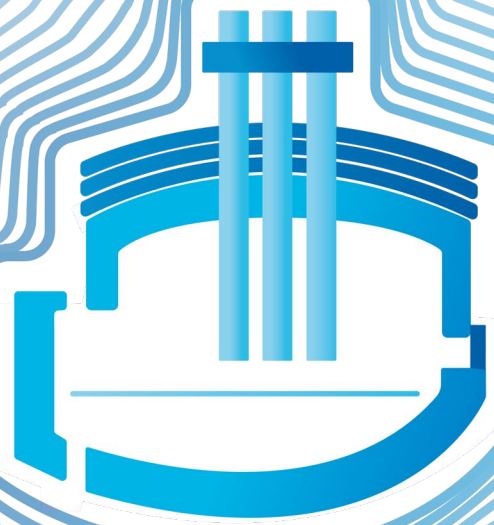
EUROMEC

ENGINEERING AND INDUSTRIAL SYSTEMS

EUROMEC

EAF – Safe, productive, sustainable robotic solutions



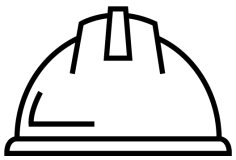
PRODUCTIVITY SAFETY SUSTAINABILITY

www.euromectech.it

EUROMEC is a leading company in the field of technological packages for the steelmaking industry.

The technological packages are linked to EUROMEC strategy to create value for its customers in term of:

Improving the
PRODUCTIVITY



Improving the
SAFETY

Improving the
SUSTAINABILITY

Together with the mechanical equipment EUROMEC is capable to provide and properly manage the automatic control in term of hardware and software.

A solid and reliable design is clearly linked to EUROMEC reputation following 30 years of history.

EUROMEC, a better everyday life for industrial people.

