

No. RW/NH-33054(3)/91-S&R

Dated the 23rd September, 1992

To

Chief Engineers of all State P.W.Ds/Union Territories (dealing with the National Highways and other Centrally sponsored Schemes); Director General (Works), Central Public Works Department; Director General Border Roads; Chairman, National Highway Authority New Delhi.

Subject: Supply of Elastomeric bearings for bridges on National Highways and under other centrally sponsored schemes.

This Ministry had appointed a Monitoring Committee to make a general assessment of the infrastructural facilities of the manufacturers of Elastomeric Bearings prequalified vide this Ministry's letter No. RW/NH-33054/39/89 S & R dated 20th April, 1990 and letter of even number dated the 26th September, 1991. Based on the recommendations of the above Committee, the following executive instructions are issued:

- (i) The prequalified manufacturers of elastomeric bearings shall be in possession of all documents to establish that they are direct importers of Chloroprene and they should be in a position to produce these documents and also records showing total year-wise import as well as the details regarding the bearings produced year-wise on demand to the clients or any of the inspecting authorities. All the representatives of States/Union Territory P.W.Ds concerned with the acceptance of elastomeric bearings may ask for the above documents from the prequalified manufacturers so as to ensure that imported chloroprene has been used as raw elastomer in the production of elastomeric bearings by the prequalified manufacturers.
- (ii) Apart from Neoprene WRT and Bayprene 110 specified in Clause 915.1.1 of IRC Code for elastomeric bearings (IRC Code 83-1987 Part II) Skyprene B-5 and Denka S-40 grade may also be used as raw elastomer for the manufacture of elastomeric bearings. No other chloroprene may be accepted as equivalent of Neoprene WRT until further orders.
- (iii) It shall be clearly specified in the contract documents that the suppliers of elastomeric bearings shall indicate in their quotations the prevailing price of imported raw elastomer used by them in the manufacture of elastomeric bearings while quoting the rate of the finished bearings per cubic centimetre.
- (iv) The pre-qualified manufacturers of elastomeric bearings shall develop in-house capacity for designing the elastomeric bearings based on the data supplied by the clients regarding the forces, movements and rotation etc.
- (v) The personnel of States/UT P.W.Ds who are concerned with the acceptance of elastomeric bearings shall ensure that all acceptance tests for materials and finished bearings are carried out in their presence.
- (vi) It is essential that strict enforcement of codal stipulations for process and acceptance control tests as per IRC Code 83-1987 (Part II) is exercised while accepting the supply of bearings. To achieve this objective State/Union Territory P.W.Ds shall get the personnel concerned with acceptance of elastomeric bearings adequately trained for making them fully conversant with the relevant IRC Codes and Specification.
- (vii) With regard to the material tests and tests on the complete bearings, certain clarifications and supplementary stipulations have been brought out in Annexure for streamlining the testing procedure so as to achieve full conformity with the codal specifications contained in IRC Code 83-1987 (Part II) and also to ensure better quality assurance. Representatives of State/UT P.W.Ds who are associated with the acceptance of elastomeric bearings shall ensure that the bearings are accepted only after ascertaining that these have been fully complied with.

Annexure to Ministry's Circular No. RW/NH-33054 (3)/91 S&R dated the 23-9-92

SUPPLEMENTARY STIPULATIONS

- (i) Notwithstanding the provision of clause 918.3.2, it is specified that for smaller lots (i.e. less than 24 nos.) of bearings, an extra bearing shall be manufactured. Out of the lot one bearing is to be selected at random for carrying out material tests. This bearing shall be excluded from the lot accepted.
- (ii) With reference to clause 915.1.3 of the code, it is to clarify that the percentage of raw chloroprene used in the elastomeric compound shall not be less than 60% by its weight. This is to be determined in accordance with relevant test given in ASTM D-297 (subsection 10).
- (iii) It is necessary that all the manufacturers of elastomeric bearings shall have in-house facilities for testing the elastomer for carrying out the following tests in accordance with the relevant provisions of ASTM D-297.

(a) Identification of polymers	-	To confirm the usage of Chloroprene (Appendix X-2)
(b) Ash content test	-	To determine the percentage (sub-section 34)
(c) Specific gravity test	-	(Sub-section 15)
(d) Polymer content test	-	(Sub-section 10)

Specific attention is drawn to the test (a) which also establishes whether any other type of rubber has been mixed with chloroprene in the manufacture of elastomeric bearings (vide ASTM D-297 Appendix X-2) In case of any dispute, the Department may carry out test as per ASTM D 3452-78 (Chromatography test) at the manufacturer's cost in a recognised test house.

The elastomer specimen to conduct the test shall be obtained from the bearing selected at random for destructive test for larger lots/material tests for smaller lots. Remaining part of the test bearing shall be preserved by the Department for any test to be done in future, if required.

- (iv) As per Clause 918.4.1.1 and Clause 918.4.2.1 of the code all the finished bearings are to be subjected to an axial load corresponding to $\sigma_m = 15 \text{ MPa}$ and checked for discernible defects and variation in vertical stiffness. Therefore, the manufacturers should have in-house test facilities for conducting all the acceptance tests on finished bearings in accordance with Cl: 918.4.1.3.
- (v) The manufacturer's in-house testing establishment should include the facility for cutting the sides of the test bearing selected at random to 45° angle for carrying out the adhesion test on finished bearings in accordance with clause 918.4.1.3. Further, it is essential that the material tests specified in Clause 915.1.3, 915.2 and 915.2.2. of the code are carried out on the material taken out from the test bearings, referred to in para (iii) above.
- (vi) Periodical tests for Ozone resistance of the elastomer shall be got done by the supplier in accordance with the Clause 915.2.3. of the Code. A record of test results for bearings (for both in-house and that of out side agencies) shall be systematically maintained in the manufacturing unit and shall be produced to the accepting authority on demand.
- (vii) It has to be verified whether the manufacturer's testing machine can accommodate the full size of the bearings produced, as designed, for routine testing as per Clause 918.4.1.1 (3) for complete bearings. Otherwise, only those manufacturers who could satisfy about the availability of the testing machine for the required size should be permitted to supply.

N.B. The clauses referred above correspond to the IRC code for Elastomeric Bearings

(IRC 83 (part-II)-1987).