

Certificate



Suppl.-No.: 04
to Certificate WF 0810233 HH

WPS-No.: C-40/F and B-40/C of 2008-01-08

Messrs.

Unitrans Sp. z o.o.

has been approved on the basis of the welding procedure test supervised by Germanischer Lloyd and specified in a welding procedure specification (see WPS-No.), in accordance with the "Rules for Classification and Construction II, Material and Welding Technology, Part 3 - Welding" for the following welding procedure:

Semi-automatic flux cored arc welding of higher-strength hull structural steels

Welding Details

Process: 136 - Flux-cored wire metal arc welding with shielding gas (FCAW).
Type of weld: Butt welded from both sides with gouging/grinding in multi-run technique.
Welding equipment: Suited, in accordance with the instructions of the welding supervisor.
Welding data: As for the welding procedure tests, see welding procedure specification.
Welding consumables: Flux cored wire-gas combination: "K-71TLF/ CO2" (Kiswel Dalian), GL grade 3YH10S, as well as other flux cored wire-gas combination tested and approved by Germanischer Lloyd with the relevant grades according to the base materials to be welded.

Edge preparation: X-joint, included angles $50^{\circ}+5^{\circ}$, root gap 2-3mm, root face 0-2mm, see WPS.

Weld build-up: Multi-run technique, welded from both sides with back gouging/grinding prior to start welding second side.

Welding heat treatment: Preheating temp.: 100-150°C
Interpass temp.: 250°C

Welders: Welders recognized by Germanischer Lloyd with valid welder's test certificates in the respective test group.

Others: Flux-cored arc welding with shielding gas with protection against wind and weather.
PQR-no.: 6/08/U and 7/08/U.

Range of application

Base material(s): Normal-strength and higher-strength hull structural steels grade GL-A to GL-E36.

Wall thickness(es) [mm]: GL-A to E: 20,0-80,0
GL-A32 to E36: 20,0-50,0

Pipe diameter [mm]: ---

Positions: Butt welds in flat (PA), horizontal-vertical (PC) and vertical-up (PF) position.

Heat treatment condition: ---


Design temperature: ---

Particularities, remarks: The regulations and recommendations of the manufacturers of the base- and filler materials for welding of higher-strength structural steels have to be observed. The temperature of preheating 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. 097733-08/AKoc of 2008-09-17.

Hamburg, 2008-09-17

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.