Euromec's services

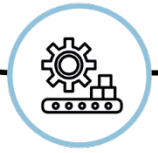
01 CLIENT REQUEST

02 EVALUATION

03 TECHNICAL / COMMERCIAL PROPOSAL

04 ORDER

05 DESIGN



06 MANUFACTURING

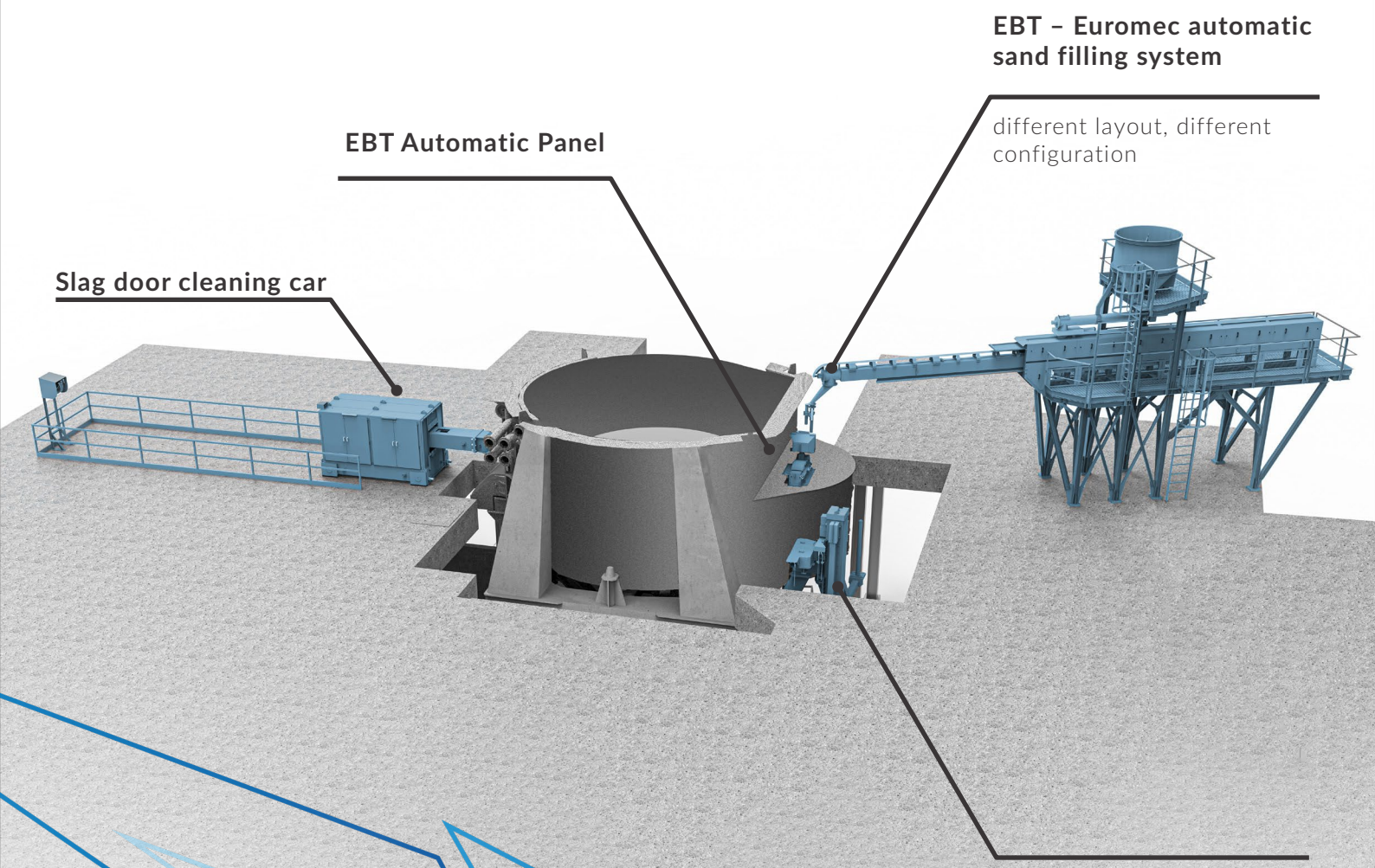
07 TESTING

08 INSTALLATION

10 SPARE PARTS

09 SERVICE

Technological packages suitable to remove human operation around the EAF



EBT – Euromec automatic sand filling system

Electric Arc Furnace (EAF) Eccentric bottom Taphole (EBT) has to be periodically re-filled with sand. This activity is performed one time per heat at the end of every tapping operation.

In the traditional manual mode operation the activity is:

- DANGEROUS
- TIME CONSUMING
- UNSTABLE IN TERM OF QUALITY
- UNSTABLE IN TERM OF SAND CONSUMPTION

Euromec Automatic EBT sand filling system is able to perform the complete sand filling operation in semi-AUTOMATIC mode with a camera guided operation.

Compared with the traditional operation, the automatic one is:

- FASTER IN TERM OF TIME
- STABLE IN TERM OF QUALITY
- STABLE IN TERM OF SAND CONSUMPTION

Generally equipped with a weighted storage hopper, an extracting screw feeder that feeds a second hopper equipped with a second screw feeder.

The second screw feeder is arranged in a way to move next to the EBT hole in order to properly refill it.

A video camera supports the EBT inspection with a video guided filling operation.

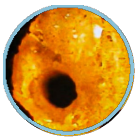
Euromec is able to design custom made solutions to fit the different layouts.

FEATURES

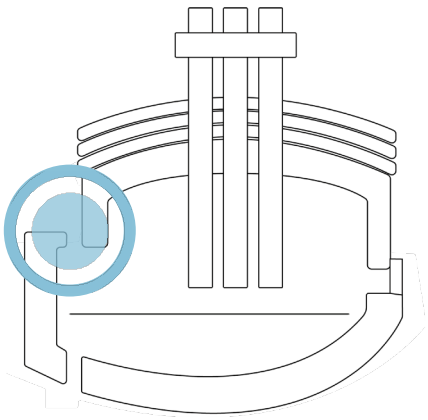
SAND CONTINUOUS FILLING ACCORDING TO THE EBT REQUIREMENTS

FAST CYCLE TIME

REMOTE CONTROL OF IMAGE



SHORT TERM RETURN ON INVESTMENT



PRODUCTIVITY SAFETY SUSTAINABILITY

EBT – Euromec automatic cleaning system

Electric Arc Furnace (EAF) Eccentric Bottom Taphole (EBT) has to be clean in order to perform a proper tapping operation and the following sand re-filling operation.

If the EBT hole is not clean the required manual operation to remove the material is dangerous and time consuming.

With the Euromec automatic cleaning system the operation is semi-automatic. The production lost due to this issue get reduced and under control.

The final result ends up in:

- SAFER OPERATION
- PRODUCTIVITY INCREASE

The automatic cleaning system is a solid one arranged with hydraulic guided lifting and rotating cylinders able to move the equipment in a protected stand-by position (parking mode) and accurately below the EBT hole during the working condition.

