6. Improved worker safety

Better control of the process and real-time alerts help to minimize the risks of potential accidents.

7. Economic savings potential

Several economic benefits, including avoided consumptions of deoxidizers in ladle treatment, reduced phosphorus pick-up, and decreased refractory wear, resulting in costs savings.