

TRANSLATION

CANTIERI RIUNITI DELL'ADRIATICO
FABBRICA MACCHINE S. ANDREA

Trieste, 26th July 1935

No. UT/8305/4

Messrs. Lloyd's Register of Shipping

Trieste

"CONTE ROSSO". - Loeffler boiler. -

We have to acknowledge the receipt of your letter of the 23rd instant with enclosed memorandum and nine plans, five of which are approved and four still require to be approved; the latter are returned herewith.

We have carefully perused its contents and discussed the various points with your representative and that of Messrs. Witkowitz, and have now to confirm that:-

(1) The creep limit (Dauerstandsfestigkeit) for the materials of the boiler in question should not be referred to the unic temperature of 475°C, as erroneously stated by us, but to the working temperature of the material as specified on the various plans under the heading "Betriebstemperatur".

By keeping the working stresses of the material equal to or under the creep limit, Messrs. Witkowitz guarantee that the creep velocity indicated on the enclosed table will become gradually smaller and after a certain time practically disappear.

(2) In their calculations for land boilers they assume as the maximum stress the said creep limit divided by 1.3 ÷ 1.5, but in the present case they have used a greater

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divisor as shown in the enclosed table, in which all thicknesses of tubes are shown. It will be observed that some of the thicknesses have been increased.

(3) The working pressure is 130 atmospheres, but as the pressure may increase during manoeuvring, a pressure of 140 atm. has been taken as a basis for the calculations.

(4) On plan 2504/H, in the case of tubes No. 2, 3, 5, 6 & 7 the temperature of 500°C has been erroneously indicated, instead of 475°C; the working temperature of steam is 475°C and it is not possible for the metal of tubes, which are outside the boiler, to have a higher temperature than that of the steam.

Therefore the creep limit amounts to 16 kg/mm² instead of 13 kg/mm² as stated on the plan.

(5) In the opinion of Messrs. Witkowitz it is not necessary to take the corrosion factor into account, as all the tubes are in contact with practically superheated and disaerated steam, there being therefore complete absence of moisture and oxygen in them.

Further it should be borne in mind that the safety coefficients, compared with the cold breaking stress, are rather high, as appears from the enclosed table, and that excessive thickness of tubes is not only detrimental to the efficiency of the boiler, but may also cause the tubes to become red hot.

- (6) All welding is to be carried out by the O.A. process; the welding rods having the same composition as the tubes.
- (7) Messrs. Witkowitz are ready to carry out any welding tests that might be required.
- (8) We enclose a sketch showing type of welding made by that firm, which provides a strength 1.4 times greater than that of the tube.
- (9) As regards the intermediate superheater (plan No. 2529/4) we have to inform you that the outer shell is solid drawn, i.e. without longitudinal joint, and superheated steam circulates inside at a pressure of 14 atm. and at the maximum temperature of 300°C.
- (10) The boiler will be completely built at Witkowitz, same will be fitted on board at Trieste, where the tubes marked in the plans "M.Schw." will be welded.
- (11) The evaporator drum is to be solid drawn, i.e. without any longitudinal joint. Its internal pressure will be equal to 130 atm.

We would therefore kindly ask you to reconsider the plans, which we are returning, in the light of the above explanations.

Yours &c.

Cantieri Riuniti dell'Adriatico
Fabbrica Macchine S. Andrea
2 Signatures.

Enclosures



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