

CONTRACT FOR THE MAGNET YOKE OF THE 7 GeV PROTON SYNCHROTRON

1. The Magnet Yoke

340 laminated steel blocks are required, each weighing 20 tons. Difficult electrical, magnetic and mechanical problems are involved in its manufacture, and an exact specification of all details could not be laid down in advance.

2. Initial Enquiries

Eighteen firms were approached in October, 1956, and a lengthy period of technical discussion followed with interested firms on the basis of a basic specification of the equipment. All but two were eliminated, having either declined or having submitted unreasonably high provisional prices. Metropolitan-Vickers Ltd., one of the remaining two, declined to quote but passed on the enquiry to John Thompson Motor Pressings Ltd., at the same time indicating that they would support that firm with technical assistance. Two additional organisations asked to be considered. One withdrew on realising the specialist electrical and magnetic technology required by the project; the other was rejected because it did not possess the necessary knowledge and experience.

3. Tender Action

A revised specification was produced, in greater detail but still of a basic nature. It retained flexibility for further individual interpretation and development both in purely engineering aspects and in the electrical and magnetic aspects. Firms tendering were asked to submit their detailed proposals for achieving the high technical standard required.

Proposals with firm price tenders were received from

Joseph Sankey & Sons, Ltd., at £1,462,000

John Thompson Motor Pressings, Ltd., at £1,312,000

4. Analysis of Tenders

The tenders were discussed in detail by the Project Committee. The proposals submitted by Messrs. Joseph Sankey & Sons, Ltd., were very detailed, and were supported by reports of tests and offers of samples concerning some of the more difficult aspects, and the Project Committee was satisfied that the stringent requirements would be fulfilled in a magnet yoke made by this firm. The proposals of Messrs. John Thompson Motor Pressings Ltd., on the other hand, did not give sufficient information to justify unqualified acceptance on the electrical and magnetic aspects and in certain of the mechanical aspects.

However, in view of the large difference in price between the two tenders it was not possible for the Project Committee to make a recommendation to place a contract.

5. Further Action

Meetings were held with each firm, attended by several members of the Project Committee, in order to obtain further information, and were followed by letters from the A.E.R.E. Contracts Branch to each firm, asking for price breakdowns of the various manufacturing processes and for assurance on the more important technical aspects. In particular, Messrs. John Thompson Motor Pressings Ltd. were asked to give further details of their proposed manufacturing processes in those cases where information had previously been lacking, and to obtain assurance that they would be fully supported on electrical and magnetic aspects by Messrs. Metropolitan-Vickers Ltd.

6. Revised Proposals from Tenderers

Both firms have replied to the Authority's requests for further detailed information.



Messrs. John Thompson Motor Pressings, Ltd. have withdrawn their tender after reviewing electrical and magnetic aspects with Messrs. Metropolitan-Vickers Ltd., stating that they could not predict the likely cost of meeting the specification which they now see to be necessary without a lengthy period of research.

Messrs. Joseph Sankey & Sons, Ltd. have given a detailed price breakdown as requested, and state that in re-evaluating their proposed manufacturing processes to produce this breakdown they have found a more economical procedure, taking advantage of new factory space which was not originally available. Consequently, although they are unwilling to omit any of the processes proposed in the interests of the high quality of the final product, they quote a reduced price of £1,329,400.

7. Terms of Tender

The quoted price, in common with the earlier proposals of both firms, is based on the assumption of £70 per ton for the magnet steel and is subject to variation on this account and also, as usual, to variation in labour costs.

8. Recommendation

It is recommended that a contract be signed with Messrs. Joseph Sankey & Sons, Ltd., for the supply of the magnet yoke in the terms of their tender to the U.K.A.E.A.

T. G. Pickavance

A.E.R.E., Harwell.  
2nd September, 1957.