



EQUIPMENT SPECIFICATIONS

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Secure climatic chamber

FREE DISTRIBUTION

EOTP:

OS:

Platform

A-MSBAT-G0-4D-DD

IA4PEPRBAEQU

Analyse de Comportement d'Accumulateurs

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Table of changes

Version	Writer	Date	Subject of the change
A	RANIERI Marco	07/02/25	Initial Document
B	Ranieri Marco	17/02/2025	Corrections
C	Ranieri Marco	20/03/2025	Final version

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1. PURPOSE

This document provides all the basic information upon the request of the Service of Batteries Technologies (S2TC) in CEA to purchase **secure climatic chambers for the test of Li-ion batteries**.

These equipments will have to fulfil all the specifications defined below. A detailed estimate price and terms and delivery limits of this equipment is required.

The installation of the equipments may need some special actions which will be analyzed, depending on the choice of the equipment.

2. DEFINITION

In this document, the contractor is referred to as “the supplier”.

The instructing party is referred to as “CEA”.

3. GLOSSARY

LITEN: Laboratoire d’Innovation pour les Technologies des Energies Nouvelles et les nanomatériaux - Laboratory of innovation for new energy technologies and nanomaterials
PMAD: Prise en Main A Distance (Remote control access)
DOE: Dossier des Ouvrages Exécutés (As built file)

4. APPLICABLE DOCUMENTS

The supplier shall comply with the documents and all procedures in force at CEA/GRENOBLE. Below is a non-exhaustive list:

EQ/CS23-10: Règles applicables aux entreprises extérieures (French version)
EQ/CS23-11: Applicable rules for outside companies (English version)

These documents shall be available for consultation upon request by the supplier.

5. CUSTOMER – SERVICE PROVIDER CONTACT

The technical contacts for the basic and additional services are:

Mr RANIERI Marco
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6. CONFIDENTIALITY

The supplier undertakes to keep confidential and shall refrain from disclosing to any third party, without written approval from CEA, the whole or part of information and/or knowledge belonging to CEA or any third party, that it may obtain or may have obtained during the service performed on behalf of CEA.

7. TECHNICAL SPECIFICATIONS

Specification of our requirement: a set of climatic chambers capable of controlling the temperature of a closed volume, with programmable positive and negative temperature steps, plateaus and ramps.

More specifically:

- 1) **Each climatic chamber** must have an internal volume (for the samples to test) **between 100 liters and 200 liters**,
- 2) **The total internal volumes** of the climatic chambers summed together must be **at least 300 liters**.

The supplier is free to propose any possible combination of climatic chambers volumes and numbers of climatic chambers that satisfy these two conditions.

Just as an example, to make it clearer, three climatic chambers of 100 liters each is an acceptable proposal. Please keep in mind that 300 liters is the minimum total volume that we demand, but **this total volume can of course be larger**, even much larger. We do not specify a maximum total volume; the limit will be determined by our budget.

These climatic chambers will be used for Li-ion battery cell testing. For example, a battery cell with a capacity of **250 Ah**, equipped with multiple sensors on and around it, is a typical test sample.

Each chamber must have at least **two openings of 100 mm** for cables and wires, with a properly designed closing system preventing any excessive leakage, which could compromise the climate (temperature and humidity) regulation inside the chamber.

The climatic chambers must contain **shelves** made of an electrically insulating material, capable of supporting the weight of typical Li-ion battery cells of the specified capacity. The electrical insulation must not be achieved through paint, but rather through the appropriate choice of insulating material.

The **chassis** must be easily movable by one person, mounted on wheels, with brakes on at least two wheels. If two climatic chambers are positioned one above the other, wheels are only required for the lower chamber; the upper one can be fixed in place.

Each chamber door must have a **window** large enough to provide a clear view inside. One window per chamber is required. A light inside each chamber is demanded, which can be turned ON and OFF by the control panel.

Climatic chambers maximum **dimensions**:

- Maximum height: 195 cm (lab door height: 205 cm).
- Maximum width: 130 cm (lab door width: 140 cm).
- Maximum floor area per chamber: 1,25m².

