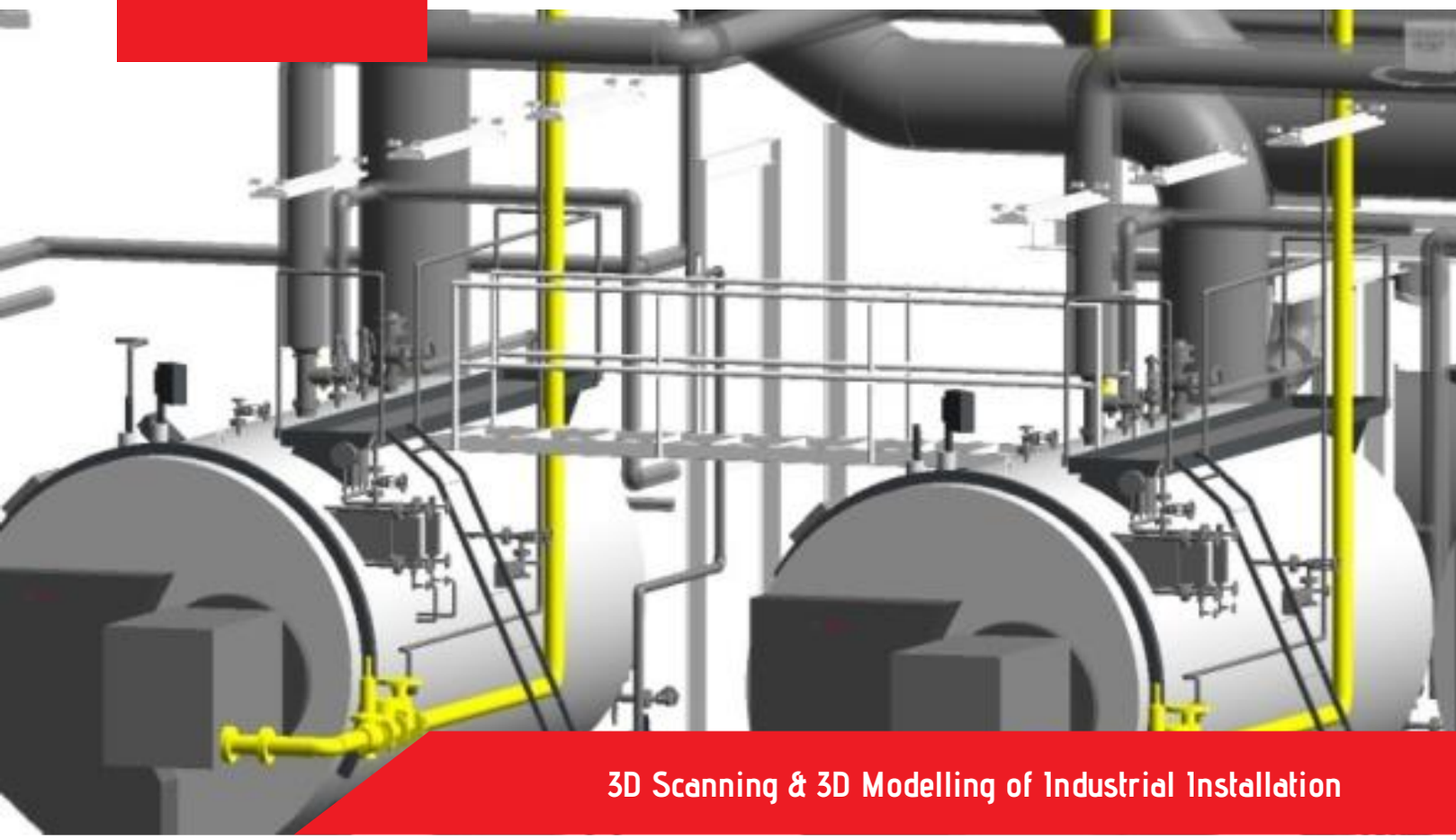
INDUSTRY

METRICA
When it's a matter of trust



3D Scanning & 3D Modelling of Industrial Installation

Overview

As accuracy is critical for the as-built documentation of facilities and equipment, our team was contracted to realize a series of 3D scanning measurements on a Steam Boiler Room in PMI – PAPASTRATOS Greece premises.

