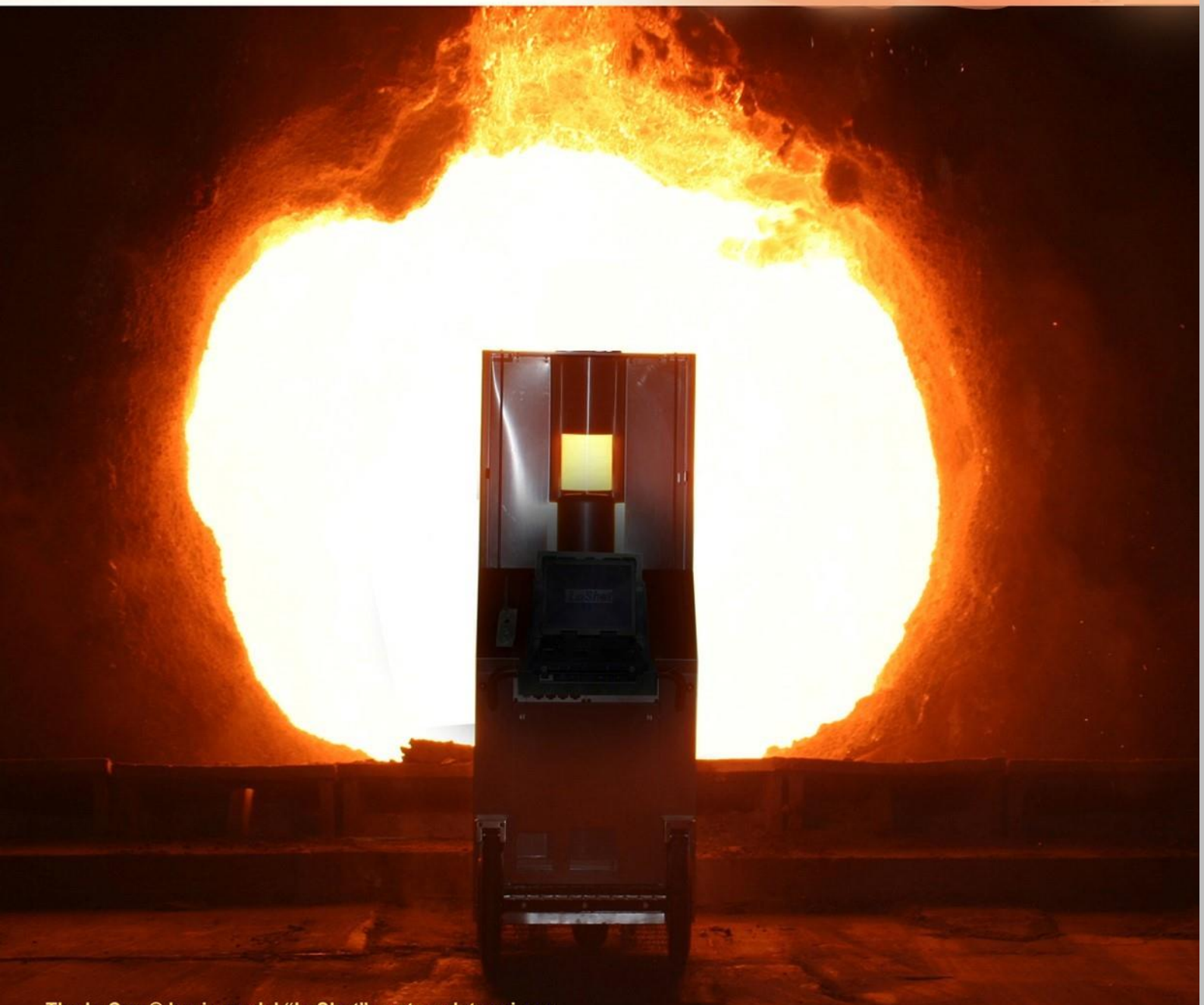
FERROTRON

A MiNTEQ DIVISION

LaShot

Basic Laserprofile Measurement System



The LaCam® basic model "LaShot"-system determines:

- Residual brick thickness of the refractory lining
- Wear of the refractory lining
- Bath level of converter vessels
- Bath level for optimal lance positioning

Furthermore, the LaCam® basic model "LaShot"-system enables

- the maximising of converter life time
- control of gunning material consumption
- area dependent optimisation of lining material quality

LaCam® Basic Model "LaShot 4"

LaShot 4 Profile measuring system, based on a laser scanner of the new generation.
The **LaShot 4** has been developed for non-contact measurement of refractory linings in metallurgical reaction and transport vessels. Time needed for performing measurements with **LaShot 4** is very short so that it can be perfect integrated in optimization of production process. If required, a measurement can be performed within few seconds after each tapping.

