

Precise Process Control with Advanced Weighing Technology Reduces Cost



At its site in Weilheim, Germany, Behringer Eisele produces modern circular sawing machines for the processing industry, including the HCS 90. One of the largest forging companies in Germany required a complex, fully automatic HCS 90 circular sawing system for steel cuttings to be extended with the option of "readjustment using a checkweigher". The correct length and weight of the freshly sawn round steel cuttings are important for later processing. If the blanks have an incorrect weight, this can result in high costs due to damaged mouldings during subsequent mass forming of the round material.

Downstream of the high-performance circular sawing machine, a robust and accurate in-line checkweigher checks the steel cuttings. Its task is to readjust the sawing process using the weight measurement. The objective is the production of "good products" – in this case correct blanks – with a high degree of process reliability and a minimum of rejects.



With high accuracy, the checkweigher reliably controls an upstream steel sawing system

Behringer-Eisele

Checkweighing in Harsh Environment with Automatic Controlling of a Sawing System
Optimization of Manufacturing Stages

In order for the forging company to manufacture exclusively good products with the modern Behringer-Eisele circular sawing system, the METTLER TOLEDO checkweigher was configured with additional weight zones and floating "classification contacts" as well as a multi-evaluation function. The two additional weight zones and the four classification contacts of the checkweigher enable the sawing process to be monitored and controlled. Controlling the sawing process ensures that the target weight of the steel cutting is reached.

Multi-evaluation eliminates the need for a manual switchover

The "multi-evaluation" option enables automatic product memory changeover on the checkweigher via a central control system. In this case, various item setup memories were created for the various sizes of the blanks which can weigh between 900 g and 7000 g in various lengths. This means that as soon as a blank to be weighed appears on the checkweigher, all parameters such as nominal weight, weight limits, etc. are automatically adjusted. This user-friendly function saves a considerable amount of time when setting up a new production order, which is a real advantage to the forging company.

Readjustment via the classification contacts or stopping the belt

Fluctuations in the weight of the raw material or a worn saw blade



The Siemens SIMATIC control is the interface between the checkweigher and the Behringer-Eisele HCS90 sawing system

can result in the steel cuttings being underweight or overweight. The checkweigher immediately detects steel cuttings with an incorrect weight and, in the case of weight values in the tolerance range between the "inner" and the "outer" limits, triggers a readjustment of the saw so that the subsequent blanks are cut to length in such a way that their mass is as close to the target weight as possible. If "runaway" blanks fall outside of the outer limits, the checkweigher stops the conveyor belt immediately to prevent the affected blanks from being conveyed further along the production line. The belt stop can only be reversed by an operator, which is followed by an examination of the process or correction of the setting parameters for the sawing system.

"Previously, we didn't think that it would be possible to use a checkweigher in connection with the sawing process, as the sawing system generates strong vibrations", explains Manfred Grüninger, Sales Manager at Behringer Eisele GmbH. There the checkweigher checks

up to 15 steel cuttings, weighing between 900 and 7000 grams, per minute. In this application, the checkweigher achieves an accuracy of 2 grams.

"Today, the checkweigher not only allows us 100% control of the steel cuttings downstream of the sawing system; it also enables the perfect documentation of the production process", continues Grüninger.

In addition to checkweighers, METTLER TOLEDO offers a full range of inline product inspection solutions, such as metal detectors, X-ray inspection technology and visual inspection systems.

METTLER TOLEDO has a comprehensive worldwide service network and is therefore the ideal partner for companies which understand the importance of quality and which have stringent quality requirements, such as Behringer Eisele GmbH.

More information:

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