

Technical Specifications (In-Cash Procurement)

C4N - Procurement of in-vessel electrical cables

SUMMARY OF TECHNICAL SPECIFICATIONS

The purpose of this contract is the procurement of mineral insulated cables including Ultra-High Vacuum leak tight terminations (so-called “cable assembly”). These cable assemblies will be installed inside of the vacuum vessel of the ITER machine.



Procurement of in-vessel electrical cables

Call for Nomination (C4N) Summary of Technical Specifications

1 Purpose

The purpose of this contract is the procurement of mineral insulated (MI) cables including Ultra-High Vacuum (UHV) leak tight terminations (so-called “cable assembly”). These cable assemblies will be installed inside of the vacuum vessel (VV) of the ITER machine.

2 Background

ITER is a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars. The ITER Members - China, the European Union, India, Japan, Korea, Russia and the United States - are now engaged in a 35-years collaboration to build and operate the ITER experimental device, and together bring fusion to the point where a demonstration fusion reactor can be designed. General information on the scope and design of the ITER machine is described in the www.iter.org website.

A selected number of components will be equipped with instrumentation, as well as plasma diagnostics.

In this summary of Technical Specification, the following terminology is used:

- “Cable assembly” refers to the Mineral Insulated (MI) cable + UHV leak tight terminations (attached to either one end or both ends of the cable).
- “Thermocouple extension cable” refers to the “cable assembly” containing MI cable made of N-type thermocouple conductors + UHV leak tight terminations (attached to both ends of the cable).
- “Thermocouple sensor cable” refers to the cable assembly containing MI cable made of N-type thermocouple conductors with a UHV leak tight termination on the one end of the cable and a thermocouple hot junction on the other.
- “Cable” refers to the MI cable itself without any termination.

Working conditions inside the Vacuum Vessel of ITER combine ultra-high vacuum, high temperatures, high radiation and demanding electromagnetic conditions.

3 Scope of Work

The Contractor shall:

- Procure raw production materials upon specified requirements;
- Manufacture cable assemblies to the selected design and as per the specified requirement for machining, welding and non-destructive examination;

- Test cable assemblies for leak-rate and electrical characteristics;
- Clean cable assemblies as per the specified procedures;
- Pack cable assemblies to preserve their cleanliness and integrity and ship them to IO.

The procurement includes the following types of cable assemblies:

- Mineral (alumina or magnesia) insulated twisted pair copper wires, stainless steel sheath, coated by copper, with leak tight termination at both ends (A1);
- Thermocouple type N extension wire with mineral insulation, stainless steel sheath, coated by copper, with leak tight terminations at both ends (A2);
- Mineral insulated cable with one copper wire, stainless steel sheath, coated by copper, with leak tight termination at both ends (A3);
- Thermocouples type N sensor wire with mineral insulation, stainless steel sheath, coated by copper, with sealed hot junction at the one end and leak tight termination at the other end (B1).

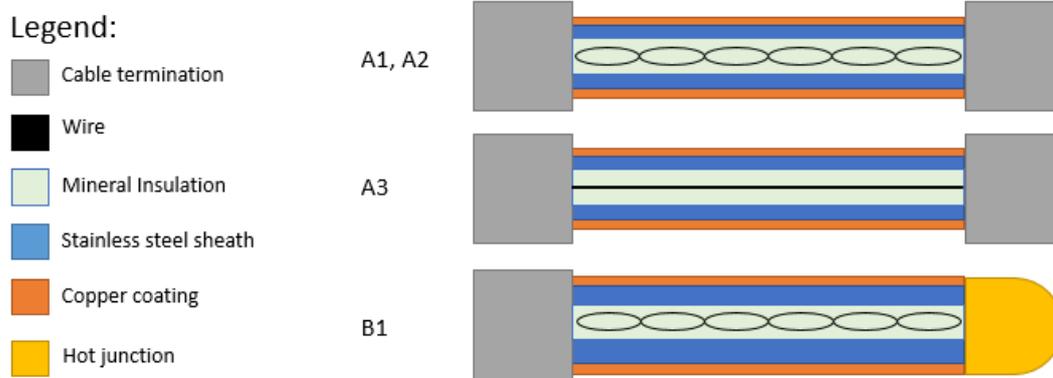


Figure 1 – Types of cable assemblies

The approximate overall quantities within the framework contract are: about a thousand of cable assemblies, including about ten thousands of meters of cables. The length of the cable assemblies varies from less than 1m up to about 20 m. The above quantities are indicative and will be specified in each Task Order.

4 Experience Requirements

The ITER Organization is looking for Suppliers with demonstrated experience in developing and manufactures MI cables including leak tight terminations. The Supplier must prove to be able to provide in an organised way the competences specified in the Scope of Work above.

The Supplier should also have available a dedicated clean area, which shall only be operated by trained personnel to approved procedures.

- The Tenderer shall have and maintain a valid ISO 9000 certification and shall have the duty to verify and document the equivalent quality level of all its subcontractors and consultants.

5 Award of the Contract

It is planned that the ITER Organization will award one Framework Contract for the whole scope of work.

Suitable teaming arrangements for multiple companies are possible, where appropriate, to enhance the offering of the tenderer.

It is contemplated that the ITER Organization will award the Framework Contract for an initial period of three years, and may extend contract options for two additional years as required to complete the activities.

The framework contract will be implemented by means of Task Orders, intended as a self-standing engineering activity. Each Task Order shall be signed by the Contactor and the ITER Organization.

The language used at ITER is English. A fluent professional level is required (spoken and written English)

6 Candidature – Expression of Interest

Candidature is open to all companies participating either individually or in a grouping (consortium) which is established in an ITER Member State. A consortium may be a permanent, legally-established grouping or a grouping, which has been constituted informally -- but formalized with engagement letters -- for a specific tender procedure. All members of a consortium (i.e. the leader and all other members) are jointly and severally liable to the ITER Organization.

The consortia shall be presented at the pre-qualification stage, where they will be assessed as a whole. Consortia cannot be modified later without the prior approval of the ITER Organization.

7 Timetable for the Tender Process

The tentative schedule for this tender process is as follows:

Call for Nomination (C4N)	<i>June 2019</i>
Pre-qualification of Companies	<i>July 2019</i>
Invitation for Call for Tender	<i>August - September 2019</i>
Tender Submission	<i>October - November 2019</i>
Contract placement	<i>December 2019 – January 2020</i>
First Task Order signature	<i>December 2019 – January 2020</i>