

ANNEXURE-A

PRE-QUALIFICATION REQUIREMENTS (TECHNICAL) FOR WATER SUPPLY HOSES

INTRODUCTION: - Large size turbo-generators carry enormous amount of current during operation. Consequent to flow of heavy current, heat is produced in generator stator windings as a result of ohmic losses. To dissipate the heat produced, cooling water flows in the hollow conductors of stator windings. PTFE hoses not only carry Cooling DM water for stator winding bars but also acts as a potential barrier between high voltage stator windings and grounded water header. The water supply hoses along with fitting are subjected to stringent test conditions related to chemical, electrical, mechanical, leakage and pressure tests etc. The scope of supply covers insulating hoses complete with end fittings i.e. PTFE insulating hose along with support, nipple, washer, union nut and steel sleeve.

1) EXPERIENCE: -

The vendor shall have the experience of manufacturing and supplying PTFE hoses with or without carbon black, paste extruded along with Non-magnetic stainless-steel fitting items of grade X6CrNiTi18-10, X6CrNiNb1810, X6CrNiMoTi17-12-2 or X6CrNiMoNb17-12-2 according to EN10088-3 or its equivalent being used in manufacturing of large size turbo-generators to reputed turbo-generator manufacturers worldwide during the last ten years from the date of issuance of enquiry.

In support of above, vendor to provide following documents: -

- 1.1) Copy of minimum two successfully executed unpriced purchase orders (out of which one PO should be of minimum 100 nos. quantity) for above PTFE hoses as mentioned in clause 1.
- 1.2) Copy of test certificates corresponding to purchase order (with minimum 100 nos. of hoses), which is being provided against clause 1.1.
- 1.3) Documentary evidence for acceptance of material corresponding to purchase order for which test certificates are being provided against clause 1.2.

2) MANUFACTURING FACILITIES: -

- 2.1) The vendor should have in-house facilities for manufacturing of above PTFE hoses (with or without carbon black) with end fittings assemblies. Vendor to furnish details of the major manufacturing facilities available at their works required for manufacturing of above PTFE hose with end fittings.
- 2.2) If vendor procures the raw materials for manufacturing of PTFE tube / manufactured PTFE tubes, end fittings from other source, vendor to provide the credentials of sub-vendor and test certificates of raw materials supplied for manufacturing of PTFE hoses with end fittings for high rating turbogenerator.

3) TESTING FACILITIES: -

- 3.1) The vendor should have in-house facilities for carrying out the following tests and provide details of test equipment available at their works:
 - a) Chemical composition
 - b) Mechanical properties
 - c) Dimensional measurement.
 - d) Leakage test: Test setup requirement as per testing methods mentioned in clause 8.4 of BHEL specification TG60030.
 - e) Electrical test in raw materials as well as PTFE hoses with fittings: Test setup requirement as per testing methods mentioned in clause 8.5, 9.2, 9.3 & 9.4 of BHEL specification TG60030.

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- f) Diffusion and external Pressure test: Test setup requirement as per testing methods mentioned in clause 9.4 of BHEL specification TG60030.
- g) Facility for measurement of Cu-coating thickness.

3.2) In case, vendor conducts any test at an outsourced testing agency, the outsourced testing facility should be NABL/ILAC/APLAC lab and vendor to furnish details of the same.

4) Vendor to confirm to meet the technical requirements of enquired specification TG60030 and drawings.

NOTE: BHEL reserves the right to verify the information submitted by the vendor.