Each chamber must support **network connectivity** via a wired Ethernet interface, allowing direct control without requiring proprietary software or drivers. The Ethernet interface must support a **REST API** (Representational State Transfer Application Programming Interface) with

standardized methods such as GET, POST, PUT, and DELETE. This ensures compatibility with third-party software for chamber control.

The IP address of the chambers, if present and necessary for the communication, must be configurable.

7.1 Thermal specifications

Temperature profiles programming: the chamber interface must allow the creation of simple programs directly on the chamber display interface, while also enabling advanced programming via a connected PC, or allowing the control by any other device that has access to the chamber's API REST interface. The connection between the PC (or other controlling equipment) and the climatic chamber must be standard Ethernet.

We need a good control of the climate conditions, in order to prevent condensation inside the test volume during the cooling/heating phases. Easy and autonomous evacuation of condensation water is demanded, if this occurs.

Lowest reachable temperature: **at least as cold as -20°C.**

Highest reachable temperature: **no more than +60°C (hardware limited, for safety).**

Accuracy of the climatic chamber temperature regulation: **at least +/-0,5°C.**

It must be possible to regulate the temperature per steps of **0,1°C.**

7.2 Safety management

Safety demand: the climatic chamber must feature **specific safety aspects, devices or solutions**; these features must not only be in relation with the control of the temperature itself inside the chamber. For example, safety sensors could be used to order the chamber to enter into "safe mode" when a setpoint value is exceeded. The safety mode would be, by instance, switching to full cooling power, in order to cool down the samples inside it and prevent fire. The safety sensors can be part of the climatic chamber itself, or they can consist in an Auxiliary input port, which can be programmed to handle an External Trigger, based on externally deployed sensors (deployed by us), which orders the climatic chamber to enter in 'safety mode' (switching to full cooling power). That means that this Auxiliary input port must handle voltage and/or temperature thresholds to drive the safety mode; this threshold must be configurable by software. This is an example: other complementary safety solutions can be proposed and will be carefully evaluated.

(optional) Electrically insulated and fireproof shelves inside the chambers can be proposed as safety solutions.

(optional) Further safety enhancement: the internal surface of the test volume of the climatic chamber should be electrically insulated.

An implicit safety aspect is the fact that we demand several climatic chambers, in order to physically separate the tested samples among them, preventing defect propagation.

Each safety solution proposed by the supplier must be clearly mentioned and explained, as the safety aspect is a crucial term of comparison among the proposed solutions.

7.3 Other requirements

The shelves must be made of an electrically insulating and fireproof material, capable of supporting 10 kg of weight. The electrical insulation must not be achieved through paint, but with proper material chose, for example.

7.4 IT equipment

If the equipment is delivered with a computer, it shall be set up with a Windows 11 Entreprise (1607 version and later) Operating System and shall be compatible with the SYMANTEC Endpoint Protection 14.3 RU6 MP6 at least (12.1 RU6 MP9 preferred) antivirus.

As mentioned above, each chamber must support network connectivity via a wired Ethernet interface, allowing direct control without requiring proprietary software or drivers. The Ethernet interface must support a REST API (Representational State Transfer Application Programming Interface) with standardized methods such as GET, POST, PUT, and DELETE. This ensures compatibility with third-party software for chamber control. In fact, we intend to control the climatic chamber also via other softwares than the one delivered with the chamber, by instance with softwares that also drive battery cyclers.

CEA's facilities management shall be called on to configure the PC to the CEA standard before connection to the CEA's intranet, if a PC is delivered with the cambers.

As an option, it could be possible to save the configuration and profile data in a repository of a network server.

8. WORK ENVIRONMENT, PLACE OF INSTALLATION, SUPPLY LIMITS

8.1 Supply limits

Without object.

8.2 Environment, Facilities

The supplier shall include in its bid the fluid requirements, electrical power supply and any other required interfaces.

