EWS Control GmbH
early warning system

FOUNDRY GUARD THE WEAR MONITORING FOR CORELESS INDUCTION FURNACES IN REAL TIME

Foundry Guard

Active Warning System

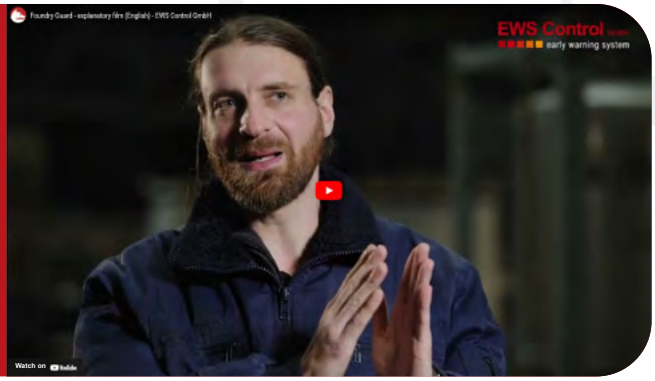
Protects, what is valuable:
Your employees and your equipment

The new early warning system for coreless induction furnaces!

www.foundry-guard.com
www.ews-control.de

You can find our explanatory video here:

www.foundry-guard.com



Foundry Guard

Active Warning System

AVOID DAMAGES – PREVENT ACCIDENTS:

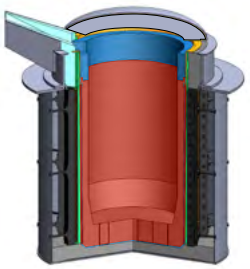
Foundry guard is your reliable security guard

COMPREHENSIVE WEAR MEASUREMENT IN REAL TIME

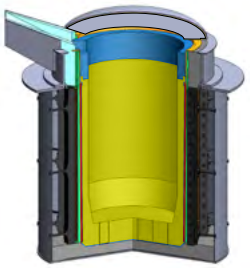
Foundry Guard is an early warning system for **real-time wear indication for the refractory wear lining of your coreless induction furnaces**. It enables advanced wear conditions to be signaled. Foundry guard monitors and analyses **continuously** the status of the refractory wear lining. The state of wear is reported by using a traffic light principle. The alarm is triggered via relays as soon as the value falls below certain thresholds. This ensures a stable operation with a reliable detection of wear is guaranteeing.

VISUALISATION OF THE STATE OF WEAR ACCORDING TO THE TRAFFIC LIGHT PRINCIPLE

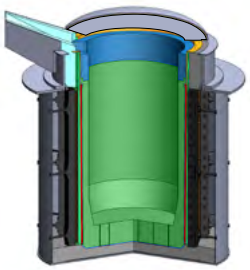
The state of wear is visualised using an **easy-to-understand traffic light principle**. If the threshold values that can be adjusted by the customer are not met, an additional alarm can be triggered via a relay. The **patented and intelligent adjustment of the measuring parameters** as well as the **automatic detection of disruptive factors** enables stable operation of the systems and reliable early detection of wear. The online trend display enables the creation of an individual residual wall thickness table for specific wear conditions.



Alert



Advance warning



Normal operation

EWS Control GmbH
early warning system

Foundry Guard

Active Warning System

YOUR ADVANTAGES

Complete real-time wear measurement

Safety for your employees & equipment

Cost effective application

Up to 75 % cost savings compared to other products

Intuitive application

Easy retrofitting via easy plug & play installation

Integrated load measuring

Foundry guard offers a wide range of benefits

REDUCED RELACEMENT COSTS THROUGH LONGER LIFE PERFORMANCE

By using the **foundry guard** system, the refractory lining in induction crucible furnaces can be used more effectively. Instead of replacing of the wear lining at fixed time intervals, it only needs to be replaced if advanced wear is detected. The efficiency and productivity of the furnace are increased, while at the same time operating costs are reduced.

AVOIDANCE OF HIGH REPAIR COSTS

Foundry guard enables early detection of advanced wear before any metal leakage occurs, thereby reducing the risk of expensive repairs.

AVOIDANCE OF IDLE TIMES

The Foundry Guard system enables problems to be detected at an early stage. Production downtime and loss of sales can be effectively avoided.

AVOIDANCE OF SYSTEM DAMAGE

The safety and health of employees is paramount priority. Foundry guard enables early detection of potentially dangerous conditions or failures to prevent accidents and to reduce the costs of compensation and legal consequences.

