	<p style="text-align: center;">Mandatory Appendix</p> <p style="text-align: center;">Appendix-II-TCPH-APB3_09 Labelling, Cleaning, Packing, Shipping and Handling</p>	<p style="text-align: center;">INDUS Ref. No. R34VABP</p>
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Title	Design, Fabrication and Supply of Torus Cryo Pump Housing (TCPH) with Bellows and Other Loose items
Sub-title	<b>MANDATORY APPENDIX : II-TCPH-APB3_09 LABELLING, CLEANING, PACKING, SHIPPING AND HANDLING</b>

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## 1. SCOPE

This appendix covers the requirements for final cleaning, handling, and packing for transport, dispatch & transportation of the TCPH.

The terms of delivery shall be FCA at Bidder's premises.

## 2. LABELING AND TRACEABILITY

All components and the main sub-components shall be clearly marked in a permanent way at a visible place as per identification and traceability procedure. Bidder shall include ITER Part Number (PNI) identification as per IO numbering system to ensure IO traceability.

(PNI format contains 9 characters where I is a prefix, end with CAD UID reference intermediate characters are padded zeros. (E.g. "I00XXXXXX" where I – Prefix, XXXXXX – CATIA/Enovia UID, 00- Padded zeros) [RDB3\_20]

## 3. CLEANING

The methods and acceptance criteria to perform the cleaning prior to transportation of the TCPH components shall be according to II-TCPH-APB3\_06. Particular attention shall be given to the removal of weld spatter, debris and other foreign matter, particularly from the coolant passages and sealing surfaces. Final cleaning shall ensure effective cleaning without damage to the surface finish, material properties or metallurgical structure of the materials.


## 4. PACKING AND HANDLING

Bidder shall prepare and submit the suitable packing procedure for transportation of TCPH. Packing scheme used for TCPH should be sea worthy and capable to avoiding any ingress during transportation. The Bidder shall be responsible for ensuring that the Items and associated transportation packaging satisfy the regulatory transportation requirements. In addition, I-I may ask other recommendations for packing which is to be implemented by the Bidder. This shall be approved by I-I before packing.

TCPH along with Bellows shall be transported in closed condition duly filled with dry nitrogen gas (<100 ppm water) at a positive pressure of 0.1 kg/cm<sup>2</sup>.

All machined interfaces including seating surfaces of Cryo pump flange and welds preparations (if any) are to be protected against damage using temporary suitable arrangement/covers. Any damage observed on these surfaces due to these arrangements shall be rectify or replace by Bidder at free of cost.

All components shall be properly packed to prevent damage and properly fixed using metallic frame/ wooden boxes. Wooden boxes if used shall be sufficiently rigid to avoid deformation under the component weight. Supports for fixing the components shall avoid the potential for impact loading on the components due to sudden movements or accidental drop. Shock absorbing material shall be used between component and package.

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If required, additional steel cover for protection of bellows are recommended.

Shrink Fit packing shall be carried out on TCPH components. Packing used to avoid humidity, should not be put outside the additional lugs, to avoid components getting exposed to the air even in case of packing damage on the lugs.

The TCPH bellows shall be transported in the blocked condition preventing any inadvertent displacements during transport and have an over pack of adequate strength to prevent any external damage to convolution profiles by inadvertent contact, dropping or collision.

A packing list is to be issued and signed for each dispatch prior to 3 months from the date of completion. Packing lists are to be numbered sequentially for each dispatch. One copy of the packing list is to be sheathed in a watertight envelope and fastened on the inside of the packing.

Prior to packing each box, a Delivery Report shall be prepared by the Contractor, stating as a minimum:

- The packaging date;
- The full address of the place of delivery and the name of the person responsible to receive the package, as well as of the sender's name and full address;
- The number and type of components contained in the package;
- Any additional relevant information on the status of the components.


Delivery Report shall be signed by a representative of the Bidder and I-I. It shall be countersigned by a representative of the IO. The signature by the IO of the Delivery Report prior to shipment represents a Hold Point (HP).

The following pieces of information shall permanently mark on the outside of the packing:

- ITER Organization and the I-I's name
- Origin of manufacture (country), and a brief description of the component
- Overall sizes of the package
- Gross weight including packing
- Weight of the component
- Centre of gravity in three planes
- The lifting points with the SWL (Safe working Load)

The Bidder shall install the accelerometers/shock watches provided by I-I on the package at a suitable location as per instruction provided by I-I.

Regarding handling operation, all drawings showing techniques of lifting and safe securing including accelerometer location, together with test certificates of proof testing of any lifting equipment have to be documented for record purposes. These records are to be forwarded to

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the I-I for approval before proceeding. No handling is to take place until the I-I has approved the documentation package

All packed components shall be stored in a covered and protected area to prevent any damage or erosion to packing.

#### 5. SHIPMENT, TRANSPORTATION AND DELIVERY TO THE ITER SITE

Before the shipment, a Release Note shall be prepared in accordance with ITER Project Management and Quality Program related to the document “Contractors Release Note” and accepted by the I-I and IO.

The Bidder shall submit all the required documents for shipment to I-I.

The transport fixture designed by the Bidder shall be capable to withstand accelerations up to 5g during transportation from factory to ITER Site.