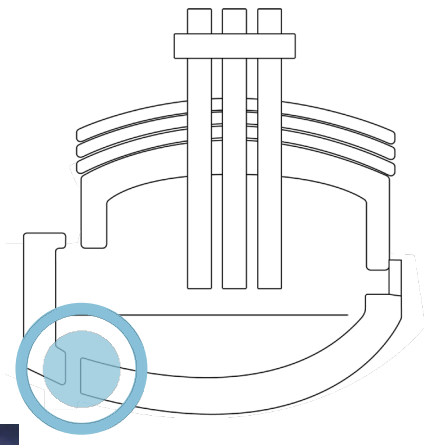
The supply includes the complete automation system in term of hardware and software.

FEATURES

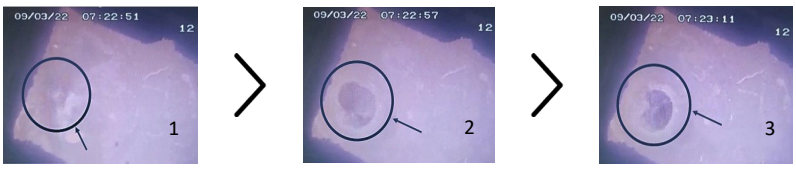
HEAVY DUTY DESIGN

SUITABLE CLEANING FORCE

SHORT-TERM RETURN ON INVESTMENT

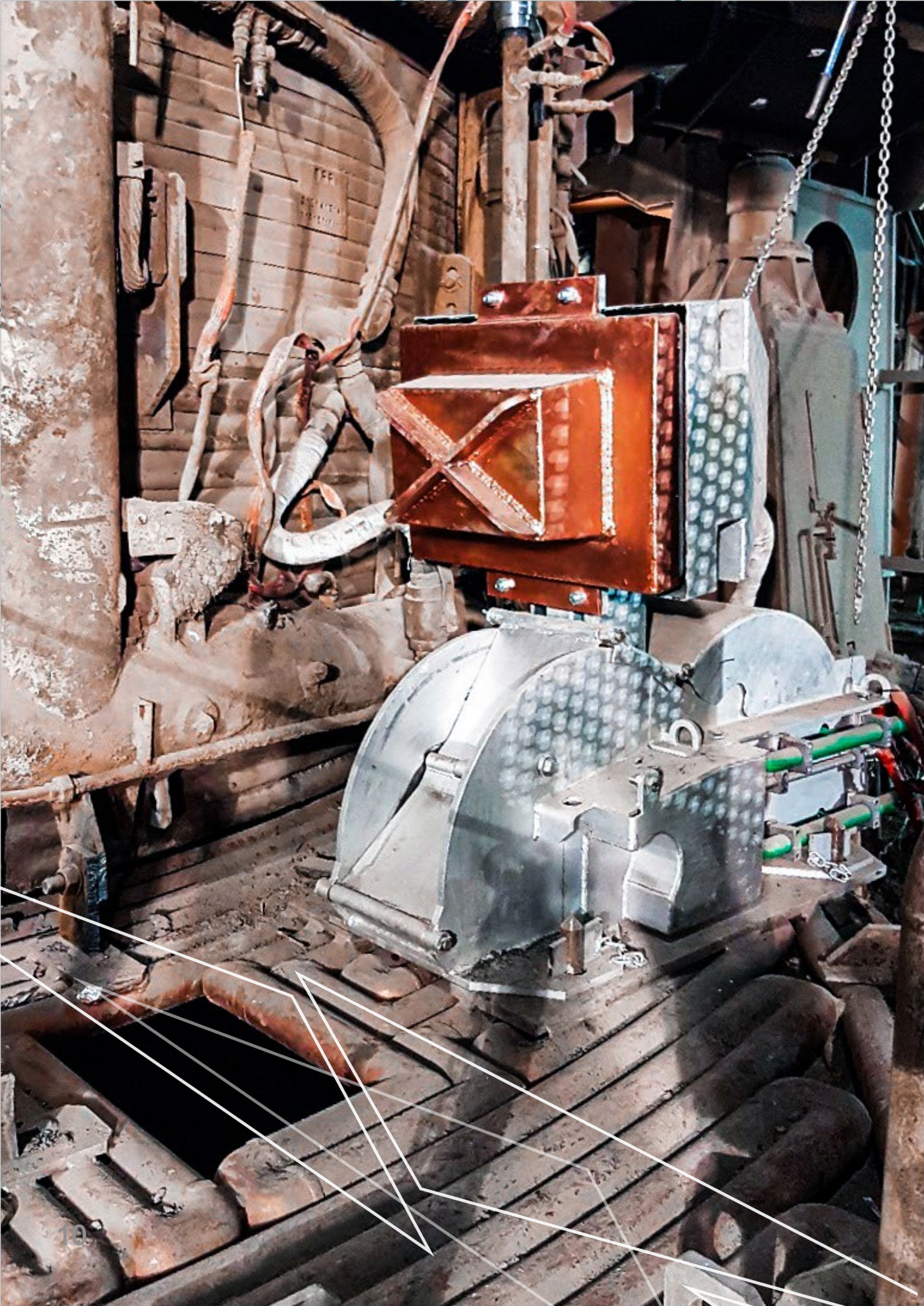


CLEANING SEQUENCE



1. EBT area required to be cleaned after tapping
2. Euromec EBT cleaner removed the material from the top of EBT hole
3. EBT hole is now clean, after the Euromec EBT cleaner operation. Now the EBT hole is ready to be refilled.

PRODUCTIVITY SAFETY SUSTAINABILITY



EBT – Euromec automatic panel

Electric Arc Furnace (EAF) Eccentric bottom Tap-hole (EBT) has to be periodically re-filled with sand. This activity is performed one time per heat at the end of every tapping operation.
In order to be able to complete the re-filling operation the EBT panel has to move for opening and closing operations.

This activity has to be completed in an aggressive environment. For this reasons EUROMEC solution required an heavy duty design (see above picture) including:

- a massive copper panel planned to work by interfacing the liquid steel
- a well-protected design for the hydraulic/pneumatic cylinderù location
- a well-protected design for the hoses area

Euromec Automatic Panel, automatic EBT panel opening and closing operation, compared with the traditional manual operation is:

- SHORTER IN TERM OF TIME (affecting the productivity)

The final result ends up in:

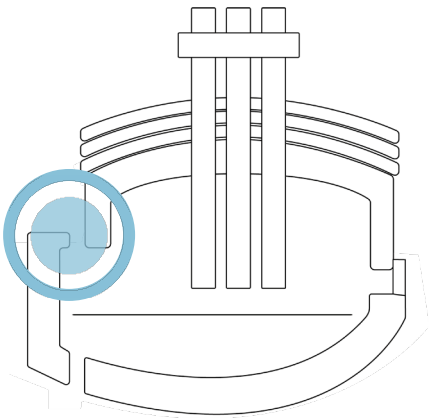
- SAFER OPERATION
- PRODUCTIVITY INCREASE (TURN AROUND TIME REDUCTION, TTT REDUCTION)