Foundry Guard

Active Warning System

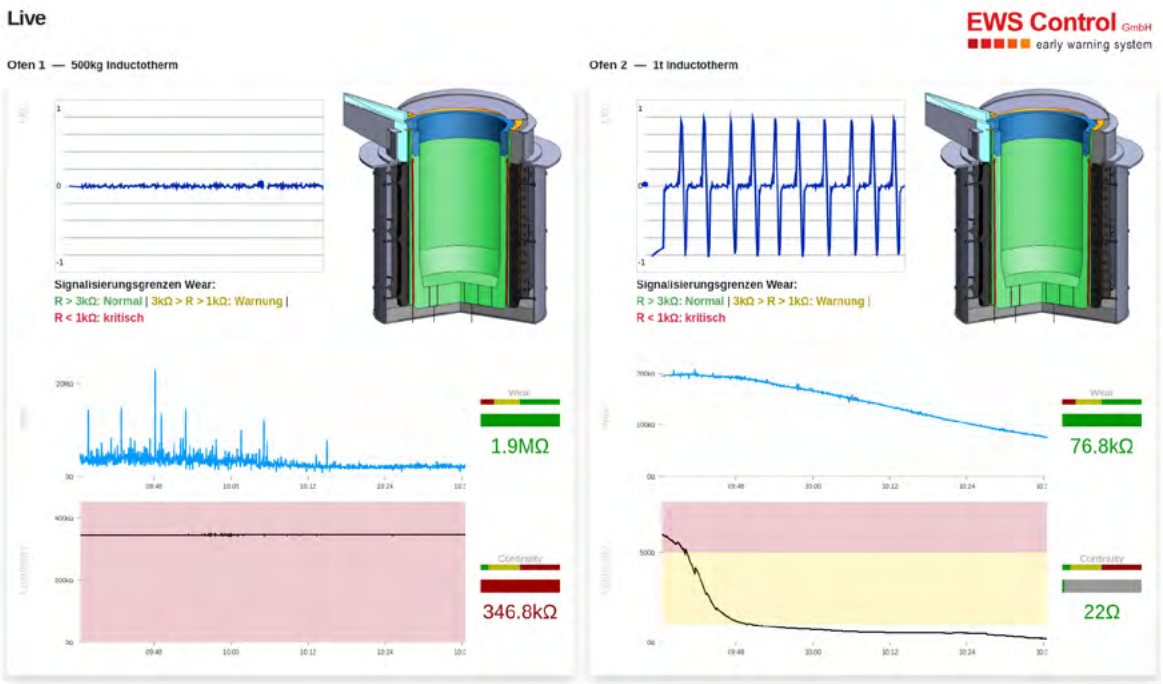
FUNCTIONAL PRINCIPLE OF THE EARLY WARNING SYSTEM

- **A sensor mesh** (DFP Dorit Meldenetz flex “early warning net”) is installed on the coil grout inside the furnace. There is **no need for complex segmentation**!
- There is a **permanent measurement** of the electrical resistance and thus the wear of the refractory material.
- The coupling of the measurement signal to the melt is measured by an additional ground antenna and **visualised as an ECG signal**.
- The **control unit permanently monitors the change in resistance** and uses a simple visualisation based on the traffic light principle for a **clear signal (traffic light system)**. Dangerous situations and the integral degree of wear are displayed (green – yellow – red).
- If advanced wear is indicated or a direct contact to the sensor mesh is detected an alarm is raised. This is the point at which the furnace must be stopped and relined.
- We provide an on-site training by **Dörentrup Feuerfestprodukte GmbH & Co.KG / Germany.** After the training, future relinings with the sensor mesh can be carried out independently by the customer.

Relining of MF- IT with Dorit Meldenetz flex (sensor mesh)

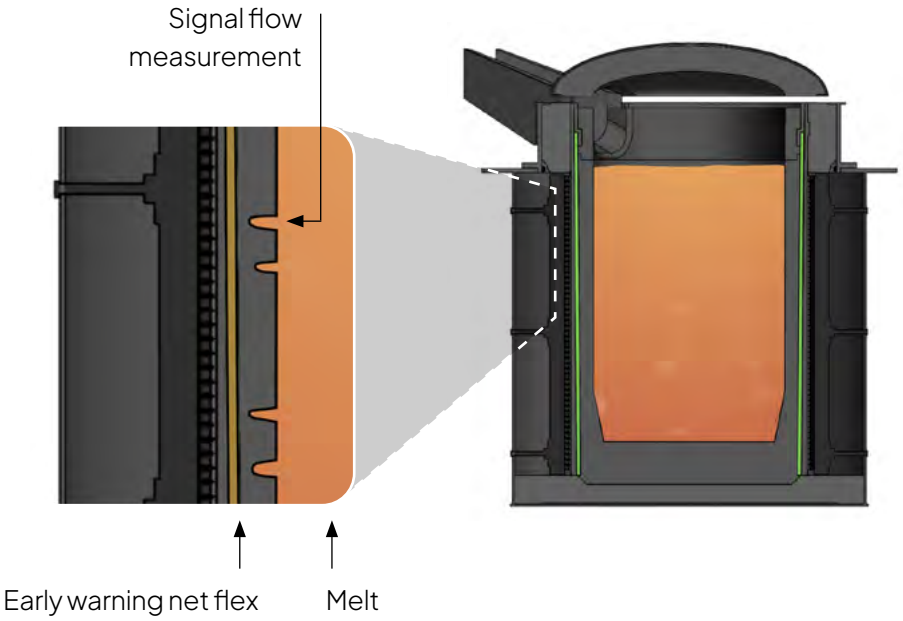
Finished installation of the sensor mesh