Scanning is accomplished by rotating mirror system to scan the target quickly after the laser beam deflects. In this way, in a few seconds, the three-dimensional structure of the inner surface of the container is produced, and in a way, it is also a laser camera image. By comparing with the reference surface measured before, the residual thickness of refractory brick can be calculated by using the built-in industrial computer. The user graphic interface allows detailed study of the development of wear and print measurement reports as required

LaShot 4-system is built into a sturdy mobile housing, so that a fast changing of the location is possible.

LaShot 4-system determines:

- Residual brick thickness of the refractory lining
- Wear of the refractory lining
- Bath level of converter vessels
- Bath level for optimal lance positioning

Furthermore, **LaShot 4**-system enables

- the maximising of converter lifetime
- control of gunning material consumption
- area dependent optimisation of lining material quality
- trend analysis and forecast of the durability of converter lining

Technical Data

Laser measuring system

Principle of measurement	single shot time-of-flight
Actual number of measured points per frame	121,000
Measuring time per frame	15 s
Measuring range	0.5 – 25 m
Distance Accuracy	± 2 mm
Resolution	1 mm
Measurement Reproducibility	± 2 mm
Max. surface temperature	1700 °C
Vertical scan angle	110 ° fixed
Horizontal scan angle	0° - 360° selectable (110° standard)
Laser wavelength	0.9 µm (near infrared)
Eye safety	class 1 laser product (eye safe)
Lining profile measurement time	4 – 6 min. depending on vessel condition

Computer unit (special shock proof and dust proof design)

The industrial grade computer is suitable for the needs of heavy equipment measurement in steel plant. The internal protection system eliminates the vibration effect when measuring and moving.

IPC
CPU Intel Quad Core 1,5 Ghz
8 GB memory SDRAM
2 TB hard disk
1000 Mbit Ethernet
Windows 10 operating system
11 Mbit wireless network
USB interface (2 pcs)
2 TB external USB 3.0 HDD

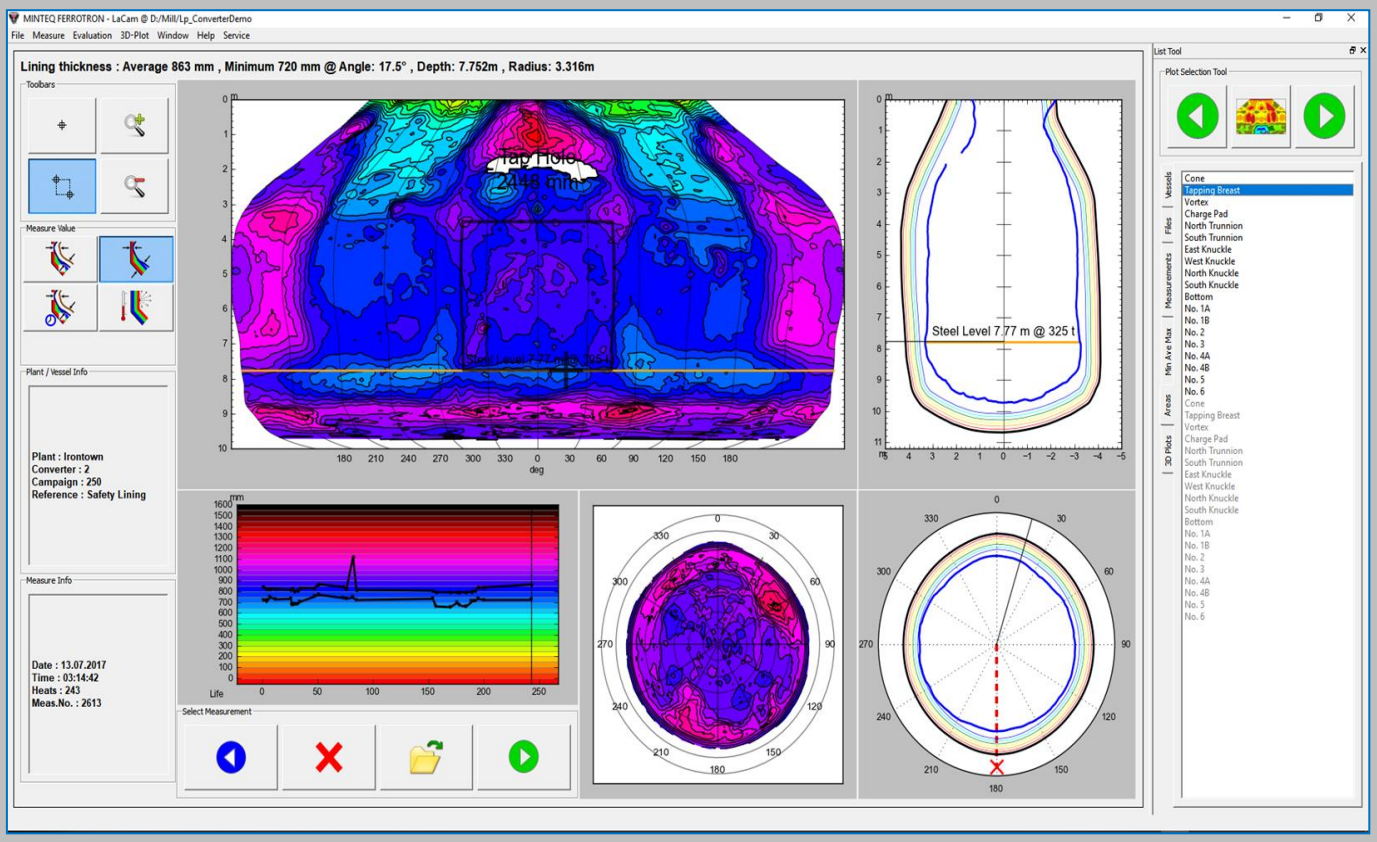
Users use remote control to operate the **LaShot 4**, and the standard operation is to touch the tablet computer with 12.3 inches, which is the most suitable and simple way to operate the device. Remote operation through an 11 Mbit wireless network, two USB interface in the connection board, a 1000 Mbit Ethernet connection. Ethernet connection is mainly used to connect with local area network in steel plant, which can be used to share equipment measurement data.

