

1st July, 1944.

Dear Sir,

With reference to your letter of the 22nd ultimo forwarding Certificates of Tests on the Refrigerated Cargo Fan Electric Motors supplied to Messrs. Lithgows' Yard No. 997 ("EMPIRE TALISMAN") by Messrs. Axia Fans Ltd., I have to acquaint you that conferences have taken place in the London Office between members of the Chief Engineer's Surveyors Staff and representatives of Messrs. Sunderland Forge & Engineering Co. and Messrs. Axia Fans Ltd.

It has been the practice of Messrs. Axia Fans Ltd. to specify that the motors used in their casings shall have a temperature rise of 63°F when tested as enclosed ventilated machines under still air conditions. It has been their experience that motors made by Messrs. W.H. Allen and the G.E.C., when constructed as enclosed ventilated machines designed for a temperature rise of 63°F come within the requirements for totally enclosed machines when fitted with cowls and fairings, in accordance with their usual construction. Test results on G.E.C. machines show that machines which give 64°F in still air gave 63° to 64°F when installed in the Axia casing and tested in an air stream with air at atmospheric temperatures. The S.F. & E. Co. also quoted as an example a machine taken from s. s. "EROS", which when tested in free air gave a temperature rise of 50°F, and when tested in the air stream in a trunking gave 80°F. Their designers calculated that this machine as a totally enclosed machine would have had a temperature rise of 179°F. It was pointed out at the discussion that whereas the machines made by G.E.C. and W.H. Allen as enclosed ventilated machines had openings in the frame at both ends so that air entered at the commutator end and was expelled at the driving end, the machines supplied by Messrs. S.F. & E. Co. had a solid end frame at the driving end. It was further pointed out that there was an air space at the driving end between the end frame and the S.M. fairing and that this construction tended

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to interfere with direct cooling from the end shield. Attention was drawn to these differences in construction in the case of the machines supplied to Lithgow's Yard Nos. 997 and 8, and also to the fact that in the test results quoted above the temperature rises in the air stream were in each case higher than the tests in free air. In view of the fact that the tests taken on these machines at the Works gave temperature rises on the armature of the order of 95 to 97°P, it was considered that some further proof was necessary that these machines would not exceed the permissible limits for totally enclosed machines. The Firm's representatives stated that a considerable number of machines in accordance with this construction had been supplied in the past and were still running satisfactorily.

It was decided, in view of the doubts which exist as to whether these machines comply with the Society's requirements for temperature rise they will carry out a test with a motor mounted in the casing at Messrs. Axia Fans Works, and it is understood that this test will be made in about three weeks' time. The test will be witnessed by Electrical Engineer Surveyors from the London Office.

Upon enquiry at the Ministry of War Transport, it has been ascertained that the vessel has sailed to Montreal where the insulation will be completed and cooling down tests carried out.

The results of the tests proposed to be carried out at Messrs. Axia Fans' Works will probably be known before the insulation is completed, and if these results are satisfactory, the question of endorsement on the R.M.C. Certificate will not arise.

As it will be necessary to advise the Montreal Surveyors of all the circumstances of the case, I shall be glad if you will arrange for your R.M.C. Reports to be forwarded with the least possible delay and give details of the exact position at the time the vessel left your district.

I am, Dear Sir,  
Yours faithfully,

The Secretary,  
GLASGOW.

Clerk to the Classification Committee.

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