

Certificate



Suppl.-No.: 01
to Certificate WF 0910057 HH

WPS-No.: 111MAWP15grdE36PF of 2008-01-25

Messrs. **Flanders Ship Repair NV**

has been approved on the basis of the documents submitted for a procedure test supervised by other independent testing bodies approved by Germanischer Lloyd, in accordance with the "Rules for Classification and Construction II, Material and Welding Technology, Part 3 - Welding" for the following welding procedure:

Manual metal-arc welding with covered electrodes of higher-strength hull structural steel

Welding Details

Process: 111 - Manual metal-arc welding with covered electrode (SMAW)
Type of weld: Butt welds, welded from one side. Fillet welds.
Welding equipment: Suited, in accordance with the instructions of the welding supervisor.
Welding data: As for the welding procedure test, see WPS.
Welding consumables: Covered electrode: "Phoenix Spezial D" (Boehler), GL grade: "3YH10", as well as other similar covered electrodes tested and approved by GL with the relevant grades according to the base materials to be welded.

Edge preparation: Butt welds: V-joint; included angle and gap as for the welding procedure tests, see relevant WPS. Fillet welds: Weld area free of Shop primer.
Weld build-up: Multi-pass.
Welding heat treatment: Without preheating up to 15mm (see remarks). In any case dry out. Interpass temperature max. 250°C.

Welders: Welders instructed accordingly and recognized by Germanischer Lloyd with valid welder's test certificates in the respective test group.
Others: The regulations and recommendations of the manufacturers of the base and filler material for the welding of higher-strength structural steels have to be observed.

Range of application

Base material(s): Normal- and higher-strength hull structural steels grade GL-A to GL-E36. Comparable non-alloy structural steels with consent of Germanischer Lloyd.
Wall thickness(es) [mm]: 7,5 - 30,0
Pipe diameter [mm]: ---
Positions: PA, PF.
Heat treatment condition: As welded.
Design temperature: ---
Particularities, remarks: The need and extend of the preheating temperature for welding of higher-strength structural steels shall be determined in relation to the plate thickness, the chemical composition of the base material, the hydrogen content of the weld metal, the heat input during welding and the temperature of the workpiece.

Parts of this approval are the a. m. certificate, the above mentioned WPS, if any, and our letter of approval with ref.-no. 014293-09/MWeg of 2009-02-24.

Hamburg, 2009-02-24

Germanischer Lloyd

Martin Wenning

Concerning the period of validity or the extension of approval and the duty to notify GL if the preconditions change under which approval was granted, the statements given in the Rules for Welding are to be observed. Additional requirements, if any, in the covering letter are to be observed. The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable (see Chap. I - Ship Technology, Part 0 - Classification and Surveys). Germanischer Lloyd Aktiengesellschaft, Registered Office Hamburg, HR B 31393.