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Title	<b>Annex-I: Technical specifications for “Logistics Services for Transportation of 2 Auxiliary Cold Boxes from Italy to France”</b>
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## Contents

Abbreviations (in alphabetical order).....	3
1. INTRODUCTION.....	3
1.1 Introduction to ITER Project.....	3
1.2 Introduction to ITER Cryo-distribution System.....	3
2. SCOPE OF WORK .....	<del>43</del>
3. DELIVERY TO ITER SITE .....	5
4. General Terms and Conditions.....	6
5. Technical Details of shipment.....	6
6. Packaging Requirements.....	7
7. Cargo Specifications and Requirements .....	7
8. Incoming Inspection and Acceptance Criteria .....	8
9. List of Annexures: .....	<b><u>Error! Bookmark not defined.</u></b> 8
10. List of technical deliverables by the Successful Bidder/contractor: .....	8

## Abbreviations (in alphabetical order)

ACB - Auxiliary Cold Box  
DAP - Delivered at Place  
FCA - Free Carriage  
GPMM - Grand Port Maritime de Marseille  
LSP - Logistic Service Provider  
LLSP - Local Logistic Service Provider

## 1. INTRODUCTION

### 1.1 Introduction to ITER Project

ITER is a unique collaboration involving more than half of the global humanity. The ITER partners are the Peoples Republic of China, The European Union, India, Republic of Korea, Japan, Russian Federation and the United States of America. ITER will be built mostly through in-kind contributions from the participant countries Domestic Agencies (DAs) in the form of components manufactured by DAs and delivered/installed at ITER.

ITER-India (Purchaser) is the Indian Domestic Agency (INDA) responsible for delivering India's contributions to the ITER Project. It is a specially empowered project within the Institute for Plasma Research, which is an autonomous institute under the Department of Atomic Energy (DAE), Government of India. ITER-India has 09 procurement packages to be delivered to the ITER Project. More information is available in the web site [www.iterindia.in](http://www.iterindia.in).

Daher Technologies, France have been appointed by ITER Organization as the Logistics Service Provider (LSP) to the ITER project with framework agreement. Daher Technologies, France will work with the LSP appointed by ITER-India wherever necessary.

The bidders should note that ITER being an international collaboration they will uphold the prestige of India in matters of execution of the work under this contract.

### 1.2 Introduction to ITER Cryo-distribution System

ITER Cryo-distribution system consists of five Auxiliary Cold Boxes (ACBs), one Thermal Shield Valve Box (TCVB) and Manifold Box (MB) and one Cryo-plant Termination Cold Box (CTCB).

The scope of present tender is limited to transportation of **two ACBs**. Each ACB is primarily made of stainless steel. ACBs consists of various internal components like internal piping, heat exchangers, Cryogenics valves, instruments etc. Transport package of each ACB weighs around 32 tons and dimensions of each ACB are as follows: ~5.9 meter-long, ~4.7-meter-high and ~5.2 meter wide. Refer Packing List No. I-I/CDCL/EXPORT/1715/23-24 for more details

## **2. SCOPE OF WORK**

**The scope of work includes following:**

1. Arranging necessary transport fixture (Refer Annex-V Page No. 22 & 23 for Fixture used for previous ACB Transportation) to ensure full support of ACB Saddle on the Low Bed Trailer.
2. Design justification for the transport fixture shall be submitted for approval before fabrication.
3. Performing lashing calculations, providing lashing drawings and performing lashing of ACBs on the truck/trailer and ship.
4. Transport of 2 ACBs [ACB-4(PF) and ACB-3(ST)] from M/s SIMIC, Camerana, Italy to Fos Sur Mer, France including loading, unloading and handling at ports if applicable.
5. Transportation of 2 Nos. ACBs in single batch completely as per below:
  - in multimodal (road and sea) transportation from “M/s SIMIC, Camerana, Italy” to “FOS Sur Mer France” in close coordination with Daher Technologies France.
6. The successful bidder / Contractor is required to submit the complete route plan with for the multimodal transportation from collection point (M/s SIMIC, Camerana, Italy) to delivery point (FOS Sur MER France) based on the route survey, dimensions and weight of each ACB.
7. Preparation and submission (by email) of shipping plan of load (SPL), Method statement, quality plan & other necessary documentation in close co-ordination with Daher Technologies, France for ITER-India/ITER Organization approval. The template for the SPL (used for previous ACB Transportation) is attached as Annex - V. Shipment can start only after approval of SPL by the Purchaser.
8. Route surveys, permissions and legal compliances necessary to carry out full scope of work.
9. Custom clearance/documentations activities at the country of collection point/intermediate route, if necessary.
10. All supporting devices, shackles, tools and accessories for lashing, transport, lifting, and handling of ACBs shall be provided by the successful bidder / Contractor. Please refer more details in Annexure-II (Transportation drawings).
11. To monitor and record of pressure as per Chapter 7 of this document before each loading and unloading. If it is not feasible to do so then the same shall be informed to the purchaser in advance.

