

Cable

Messrs. Burmeister & Wain.

Oil Engine Proposed to be fitted in Messrs. Aalborg Varft  
Yard No. 64.

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*for Lammitzen*

This is a twin screw vessel and both engines have been built under survey but in one of them some girders made of Bessemer Steel have been included in the welded bed plate and crank case.

The use of Bessemer Steel for this purpose has been the subject of considerable correspondence, and the Firm have been informed that the proposal could not be accepted.

To-day, Messrs. O. Lund and T. V. Hemmingsen, representing the Engine Builders, visited this office and discussed the matter with Dr. S. F. Dorey, the Chief Engineer Surveyor, and Mr. W. D. Heck, a principal Surveyor on his Staff.

The Firm's representatives stated that as a result of their long and successful experience in the building of Diesel engines, they were convinced that the construction adopted was entirely sound and satisfactory, and in these circumstances, they requested that this engine might be accepted.

The relevant facts are as follows:-

- (1) The Society's Rules state that rolled steel or forged steel used in the construction of engines and boilers is to be made by the Open Hearth Process, and hitherto this Rule has been rigidly observed to the entire exclusion of Bessemer Steel.
- (2) Bed Plates, until recent years, have been made of cast iron but welded steel bed plates are now in fairly common use.
- (3) Messrs. Burmeister & Wain's representatives stated that the calculated stress in these Bessemer Steel girders was only 25% greater than allowed in cast iron construction, whereas the tensile strength of the steel is nearly three times as great as that of cast iron.
- (4) Tensile and bend test pieces, six in all, have been cut from the actual girders and tested by the Society's Surveyors with satisfactory results. In addition, impact tests, which

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the Society's Rules do not require to be made on rolled steel, have also been carried out, and the results were satisfactory.

(5) The running trials of this engine have extended over a considerable period of time, and it is stated that there are no indications whatsoever of any defects in the material or in the bed plate as a whole.

(6) The question of accepting these steel girders has been referred to both the Society's Special Surveyors for Steel, i.e. Mr.L.Ripley and Mr.W.E.Lewis, who, however, state that Bessemer Steel cannot be regarded as being reliable to such an extent as Open Hearth Steel, and in these circumstances, do not favour the present proposal.

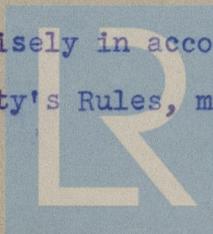
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Dealing first with the expression of opinion of the Special Surveyors for Steel, it may be pointed out that while the Bessemer Process may not produce good steel with such certainty as the Open Hearth, the facts remain that - (1) Much good Bessemer Steel is made, and (2) In the present case test pieces have been cut from the girders themselves and in addition to the usual tensile and bend tests, impact tests have been carried out, the results being entirely satisfactory.

Again, the stress adopted in the design is very low for rolled steel, being about 4000 lbs per sq. inch, whereas in a boiler, the stress is about 14,800 lbs per sq.inch.

In short, this steel may be regarded as replacing cast iron.

In all the circumstances, it is considered that the proposal may be viewed with confidence.

IT IS SUBMITTED for consideration whether the proposal to install in the vessel this engine together with another engine built precisely in accordance with the requirements of the Society's Rules, might be accepted,



provided the Owners are made fully aware of the features of  
the case and their written consent be obtained.



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