

DOUBLE BOTTOM DEFLECTIONS DURING VESSEL DOCKING

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The measurements on the propulsion shafting of the one-screw vessel with the main dimensions $L = 200$ m, $B=30$ m, $d=8$ m, $D=40000$ tons were performed last month. For measurements, strain gauges technique and jack-up test method were applied. For determining of bearing offsets in the vertical and horizontal plane reverse analysis function of ShaftDesigner software was used.

This time we had a happy occasion to investigate two states of the vessel. The first state is afloat before docking and the second one is in the dry dock. This circumstance allowed us to determine the magnitude of the double bottom deflections during docking, Fig.3. The double bottom deflections were calculated as a difference between bearing positions in the dry dock Fig. 1 and for the vessel afloat Fig. 2.

As can be seen maximum double bottom deflection in the vertical plane is equal to 2,60 mm and 1,37 mm in the horizontal plane. These results are obvious evidence of the fact that shaft alignment in the dry dock without special simulation of the buoyancy makes no sense. See details in <http://shaftsoftware.com/shaft-alignment-in-a-dry-dock/> and <http://shaftsoftware.com/double-bottom-deflections-induced-by-solar-heat-in-the-dry-dock-and-afloat/>

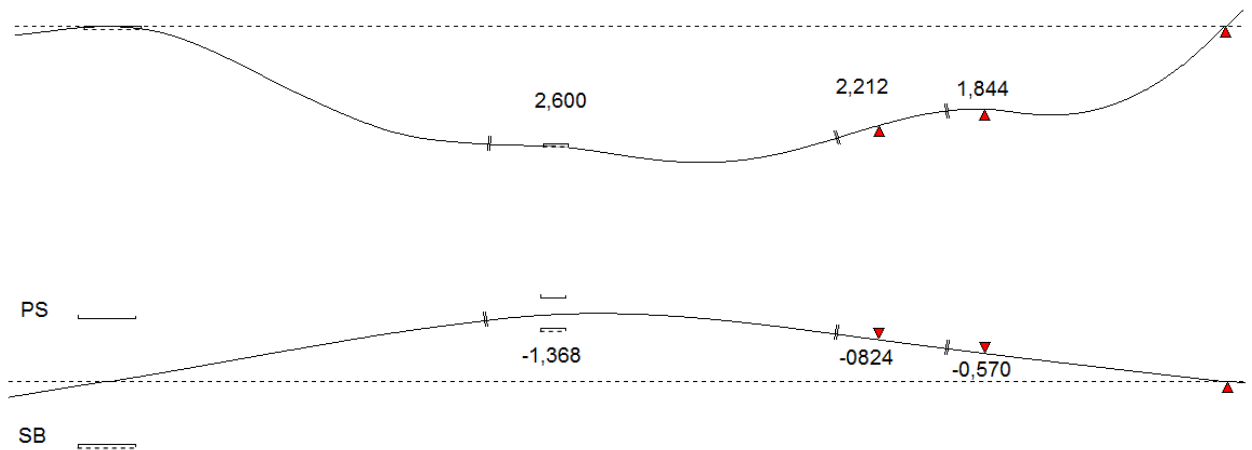


Fig. 1 Relative bearing positions in the vertical and horizontal plane in the dry dock, mm