Item Details: 2 Nos of ACBs. Refer Packing List No. I-I/CDCL/EXPORT/1715/23-24 (overall dimensions and weight).

It is advised to visit collection point (M/s SIMIC S.p.a, Camerana, Italy) before commencement of transportation to understand the actual cargo appearance.

Schedule: Tentative date for pick up from collection point is as follows:

ACB-4: 15<sup>th</sup> October, 2024

ACB-3: 22<sup>nd</sup> October, 2024

Final pick up dates will be intimated during execution.

The transportation of both ACBs shall be done in a single batch.

The address of collection point and delivery point are as follows:

Collection point:	M/s SIMIC S.p.a, Via Vittorio Veneto 12072 Camerana (CN) Italy
INCOTERM 2020:	FCA at collection point (free on Truck)
Delivery point:	FOS Sur Mer (GPMM), France (Delivered at Quay) (NOTE: shipment from delivery point to ITER Organization, France will be managed by Daher Technologies, France)
INCOTERM 2020:	DAP at delivery point, FOS Sur Mer (GPMM), France (Delivered at Quay)
Means of transport:	Road & Sea (Multimodal) Transportation from Collection Point to Delivery Point.

The bidder shall provide route plan in the bid as per their transportation feasibility study.

**Duration for Transportation:** 1) First ACB shall be picked up from collection point within **90 calendar days** from the date of intimation from the Purchaser for readiness of the cargo.

2) The Transportation of both ACBs shall be completed (Delivered at applicable delivery point) within **30 calendar days** from the initiation of the transport.

3) The Transporter shall inform the Purchaser **at least five working days** before about the exact date of pick-up of items at the collection point.

### **3. DELIVERY TO ITER SITE**

The scope for transportation of ACB is limited to Fos Sur Mer (GPMM), France Only. The transportation from FOS Sur Mer (GPMM), France to ITER Organization, France will be managed by Daher Technologies under the Global Framework Contract with ITER Organization. The bidder shall have a Partnership Agreement with Daher Technologies as per Annexure-A1 for the execution of the transportation of the cargo from delivery point to final destination (ITER Organization).

Final Destination of Cargo: ITER ORGANIZATION,  
In front of Building 17,  
Route de Vinon sur Verdon, CS 90046  
13067 St Paul-Lez-Durance

#### **4. General Terms and Conditions**

- (a) The bidder shall submit the price bid as per template provided along with the Technical Information.
- (b) Detailed route plan with justification (based on the detailed route survey) shall be submitted by the successful bidder / Contractor. It is strongly advised to use single tool preferably laser based (with valid calibration) for measurement of height and road width at various locations like tunnels, bridges or other obstacles on the road during the route survey.
- (c) The bidder shall also submit lifting plan at proposed ports including details like type of crane, type of lifting devices to be used with drawing. (Lifting and Handling drawing).
- (d) Transport shall be carried out considering the dimensions, weight and other constraints mentioned in Annexure -II & Packing List No. I-I/CDCL/EXPORT/1715/23-24.
- (e) Detention of the trailer, additional loading/unloading (if any) is included in the scope of the bidder. Unloading of consignment at delivery point is in the scope of the bidder.
- (f) The vessel to be used for the sea transport shall not be more than 20 years old. The certificate from the vessel company regarding age of the vessel shall be provided before finalizing shipping vessel to ensure compliance with this requirement.
- (g) The cargo shall be placed in the shipping vessel at under deck position only.
- (h) Kick-off Meeting (KOM) may be held between purchaser and successful bidder within 1 week of task order signature to plan and organize the execution of scope of work.
- (i) The Ad-valorem insurance for the whole transportation will be arranged by the Purchaser under the Global Framework Contract of the ITER Organization managed by Daher Technologies, France. The invoice along with the insurance certificate for the same would be settled separately on submitting documents obtained from Daher Technologies, France for release of payment by the Purchaser to the Bidder for reimbursement to Daher Technologies, France.
- (j) It may be noted that an independent third-party surveyor will be appointed by Daher Technologies for inspection at all handling points during the course of transportation as per the Global Framework Contract. The invoice along with the surveyor reports for the same would be settled separately on submitting documents obtained from Daher Technologies, France for release of payment by the Purchaser to the Bidder for reimbursement to Daher Technologies, France.
- (k) In case of insurance claim, the Contractor shall provide all necessary documents as required by the Purchaser.