Normal operation



50,0 – 10,0 kΩ = Normal operation
10,0 – 3,0 kΩ = beginning of wear
3,0 – 1,0 kΩ = early warning
1,0 – 0,0 kΩ = Red warning signal

Permanent resistance measurement
between the sensor mesh and the melt



EASY INSTALLATION & SIMPLE RETROFITTING „PLUG & PLAY“

The early warning system **„Foundry Guard”** is characterised by easy installation and simple retrofitting because it works according to the “plug & play” principle. This means it is ready for use quickly and enables smooth integration into existing systems, without extensive modifications or technical difficulties. The installation of the sensor mesh is carried out by our experienced partner Dörentrup Feuerfestprodukte GmbH & Co. KG Germany, who is specialised in the lining of melting, holding, casting, transport and treatment systems in the foundry industry.

Easy adjustment of the sensor mesh

Processing / Specific silicone

Installation

Assembly on the furnace platform

Direct melt contact with the sensor mesh

EWS control system

INTUITIVE USE

Using **“Foundry Guard”** does not require extensive training and is intuitive, as it was developed to be extremely user-friendly. Your employees can therefore use **Foundry Guard** easily. The display and the visual representation of the wear conditions are carried out in a clear and understandable manner. This allows users to respond quickly to potential threats and issues.

Foundry Guard
Active Warning System

KEEP WEAR UNDER CONTROL

When operating a coreless induction furnaces, various challenges arise, particularly with regard to wear on the refractory lining. Wear can be unpredictable and depends on many factors, such as the type of refractory material, the operating conditions and the length of use of the furnace.

- If the refractory lining is severely worn, this can lead to unplanned **production downtime** as repairs or replacement of the lining must be carried out without lead time.
- Regular or too frequent replacement or repair of the refractory wear lining causes **high costs**, affects productivity and increases operating costs.
- A heavily worn furnace poses **safety risks**, as cracks or spalling in the lining can lead to leaks and thus increase the risk of accidents.

As refractory lining wear is unavoidable, effective monitoring of the refractory lining is of crucial importance. By using Foundry Guard, potential damages can be detected at an early stage and appropriate measures can be taken.

AVOID INCALCULABLE RISKS LIKE THESE:

EXPLOSION IN A CASTING PLANT:

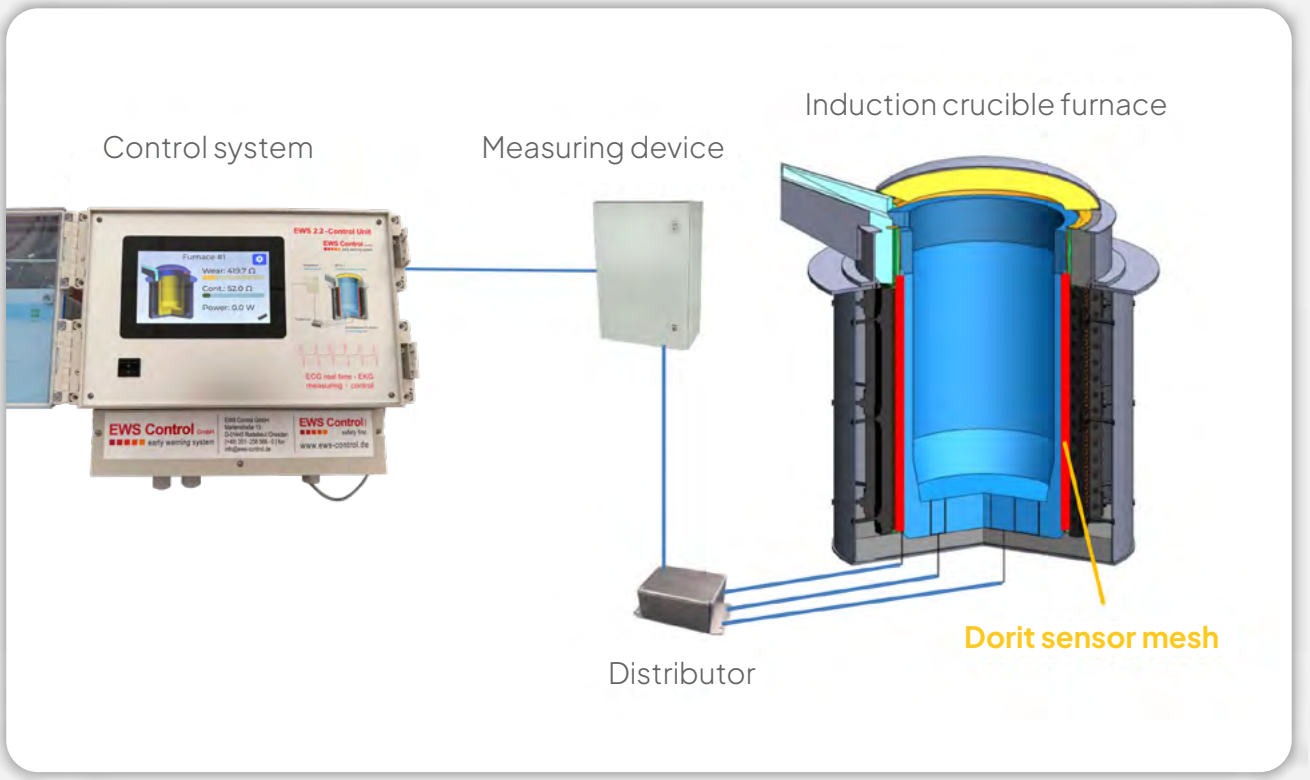
Four injured and huge material damage in Thuringia

