

Free Translation of letter from Messrs. Escher Wyss Maschinen-
Fabriken A.G. - Zurich.

Zurich, 5th December 1935

Messrs. Cantieri Riuniti dell'Adriatico
Fabbrica Macchine S. Andrea
TRIESTE.

No. 21/49840

Re: s.s. "CONTE ROSSO" 35.

In our letter of 22nd October last we informed you that for measuring the power a torsionmeter is to be used (please see our drawing N° 264.559). - Some time ago we asked Mr. Vallis, Lloyd's Register Surveyor at Winterthur, whether the torsional shaft to be used for these measurements should also be tested by Lloyd's.

Mr. Vallis then declared that Lloyd's Test was not necessary for this measuring installation.

As L.R. have some time ago raised some objection with regard to this shaft, which is to be used only for the measurement of power, we have again discussed the matter with Mr. Vallis who informed us that this shaft carrying the torsionmeter should be tested, if the measurements are to be taken at sea, also that in this case it should comply with the Rule requirements regarding stress, therefore a diameter of 37 m/m would be no longer satisfactory, unless the trials be run in harbour; in our opinion however this condition cannot be fulfilled as the engine could in this case not develop its full power, thus not reaching the desired Number of Revs.

It is therefore unavoidable to maintain the 37 m/m diameter in order that a sufficiently large angle be available with a view to reaching a sufficient amount of accuracy in the measurement of power.

With regard to the stresses of the torsional shaft we have selected a bar of special Chrome-Silicon, marked Poldy S.C.H. with minimum yielding ~~point~~ limit = 125 kg/mm², tensile strength 150-160 kg/mm² and a minimum elongation of 5% on 10 diameter bars.

If necessary, tests could be carried out on the material of the torsional shaft, to which test bars are still attached.

Please clear up this matter with the Classification Societies and let us know as soon as possible whether the trials are to be run in an inner harbour, or whether the shaft can be accepted also for sea trials which will last only a comparatively short time; even in case of a rupture of the shaft in question no damage would occur to the engines as in this case the automatic cut out would

cause the turbine in question to stop and the vessel would still be governed without any trouble by the original machinery installation.

We have to state again that we do not see any other way for measuring the power unless by the 37 m/m diameter shaft.

Yours &c.

P.S. We wish to add for your guidance that the stress of the intermediate shaft carrying the torsionmeter amounts to 3760 kg/cm^2 at maximum power, which is in our opinion permissible in view of the yield limit required for the special material (minimum 125 kg/mm^2) and of its breaking resistance ($150-160 \text{ kg/mm}^2$). For torsionmeters of identical construction even greater stresses are accepted although the same material is employed. The critical number of revolutions of the torsional shaft is 4050 per minute.



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