

## Becker Mewis Duct Installation

### Overview

The scope of work in this project was the direct and accurate placement of Becker Mewis Duct on the stern position of a Bulk Carrier. Specifically, our team defined the excess material on the duct device and the exact installation position on the ship using Leica ScanStation P20 and the industrial total station Leica TS30. METRICA S.A. team accomplished the detailed scanning of the duct, the ship stern and marked the exact welding – cutting positions.

Field work: 2 days, 2 staff members, Office work: 1 day, 1 staff member

### Fieldwork

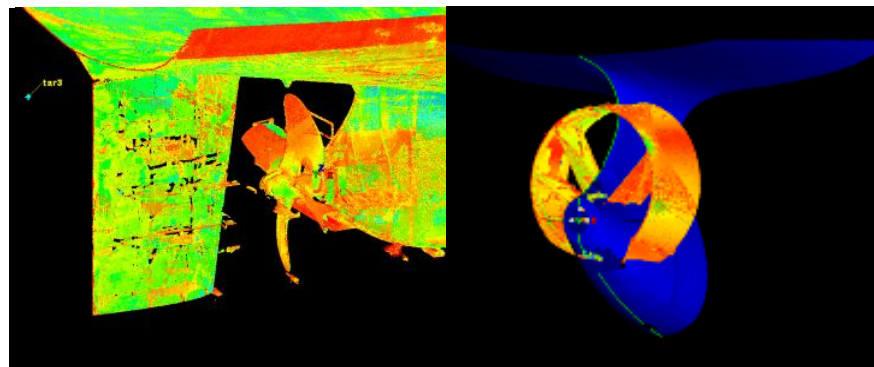
Using Leica ScanStation P20 and Leica Cyclone software, the scans of the duct and the ship were collected and registered. For the registration of the scans, targets were placed and measured with Leica Total Station TS30 for more accurate results. It took 16 setups and only 8 hours of measurements to cover the essential surfaces. In the office, point clouds were registered to a common coordinate system.

### Benefits of methodology

- Accurate marking of cutting – welding points
- State-of-the-Art Measurement Assisted Erection
- Fast and reliable process than traditional procedures



**Perspective view of the ship propeller system on which the duct will be placed – Duct mesh and point clouds on Leica Cyclone software**



## Fieldwork

Leica Cyclone & Leica Register module were used for the registration of the scans. Then, the points of interest were separated from irrelevant objects. Ship's coordinate system was established with the use of Leica XYZ software. Software mathematical functionality was utilized to inspect the accordance with the design drawings. Finally, with 3D Reshaper software, the registered point clouds were converted to mesh to calculate the intersection points between ship stern and duct device.

In the shipyard, the intersection points between the ship's stern and duct device were marked with a homogenous accuracy of  $\leq 3$  mm. The duct was cut and welded on the ship's stern. A final geometry inspection was performed with the measurement of specific points on the duct and ship stern to justify the final achieved placement accuracy (by relevant workshops).

### Instrumentation / Software

- Leica ScanStation P20
- Leica TS30
- Leica Cyclone / Leica Register
- Leica XYZ
- 3D Reshaper



### Deviverables

- On site duct and ship installation markings
- Technical Report

**Do you have a similar project?**

Contact our team at [info@metrica.gr](mailto:info@metrica.gr)