

Electromagnetic steel level tracking in EAF

The EMLI-EAF Level system is a unit for recording critical furnace level data. It can be used in all EAF furnace types when the process requires knowledge of bath and hot heel levels.



The system is capable of measuring a change of electromagnetic coupling and will provide accurate metal bath and hot heel levels. It can detect metal levels both during power on and power off.

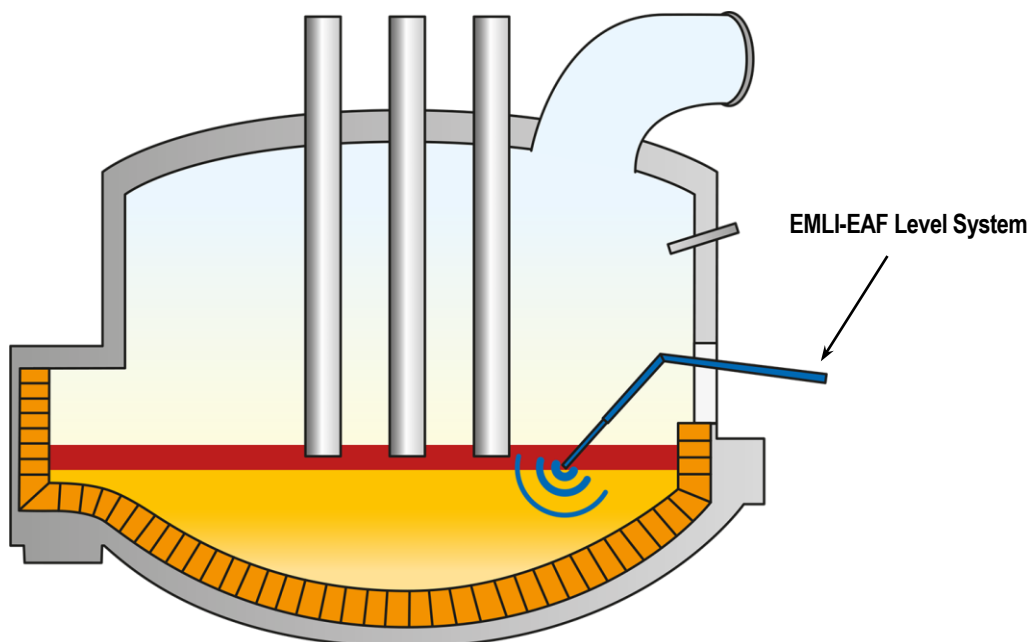
Since the system measures the level for every heat, the development in the furnace is tracked and followed over time.

The system is built to fit the most common slag door manipulators, permitting level measurements to be performed simultaneously with temperature and material sampling.

The output from the system will measure metal level from a fixed reference point. This information can assist with crucial decision making such as optimizing injection lance position and managing the hot heel.

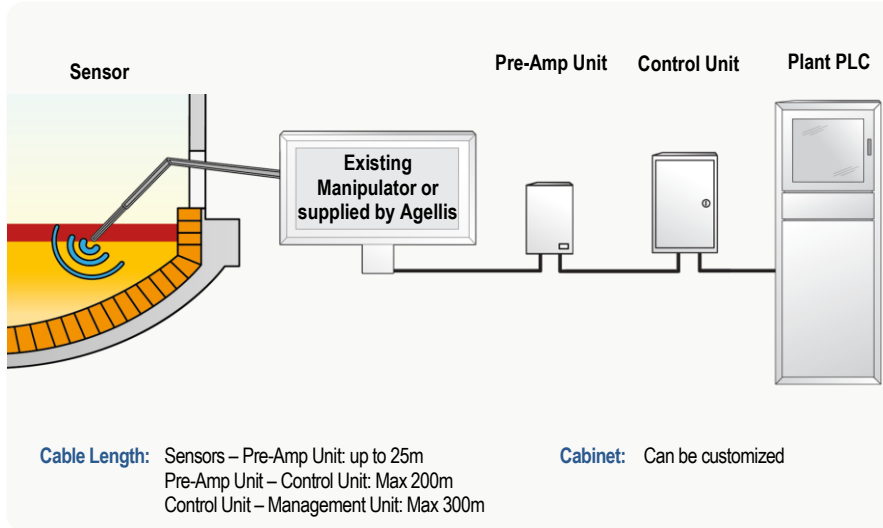
EAFs often have temperature and sampling mechanisms in place. Most manipulators can be adapted to include the EMLI-EAF Level system.

The system ensures that all samples (temp, O, material) are taken in the metal.



Agellis follows a policy of continual improvement of design and we must therefore reserve the right to supply equipment differing in detail from that described herein.

System Overview



Technical Information

Sensor Unit

Power Supply: 90 - 230 VAC 50/60 Hz max 500 W

Frequency: Selected for local application

Compatibility: Compatible with both slag door manipulators and vertical mechanisms

Safety standard: Complies with known safety standards

Total System Accuracy: +/-10mm depending on manipulator position encoder

Note: Above data can vary depending on furnace size shape and local conditions

Principles of Operation

The EMLI-EAF Level system creates an electromagnetic field that is affected by the presence of metal. The change occurring in the electromagnetic field, surrounding the sensor, when it approaches the metal bath and is match with the position transducer on the manipulator. Software within the system transforms the sensor position to an accurate metal bath level in the furnace. The sensor is installed on the manipulator itself. Thus, it is not a consumable.

The picture on the right shows a sensor mounted directly on the probe holder.



User Benefits & Advantages

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| Easy & fast system | – The bath level measurement is performed during normal sampling procedures. No extra time required. |
| Bath and Hot Heel | – Tracking the bath level during heat provides information about rising or declining hot heel. |
| Power on/Power off | – The system detects bath levels in both power on and power off. |
| Multiple measurements | – Several bath level measurements per heat. Every time the sampler enters the furnace. |
| Repeatable results | – Reliable information irrespective of operator skills. |
| Retro fit possible | – The EMLI-EAF Level lance can be retro-fitted to existing slag door manipulators or robots with only minor adjustments. |
| Optimises production process | – Aids efficient decision making. |
| Improves safety | – Aids level control in furnace and removes requirement for operators to manually gauge furnace levels. |

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