C-Hawk is an efficient and economical control system that prevents slag carryover during tapping from converter to teeming ladle.

Minimizing the outflow of slag is a fundamental precondition for improved efficiency of converter-to-ladle slag transfer, addressing the following main problems:

> Phosphorous and silicon reversion
> Increased aluminium consumption
> Diminished steel quality

The C-Hawk system consists of two main parts:

1. Slag detection (C-Eye) and slag retention (C-Raise).
2. While the C-Eye system focuses on automatically monitoring the slag in the tapping stream, the C-Raise system is dedicated to ensuring the “fast uprighting” of the converter.

C-Hawk works with an Infrared (IR) HD camera that, throughout the tapping process, constantly observes the tapping stream from converter to teeming ladle. As soon as slag is detected, the C-Raise system is initiated and the converter tilting drive motors are put into ready mode for automatic slag retention system.

The Infrared (IR) HD camera typically is roof mounted so it can observe the tapping stream passing underneath the working platform. An image processing unit converts the received slag data into a user-friendly interface used to transmit the data to the C-Hawk Processing Unit. This unit controls the actuators of the converter tilting drive and of the C-Raise as well. The entire system complies with the latest safety standards. C-Hawk includes the following components:

> (IR) HD camera and lens in an industrial enclosure
> Industrial image processing unit
> Fiber optic signal transmission
> C-Hawk processing unit
> Network communication with existing L1 system.

Our advanced options make this unit easier to use, providing additional improvements in product yield, shorter tapping times and savings.

> Integration with plant systems for automated archiving
> Custom user interface
> Remote screens for operators
> Revamping of existing converter tilting drive systems.

C-Eye recognizes and suppresses factors that influence the measurements:

> Steel tapping stream temperature differences
> Taphole changes that affect mass/energy and emissivity levels
> Changes in air humidity
> Radiation from other sources.

PERFORMANCE ACHIEVEMENTS

The C-Hawk improves on the conventional tapping procedure and makes the fast uprighting process possible, thereby limiting slag carryover to an acceptable minimum.

Due to the fact that converter uprighting starts immediately without any time lapse, with optimized time ramp-up and full nominal torque, slag carryover time is reduced by up to 4 seconds compared to conventional slag retention systems.

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