The supply includes the complete automation system in term of hardware and software.

FEATURES

HEAVY DUTY DESIGN

MASSIVE COPPER WATER COOLED PANEL



PRODUCTIVITY SAFETY SUSTAINABILITY

Euromec - Slag door cleaning car

Electric Arc Furnace (EAF) slag door has to be clean in order to perform a proper de-slagging operation.

The required traditional operation to clean up the EAF slag door was dangerous, subject to the ability of the operator and time consuming.

With the Euromec slag door cleaning car the operation is semi-automatic and requires planned routines. Hence the production lost due to this issue become negligible.

The Euromec slag door cleaning car is a solid solution arranged in front of the EAF slag door and able to move from a protected stand-by position (parking mode) to the working position (in front of EAF slag door).

Possibility to add an internal EAF shell video inspection system to elevate the safety standards.

The supply includes the complete system automation in term of hardware and software.

FEATURES

HEAVY DUTY DESIGN

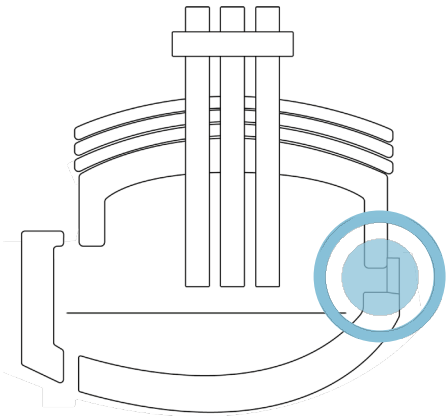
10 TON CLEANING FORCE

POSSIBILITY TO ADD ON AN INTERNAL EAF SHELL VIDEO INSPECTION SYSTEM

SHORT RETURN ON INVESTMENT

INTERNAL EAF SHELL VIDEO INSPECTION SYSTEM - OPTIONAL

1. A dedicated arm hosted in the slag door cleaning car enters the EAF slag door thanks to a translation movement.
2. A set of properly protected video-cameras are located at the head of that Arm.
3. This set of Cameras, Protected Head and Arm is designed for the EAF shell internal inspection in order to detect water cooled panel and refractory failures.