According to initial findings, an uncontrolled, explosive iron escape occurred at an induction furnace with a capacity of 5 tons. The liquid metal was thrown out of the furnace and ignited the hall roof and other surrounding areas. The furnace was significantly affected. The roof of the melting plant partially burned down. Four employees were injured. 179 emergency services from numerous fire departments deployed for a large-scale operation. Millions of dollars in damage caused to the company property.

13.10.2023

Foundry Guard
Active Warning System

Basic structure of the Foundry Guard early warning system



Basic structure of the Foundry Guard early warning system with monitor display, wall mounting of the control cabinet, according to customer specifications. Standard closet with clear glass door.

Protects, what is valuable:
Your employees and your investments

The new early warning system for coreless induction furnaces!

Foundry Guard is used in various fields

DFP
Exklusiver Systempartner

PRACTICAL EXAMPLES

Foundries

Our systems ensure the safe and efficient use of coreless induction furnaces in foundries, which means that potential problems are identified at an early stage and an appropriate alarm is raised.

Research & Science

We support research and development institutions in the fields of materials science and metallurgy in operating their systems safely and reliably.

Melting operation

By monitoring the coreless induction furnaces in the melting plants, we help to avoid accidents and ensure a continuous workflow.

Foundry Guard is used wherever coreless induction furnaces are used and it enables our customers to use their furnaces reliably and safely.

MANUFACTURER

Dr. Tanneberger GmbH, based in Radebeul - Germany, has been working successfully since 1992 to increase safety and energy efficiency of industrial companies. EWS-Control GmbH was founded in 2021 to operate our innovative systems even more efficiently.

EWS-Control GmbH is specialised in the procedual safety monitoring of coreless induction furnaces. With our early warning system Foundry Guard, we are providing real-time monitoring of wear lining.

Our efficient and user-friendly solutions offer furnace operators and foundries the opportunity to monitor the refractory lining and avoid accidents and operational downtimes.

EWS Control GmbH
early warning system

DFP

EWS Control GmbH
Marienstraße 13
D - 01445 Radebeul / Dresden

Phone: +49 (0) 351 258 566 -0
Mobile: +49 (0) 172 395 80 30

www.ews-control.de
info@ews-control.de

Authorised Representatives:
CEO: Dr.-Ing. Ralf Tanneberger
CEO: Dipl-Phys. Peter Schmidt

Office: Radebeul
Commercial Register:
Amtsgericht Dresden HRB 41093
USt.-ID: DE343082507

Dörentrup Feuerfestprodukte
GmbH & Co. KG
Lemgoer Straße 9
D - 32694 Dörentrup / Germany

Phone: +49 (0) 52 65 - 71 60

www.doerentrup-feuerfest.de
info.dfp@doerentrup.de

Authorised Representatives:
Dipl.-Kfm. Christian Bock
Herr Thomas Wilmes

Commercial Register:
Amtsgericht Lemgo HRA 2695
USt.-ID: DE813621395

www.foundry-guard.com
www.ews-control.de

Explanatory video:
www.youtube.com/@FoundryGuard