#### **5. Technical Details of shipment**

- 1. The shipment will be comprised of 2 ACBs. The detailed information is mentioned in transportation drawings (Annex-II), Packing List I-I/CDCL/EXPORT/1715/23-24 and transport procedure (Annexure-III).
- 2. This is a non-hazardous cargo.
- 3. 3-Axis Accelerometers with redundancy (supply and mounting in Purchaser's Scope)

- will be mounted on each component/package, which shall record the accelerations captured during handling and transportation activities with respect to time and date.
4. The handling instructions are specified in Annexure-II and III which includes position of centre of gravity, position of area for lifting (authorized and prohibited area), authorized handling direction, etc. For the transportation, the items/components need to be properly lashed with the bed of the truck/ship as mentioned in Annexure-II & III.
  5. The successful bidder / contractor shall arrange lifting devices (e.g. frames, slings, shackles, spreader beams, transportation support frame for support of ACBs during lashing, road transportation, lifting, handling, tilting etc. (refer Annexure-II)
  6. The successful bidder / contractor shall provide technical report of transportation support frame for road transport with justifying basic design and its calculations/analysis (e.g. deflection, stress etc.) considering the cargo height, cargo weight, loading capacity of truck frame and dimensions of the truck/trailer frame. It is to be noted that approval of transport frame design calculation is mandatory before commencement of its fabrication.
  7. The successful bidder / contractor shall submit lashing calculation for lashing of ACB on the truck/trailer, ship. Approval of lashing calculation is necessary before the commencement of transportation.
  8. The successful bidder / contractor shall take photos and provide the same to the Purchaser, which need to be taken at various stages like loading, lashing, transport, unloading etc.

## **6. Packaging Requirements**

The manufacturer of ACBs will do detailed packaging (Refer Annexure-III) i.e. packing is not in the scope of contractor. However, lashing of the cargo on truck/trailer, ship is responsibility of successful bidder / contractor.

## **7. Cargo Specifications and Requirements**

- (1) Each ACBs will be mounted with redundant 3-axis accelerometer/data logger (refer Annexure-T3 for details) by the Purchaser. These accelerometers will record real time data every few seconds. The ACB and its components are designed for following limits of accelerations and same shall be taken care while transport/handling/loading/unloading operations.

*Table 1: Acceleration limits for ACBs and components to be transported*

	By Road	By Sea
Transport direction	0.8 G	0.5 G
Lateral direction	0.5 G	0.5 G
Vertical direction	1 G	1 G

- (2) Internal components of each ACB will be pressurized with nitrogen gas (Purchaser's

scope of work) to prevent ingress of impurity from ambient. The pressure gauge will be installed (Purchaser's scope of work) to monitor the pressure of nitrogen.

## **8. Incoming Inspection and Acceptance Criteria**

The ACBs, once received at ITER site, will undergo inspection and following acceptance criteria is applicable.

- (a) The transported components shall not be physically damaged (visual inspection will be carried out).
- (b) The transported components shall not be subjected to accelerations more than defined in Table 1 (accelerometers readings will be checked).
- (c) Pressure inside the applicable components shall remain above atmosphere (should not be less than 0.05 bar(g)) (pressure gauge readings will be checked).

An incoming inspection report will be prepared for formal closure of the shipment.

In case, the above mentioned acceptance criteria is not satisfied, the rectification / additional test will be carried out by the Purchaser and the cost associated with it will be claimed against the Ad-valorem Insurance.

## **9. List of technical deliverables by the Successful Bidder/contractor:**

<b>Sr. No.</b>	<b>List of document deliverables</b>	<b>Milestone</b>
1	Shipping plan of load	Before Commencement of Transportation
2	Method Statement	Part of Shipping Plan of Load
	Route Plan	Part of Shipping Plan of Load
3	Lifting Plan	Part of Shipping Plan of Load
4	Technical report of transportation support frame design and analysis	Before Commencement of support frame fabrication
5	Lashing calculation report	Before Commencement of Transportation