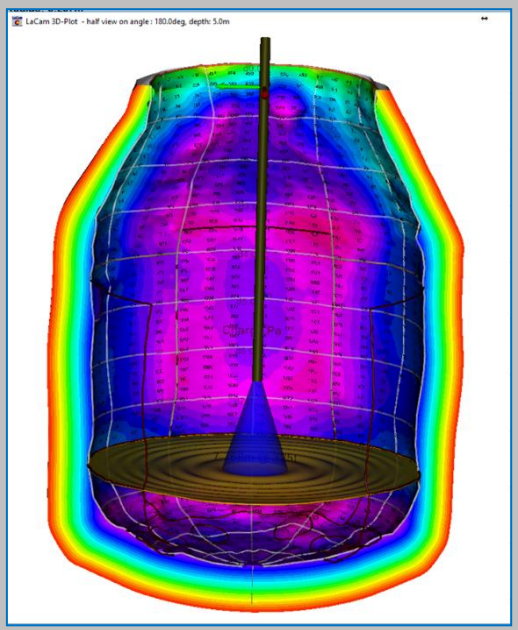
Mobile unit

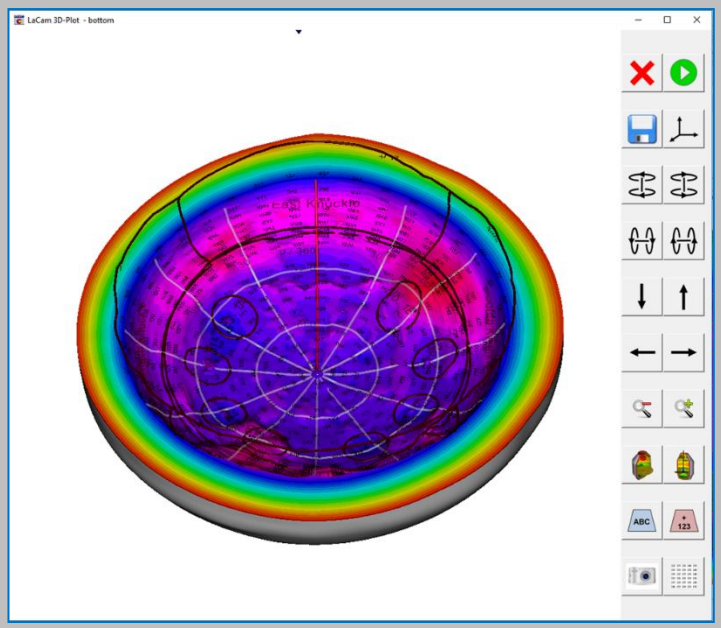
Frame	stainless steel structure
Thermal protective cover	aluminium alloy
Cooling	High efficient air cooling
Displacement equipment	leak proof tire, two wheels / axles, two easy to move rotatable rear wheels
Dimensions	
When moving	750 x 1652 x 1222 mm (W x H x D)
When measurement	750 x 2296 x 1222 mm (W x H x D)
Weight	approximately 220kg
Power supply module	**system for line-independent operation (battery powered)**

Software and Userinterface

With the help of graphical user-friendly 3D interface menu and graphics, you can immediately understand the equipment structure and control all parameters and options for various analysis. Different toolbars are used to maximize the convenience of program operation.







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