

Sounding Tables Production for 2 Bulk Carrier HFO Wing Tanks

Overview

Ship capacity management is an important operating and economic factor. It is crucial for crew and shipping agencies to have reliable information about the accurate ship capacity plan to schedule any orders for fuel, raw materials, and ship commanders to manage ballast distribution. In this project, METRICA team was contracted to scan two heavy fuel oil tanks. Our team used Leica ScanStation P40 to capture the necessary information.

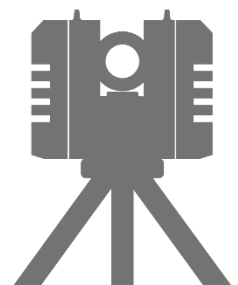
Field work: less than a working day for each wing tank, 2 staff members

Number of scans: 34 laser scanner setups

Office work: 1 day registration, 1 staff member / 2 weeks processing

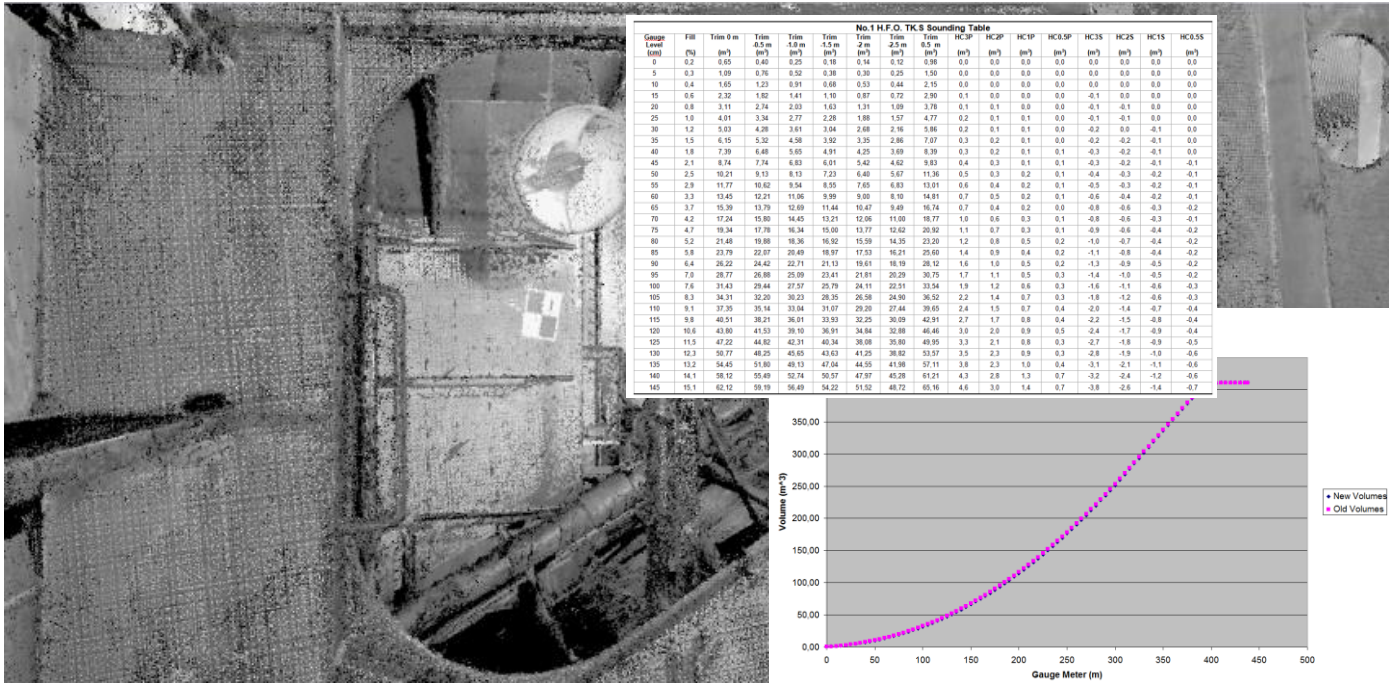
About Leica ScanStation P40

Leica ScanStation P40 deliver highest quality 3D data and High-Dynamic Range (HDR) imaging at an extremely fast scan rate of 1 million points per second at ranges of up to 270m. Unsurpassed range and angular accuracy paired with low range noise and survey-grade dual-axis compensation form the foundation for highly detailed 3D color point clouds mapped in realistic clarity.



Benefits of methodology

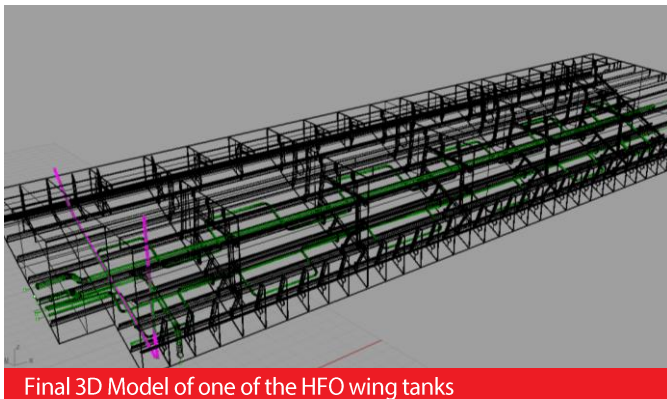
- High accuracy tank surveying (as-built)
- Extremely fast measurement
- No need for dry-docking
- No usage of rough approximations and trigonometric equations
- Field measurements of any size/shape/deadwood



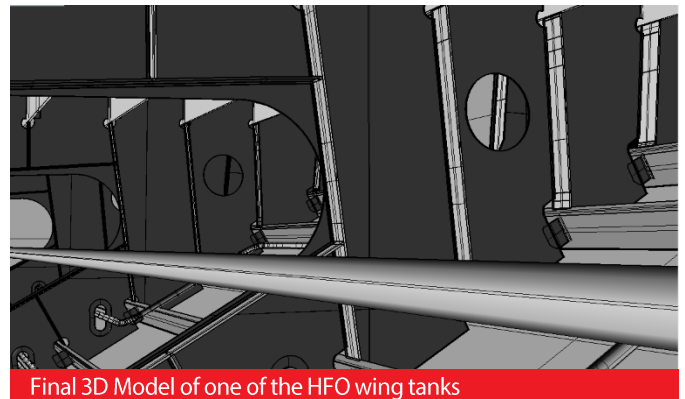
Tabular and graphic results for sounding tables

Fieldwork

Using Leica ScanStation P20 and the powerful point cloud software Leica Cyclone and CloudWorx, the scans of the wing HFO tanks were performed, registered and processed to a common coordinate system (ship CS). It took 34 setups and 16 working hours of measurements to cover the essential surfaces. This project was challenging because the oil sludge on wing surfaces hampered scanning and personnel movements. B&W targets were utilized mainly for registration purposes. After fieldwork, our team used Leica Cyclone software for the registration of the scans. Then HFO wing tank details, longitudinal, transverse frames, piping network and sounding pipe were modelled. The final 3D model was imported to a specialized tank calibration programming routine. HFO wing volumes were calculated for all possible trim and heel scenarios, even the keel condition



Final 3D Model of one of the HFO wing tanks



Final 3D Model of one of the HFO wing tanks

Instrumentation / Software

- Leica ScanStation P20
- Leica Cyclone
- Leica CloudWorx

Deliverables

- Sounding tables for any trim/heel scenario
- Intensity point cloud of HFO wing tanks



Do you have a similar project?
Contact our team at info@metrica.gr