

DETERMINING THE POWDER THICKNESS

Measuring the true steel level
in closed casting

RADIOMETRIC MEASUREMENT FOR STEEL AND POWDER LEVELS

When producing high-quality steel alloys, the closed casting process is essential. In this method, the liquid steel is covered with a layer of casting powder. This powder prevents oxidation, insulates the surface from cooling too quickly, and melts upon contact with the molten steel, acting as a lubricant between the oscillating copper mould and the steel. Conventional radiometric mould level detectors cannot distinguish between the steel level and the powder layer.

Making the invisible visible

Berthold Technologies, in collaboration with SMS Concast, has developed the state-of-the-art LB 6755 CONGAUGE detector. By combining ten scintillation crystals with an advanced software algorithm, the device can accurately distinguish the true casting level of molten steel from the thickness of the casting powder layer – all within a single unit.

Maximum process reliability in closed casting processes

Precise knowledge of the powder layer thickness enables more accurate monitoring of the real liquid steel level in closed systems. This, in turn, allows for the exact dosing of powder via an automatic feeder, maintaining a consistent powder layer and reducing the need for manual intervention in hazardous working areas. The detector additionally uses silicon photomultiplier (SiPM) technology to ensure maximum robustness against interference from nearby electromagnetic stirrers and brakes, while providing outstanding temperature stability.

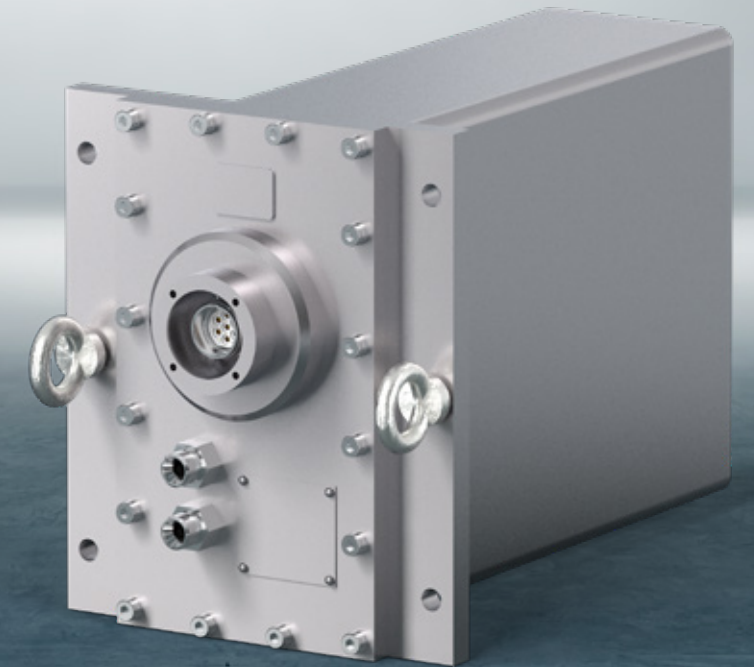
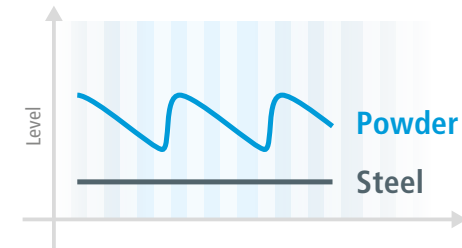
The precise monitoring and control of casting powder thickness is beneficial for customers in the following ways:

- Reduced number of broken strands
- High stability of mold level accuracy
- Improved steel quality level
- Process automation by integration of automated powder feeder

in cooperation with
SMS group
SMS Concast AG

CONGAUGE detector Redefining industry standards

The separate output of the powder signal enables precise monitoring of the powder thickness and an evenly dosing of the powder.



Advantages

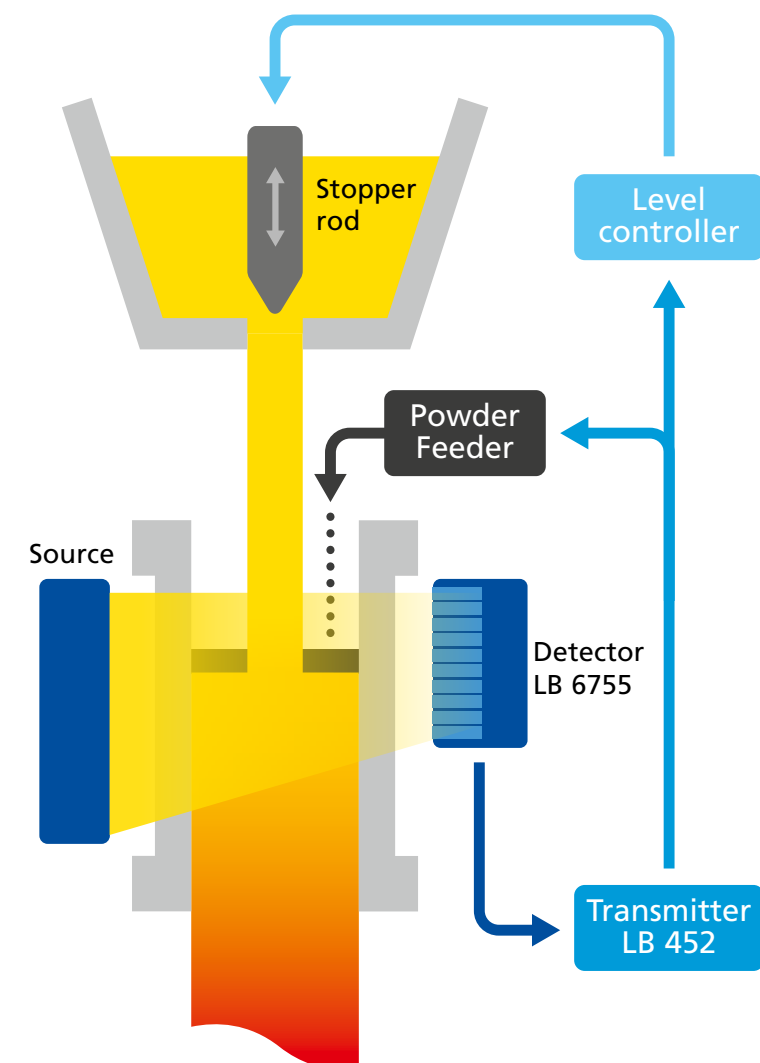
- One device, two signals (steel and powder)
- Constant highest steel quality
- High reliability under extreme process conditions
- Low maintenance
- Easy retrofit of LB 6752 and LB 6652 without mechanical adaptations
- Robust against environmental influences like electromagnetic stirrers and brakes, high temperature, mechanical shock
- Compatible with LB 452

Technical features

- 10 sensors within 1 housing
- Cycle time steel level: 5 ms
- Cycle time powder level: 250 ms

Communication

- Current output via 4 to 20 mA
- Profibus
- ProfinET





THE EXPERTS IN MEASUREMENT TECHNOLOGY

Berthold Technologies stands for excellent know-how, high quality and reliability. The customer is always the focus of our solution.

Using our varied product portfolio, our enormous specialized knowledge and extensive experience, we develop suitable solutions together with our customers for new, individual measurement tasks in a wide variety of industries and applications.

We are here for you – worldwide!

The engineers and service technicians from Berthold Technologies are wherever you need them. Our global network assures you fast and above all competent and skilled assistance in case when needed. No matter where you are, our highly qualified experts and specialists are ready and waiting and will be with you in no time at all with the ideal solution for even the most difficult measurement task.

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