PRODUCTIVITY SAFETY SUSTAINABILITY

Main references:

Country	City	Job number	Technological Package	Year
Italy	Brescia	28/0302	EBT automatic sand filling system	2008
Italy	Vicenza	29/0704	EBT automatic sand filling system	2008
Italy	Vicenza	29/0704	EBT automatic panel	2011
Italy	Udine	12/0514	EBT automatic sand filling system	2012
Germany	Hennigsdorf	11/0928	EBT automatic cleaning system	2012
Germany	Brandenburg	11/1205	EBT automatic sand filling system	2012
Italy	Odolo	13/0319	EBT automatic sand filling system	2013
Italy	Lonato	13/1032	EBT automatic sand filling system	2013
China	Zysco	13/1206	EBT automatic cleaning system	2013
China	Zysco	13/1207	EBT automatic sand filling system	2013
Italy	Odolo	13/1033	EBT automatic cleaning system	2014
Belgium	Thy – Marcinelle	12/0318	EBT automatic cleaning system	2017
Belgium	Thy – Marcinelle	13/1005	EBT automatic sand filling system	2017
Belgium	Thy – Marcinelle	13/1005	EBT automatic panel	2017
Germany	Riesa	17/1113	EBT automatic cleaning system	2018
Italy	Calvisano	16/0903	EBT automatic cleaning system	2018
China	Shandong Yongfeng 1	18/0324	EBT automatic cleaning system	2018
China	Shandong Yongfeng 1	18/0324	EBT automatic sand filling system	2018
China	Shandong Yongfeng 2	18/0324	EBT automatic cleaning system	2018
China	Shandong Yongfeng 2	18/0324	EBT automatic sand filling system	2018
Mexico	Puebla	18/0522	EBT automatic sand filling system	2019
Italy	Cremona 1	19/0602	EBT automatic cleaning system	2019
Italy	Vicenza	18/1110	EBT automatic cleaning system	2019
China	Desheng	19/0816	EBT automatic sand filling system	2019
China	Guixin 1	19/0928	EBT automatic sand filling system	2019
China	Guixin 2	19/0928	EBT automatic sand filling system	2019
USA	Pennsylvania	20/0304	EBT automatic cleaning system	2020
USA	Pennsylvania	20/0304	EBT automatic sand filling system	2020

Japan	Confidential	20/0227	EBT automatic sand filling system	2020
Norwey	Mo I Rana	20/028	EBT automatic cleaning system	2020
China	HBIS 1	20/177	EBT automatic cleaning system	2021
China	HBIS 2	20/177	EBT automatic cleaning system	2021
China	HBIS 1	20/176	EBT automatic sand filling system	2021
China	HBIS 2	20/176	EBT automatic sand filling system	2021
China	HBIS 1	20/178	Slag door cleaning car	2021
China	HBIS 2	20/178	Slag door cleaning car	2021
China	Nanfang Donghai 1	20/155	EBT automatic cleaning system	2021
China	Nanfang Donghai 2	20/155	EBT automatic cleaning system	2021
China	Nanfang Donghai 1	20/156	EBT automatic sand filling system	2021
China	Nanfang Donghai 2	20/156	EBT automatic sand filling system	2021
China	Nanfang Donghai 1	20/081	Slag door cleaning car	2021
China	Nanfang Donghai 1	20/081	Slag door cleaning car	2021
Italy	Lonato (Spare)	14/1006	EBT automatic cleaning system	2021
Germany	Brandeburg	12/0125	EBT automatic cleaning system	2021
Italy	Cremona 2	21/033	EBT automatic cleaning system	2022
Italy	Vicenza (Spare)	19/0602	EBT automatic cleaning system	2022
Argentina	Siderca	19/0823	EBT automatic cleaning system	2023
Argentina	Siderca	19/0823	EBT automatic sand filling system	2023

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