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Innovation in weighing technologies meet growing melt shop operation requirements

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Reliable, precise, and maintenance-friendly weighing systems have always been essential for safe and efficient production in the harsh environment of steel melt shops. Today, modern technologies empower us to equip key production assets with weighing systems that are both robust and highly accurate. This enables steel producers to meet the growing demands for safety, process control and optimization through solutions that are simpler and more dependable than ever before.

In this session of the EEC 2026 I like to present some of those proven modern melt shop and scrapyard weighing technologies:

Digitization of each loadcell signal close to its installation place

Digital loadcell signals enable precise recording, monitoring and supervision of both static and dynamic loads at each individual load point in real time. This capability allows for the early detection of local overloads and the easy localisation of damaged loadcells.

Online measurement of the loadcell temperature

Many heavy-duty loadcells used in liquid steel weighing applications are now equipped with integrated PT100 temperature sensors. They provide real-time temperature data to the PLC, helping to prevent loadcell damage caused by overheating.

Scrap loading with overload protection

Former designer generations separated scrap loading from weighing to protect the sensitive loadcells from huge dynamic loads. Nowadays this split of functions is no longer needed, as modern loadcells contain overload protections: loading and weighing can take place in the same process.

WLAN data transmission between mobile assets and the control room

All mobile melt shop assets - such as ladle transfer cars, ladle cranes, continuous casting machines, and tundish cars - require flexible and reliable data connections. Modern WLAN-based radio transmission solutions have replaced data cables, which were prone to damage. These wireless systems significantly enhance operational robustness and ensure consistent weighing accuracy.

Weighing system for the EAF furnace shell

With the rise of GreenSteel applications, the latest generation of Electric Arc Furnaces (EAFs) demand highly reliable and flexible weighing solutions to meet stringent product and process quality requirements. Modern loadcells in combination with digital condition monitoring have made this tough weighing application feasible –allowing in addition an improved energy consumption control.

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