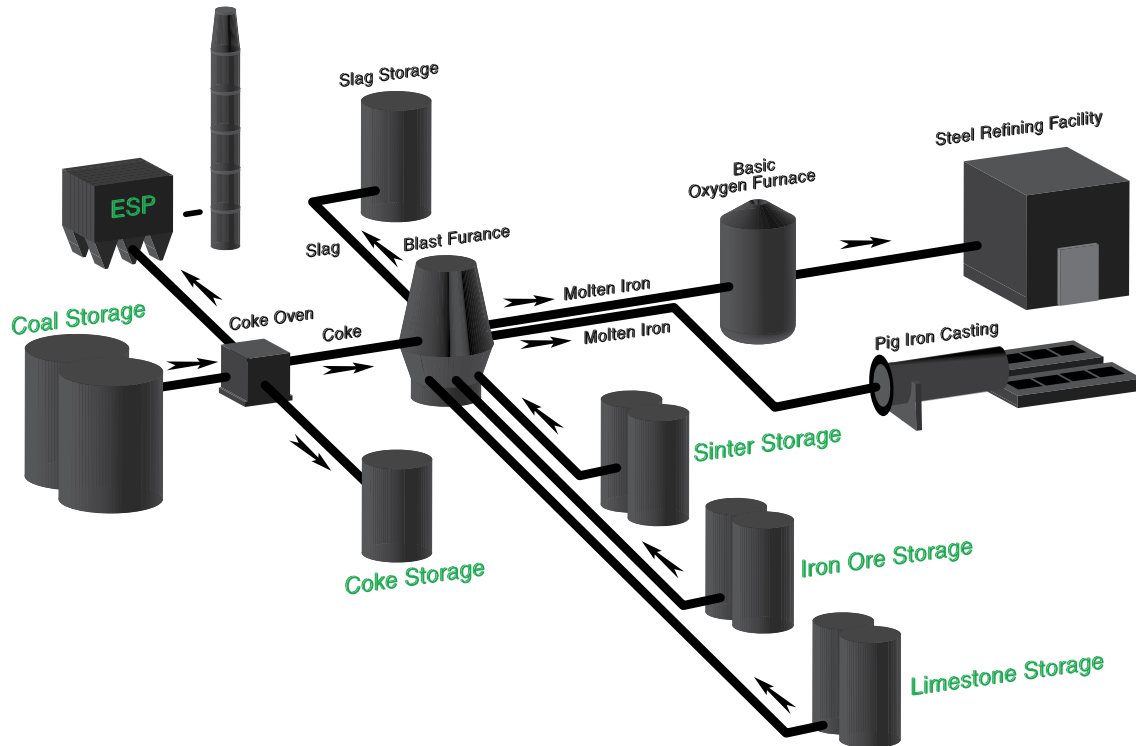




# Metals

## Steel Production



3DLevelScanner

### Coal Storage

**Application:** Coal is stored in silos that feed the coke oven, which feeds the coke to the furnace. There will be at least one silo for each furnace.

**Challenges:** If the coal silo were to be completely empty, the furnace would need to be shut down. As coal is critical for the process, the end user seeks to control and monitor the volume of coal in the silo in order to prevent process stoppages. BinMaster's 3DLevelScanner's sophisticated surface mapping technology delivers real-time level and volume measurements of the coal remaining in all silos feeding the furnace, enhancing inventory control.

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## ESPs

**Application:** Fly ash is captured and removed from the flue gas by electrostatic precipitators or fabric bag filters located at the outlet of the furnace and before the induced draft fan. The fly ash is collected in hoppers below the precipitators or bag filters and periodically removed from them.

**Challenges:** ESP hoppers are continuously filled with hot fly ash. Along with the effects of humidity and high temperature, fly ash tends to stick to the sides of the hopper which can cause material buildup and clogging of the hopper which can damage the ESP plates.

End users need to continuously monitor the level and volume of fly ash and its distribution inside the hopper so it can be emptied on time, maintained and cleaned when necessary. This is essential in order to prevent clogging and the risk of damage to the ESP plates. Damaged plates can create both environmental and health concerns as well.

The 3DLevelScanner is the only device currently available that permits continuous volume level measurement of fly ash inside an ESP hopper. The 3DLevelScanner's 3D visualization tool allows the end user to see the distribution of material inside the hopper and detect buildup as it occurs, facilitating the scheduling of timely maintenance to avoid unexpected and costly interruptions of the process, and damage to the ESP plates.

At coal-fired power plants where 3DLevelScanner technology is not used in the ESP process, the emptying of the hopper is performed in timed intervals. There is no reliable way to measure the amount of fly ash in the hopper, so a timer is set to begin the emptying regardless of the amount of fly ash remaining in the hopper, making the whole process very inefficient, and causing, for example, the air compressors to work unnecessarily. The 3DLevelScanner allows users to reliably coordinate and automate the filling and emptying of these hoppers.



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## Coke Storage

**Application:** Coke is stored in silos before being sent forward for additional processing.

**Challenges:** Coke generates excessive dust during the filling and emptying processes, is stored under harsh dusty conditions, and tends to adhere to silo walls creating buildup and rat holing. This significantly challenges the end user's ability to accurately measure material inventory, which is especially important because coke is essential to the steel production process. BinMaster's 3DLevelScanner's unique dust-penetrating technology delivers accurate and reliable real-time measurements of the level and volume of stored coke even in harsh environments, and also provides an optional 3D image of how the coke is distributed inside the silo. This permits early detection of buildup, facilitating the scheduling of timely maintenance and cleaning to avoid unexpected interruptions of the production process and associated losses in time and money.

## Limestone storage

**Application:** Limestone is stored in silos before entering the production process.

**Challenges:** Limestone generates a great deal of dust during the filling process and tends to stick to the walls of the silo, creating irregular buildup and rat holes. Because limestone is essential for the steel production process, it is important to quantify the amount of raw material available in the silo to assure continuous production. BinMaster's 3DLevelScanner's sophisticated surface mapping technology and dust-penetrating capabilities delivers real-time volume measurements of the stored limestone and generates an optional 3D visualization of the silo contents to allow early detection of buildup. This permits scheduling of timely maintenance and cleaning to avoid unexpected interruptions in the production process and associated losses in time and money.



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## Sinter Ore Storage

**Application:** Sinter ore is stored in silos before entering the production process.

**Challenges:** Sinter ore creates a very dusty environment during the filling process and tends to stick and form buildup along the silo walls. Sinter ore storage silos are typically very large. The large size of the silos and the harsh storage environment make it difficult for the end user to continuously monitor inventory levels. The 3DLevelScanner's unique dust-penetrating technology delivers accurate and reliable real-time measurements of the volume of sinter ore in the silos, taking into account any buildup, even in under harsh conditions. The scanner's optional 3D visualization tool generates a real-time 3D image showing how the sinter ore is distributed inside the silo, allowing for early detection of buildup as it occurs. This avoids unexpected and costly interruptions of the production process, and improves the end user's inventory management and control capabilities.

## Iron Ore Storage

**Application:** Iron ore is stored in silos before being sent forward in the production process.

**Challenges:** The silos hold a supply of iron ore that can be continuously supplied to the furnace. If the iron ore silo were to be completely empty, a furnace shut down would be required. The 3DLevelScanner's unique dust-penetrating technology delivers accurate and reliable real-time measurement of the volume of ore in the silos, taking into account any buildup, even under extreme harsh conditions. This allows scheduling of timely maintenance and cleaning to avoid unexpected interruptions of the production process and associated losses in time and money.



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