The purpose was the creation of a 3D model, with geometric and attributed data of the components. This process is known as Scan to BIM. Data can be further utilized for maintenance purposes, revamp process preparation and design of new production facility systems, run operation simulations and many others.

To produce the accurate 3D model of the infrastructure, our team used the powerful Leica ScanStation P40 to collect 3D Point Cloud data, which were used for the creation of a detailed 3D model of the unit (Infrastructure Model).

Challenges

- The daily working schedule of the plant
- The complexity of the installation (the variety of materials, their reflection coefficient, oily or unclean external surfaces and accessibility)

Benefits

- elimination of field interferences
- less rework
- increased productivity
- fewer requests for information
- cost reduction
- time-saving

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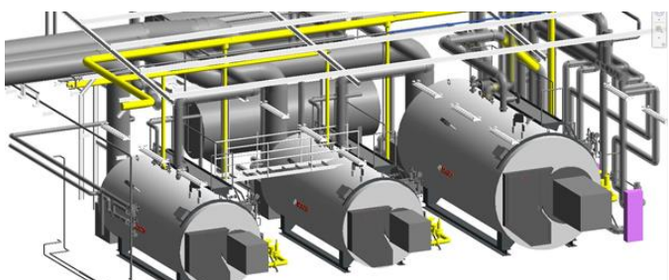
View of the industrial installation

Point Cloud of the industrial installation

Fieldwork

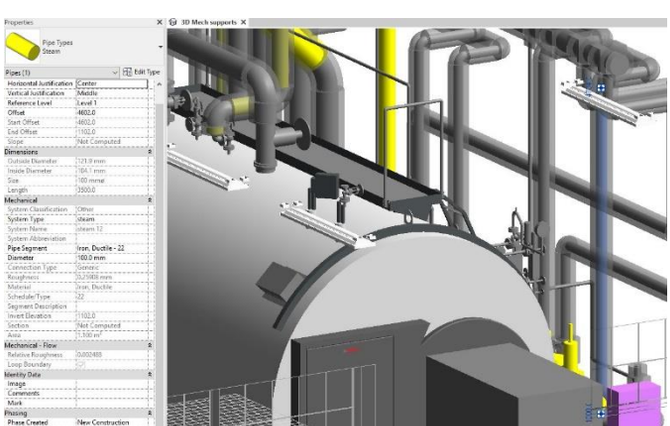
The first action was to place an adequate number of black and white targets all around the installation. Thes marks were well recognizable, and they had the size of an A4 paper. The installation was covered through 94 laser scanner setup positions with over 371 million points.

After measurement series completion, data were loaded to the Leica Cyclone 9.4 software for further processing. Then the point clouds were registered by using the mathematical algorithm for the 100% of the common part between point clouds. After the connection of all point clouds, the final unified point cloud was ready to be cleaned of all irrelevant objects captured during scanning.

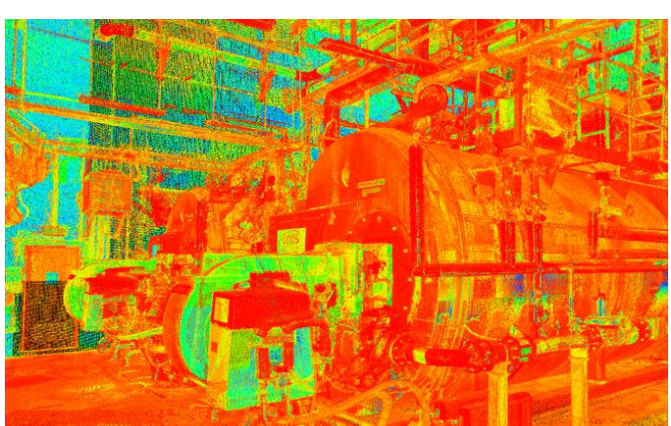


3D model of the industrial installation

After that the creation of the model was done in Autodesk Revit software, involving information of steam boilers, piping, insulation and mechanical equipment.



3D model



Point cloud

Instrumentation / Software

- Laser Scanner Leica ScanStation P40
- Industrial Total Station TDRA6000
- Laser Scanner Registration Targets
- Leica Cyclone 9.0.1

Deviverables

- 3D model of the industrial installation

Do you have a similar project?

Contact our team at info@metrica.gr

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