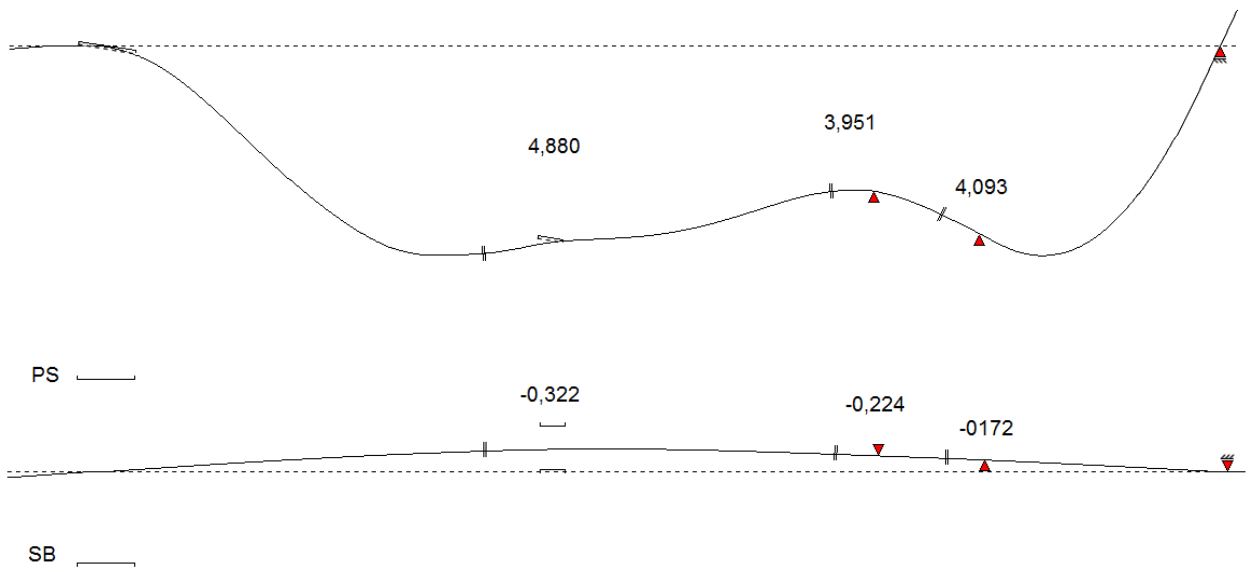


Fig 2. Relative bearing positions in the vertical and horizontal plane for the vessel afloat, mm

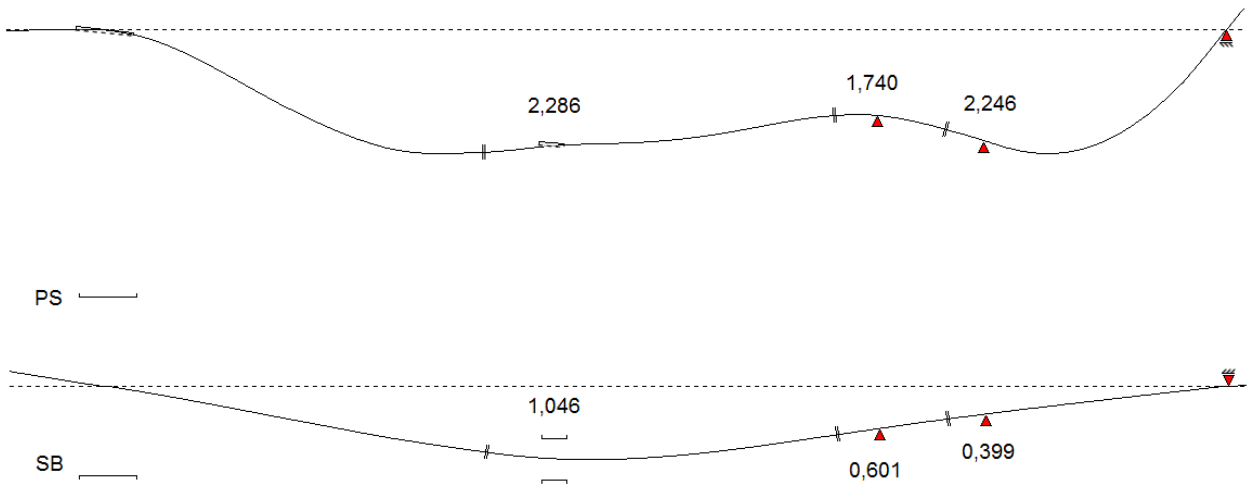


Fig. 3 Hull deflections as a difference of the bearing positions in the dry dock and for the vessel afloat, mm