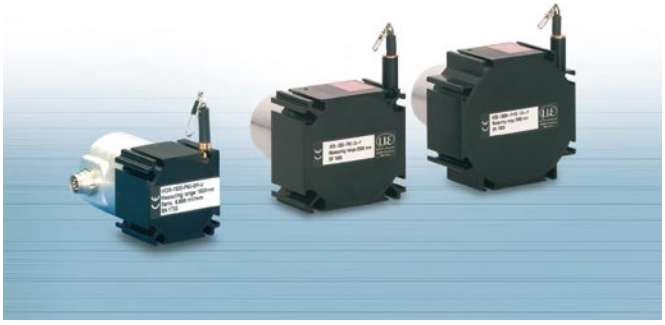
Displacement measurement on slag transporter

The use of slag transporters represents an extremely demanding transport task.
Hot (1,300°C) slag weighing 80 tonnes has to be transported to its destination in the shortest possible time without the slag cooling down (otherwise the expensive slag ladle is destroyed) and without endangering human life.
Therefore, the first priority is maximum efficiency coupled with process reliability and work safety. Potential for reducing the transport time is in the time taken for the rear support cylinder to retract and/or in the tipping cylinder for loading and unloading the slag transporter.
Up to now, the measurement of the position of the cylinders has been achieved using limit switches. However, this measurement method was prone to error due to its discrete switching points and the harsh environment. Draw-wire sensors from Micro-Epsilon are now being used at Kamag to reduce the transport time. The sensor is mounted parallel to the tipping cylinder and is protected by an additional steel housing and a steel tube, in which the sensor wire runs. The draw-wire sensor for measuring the position on the support cylinder is securely mounted in the vehicle frame. The sensor is connected to the support cylinder using appropriate wire extensions.
Sensors in the wireSENSOR P60/P96/P115 series are used on the slag transporter. A high signal stability is ensured due to the metal housing and the extremely robust design.

The use of draw-wire sensors enables permanent displacement measurement for Kamag and a reliable measurement set-up and therefore provides the benefit of shorter transportation times. Previously, the driver of the vehicle had to wait for an end signal from the limit switch. The travel can now be started earlier, irrespective of the loading status and so valuable time is saved.



Ambient conditions:
- Temperature: -40°C to 80°C
- Interference fields: EMC

Requirements for the measuring system:
- Measuring range: 500mm to 3,000mm
- Linearity: 0.1% of the measurement

Suitable sensor series:
- WDS-500-P60-CR0,5-P-KAM
- WDS-3000-P115-CR0,5-P-KAM

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