8.3 Delivery

Any item of equipment delivered shall bear the order number as well as the recipient's name. The supplier shall plan all measures for unloading and installing the equipment. Delivery shall be performed between 8 a.m. and 4:30 p.m. from Monday to Friday.

The equipment shall be installed on the CEA Grenoble site in the X building.

The equipment and peripherals shall be delivered in a clean condition and packaged in a proper manner.

Transport trays, pallets and packaging crates shall be suited to the weights and volumes of the items so as to ensure safe transport and to subsequently prevent any dispute related to defective packaging.

All transport trays, pallets and packaging crates shall be removed by the supplier as the processing of packaging waste is not managed by CEA.

8.4 Conditions for performing work on the CEA site

In cooperation with the supplier and its subcontractors (if any), CEA shall draw up the overall prevention plan for the equipment installation and commissioning services.

As equipment lending, including safety equipment, is prohibited by CEA, the supplier and its subcontractors (if any) shall provide the required safety equipment for preventing the specific risks caused by its work (PPE, CPE, etc.). It shall be responsible for replacement and repair of said equipment and, as applicable (without compensation from CEA), it shall train and acquaint its staff with the use thereof in keeping with regulations. Said equipment shall comply with the regulations in force and the supplier shall possess a certificate of conformity.

The supplier and its subcontractors (if any) shall provide collective safety equipment designed to prevent accidents stemming from the work (marking out of the work areas, marking out of the traffic areas; marking out of the handling areas, marking out and implementation of barriers around pits, height differences, etc.). It shall perform and ensure their removal insofar as the service no longer requires the presence of marking systems.

9. LEAD TIMES

The equipment will be installed on site and received within a desired timeframe of 12 weeks from the date To of notification of the order by the CEA.

10. QUALITY

The supplier shall apply a quality management system that is of the same level as ISO 9001 for all its activities.

Any significant and/or repeated failures to comply with the specifications shall be notified to the supplier (anomaly email or improvement sheet) in order to perform corrective actions within a stipulated timeframe. In the event of failures or should said corrective actions not be performed, penalty shall be applied to the service provider in reference to the contract.

CEA Grenoble reserves the rights to inspect the effective operation of the system at any time, via quality audits which may be performed at the service provider's premises and on the CEA Grenoble site.

Any measurements taken by the supplier for acceptance tests shall comply with the requirements of paragraph 7.6 of ISO 9001 (control of monitoring and measuring devices). Should the supplier subcontract these measurements, they shall be supplied with a certificate of conformity.

11. SAFETY AND CONFORMITY

As set forth in CEA's general purchasing conditions, the supplier undertakes to consider safety as an absolute priority in the design, preparation and performance of the services subject of the Contract.

The supplier shall read and apply the "Rules applicable to outside companies working at the Grenoble centre" (refer to chapter 4, "Applicable documents").

The supplier and its subcontractors (if any), irrespective of their rank, shall apply the legal and regulatory provisions pertaining to safety and environmental protection.

The equipment shall comply with the regulations in force.

The equipment shall be CE certified, feature a "CE marking" and shall be accompanied by a CE declaration of conformity (refer to chapter 0 "Documentation").

11.1 Risk analysis

The Supplier shall provide a risk analysis for the equipment and include all the associated items of safety equipment, their actions and servo-controls.

Said analysis shall highlight the specific risks related to the equipment and provide substantiation for the associated protection measures.

The supplier shall transmit this analysis to CEA right from the design phase (refer to chapter 0 "Documentation").

11.2 Risks related to facilities and machines

The equipment shall comply with the regulations in force, especially the "Machinery" Directive 2006/42/EC.

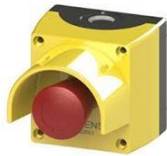
11.2.1 Power supply disconnection and separation device

A power supply disconnection and separation device shall be provided on the equipment, for each source of energy of the machine.

11.2.2 Power supply lockout / tagout device

A power supply lockout / tagout device with dissipation of the residual energy shall be provided on the equipment, for each source of energy of the machine.

11.2.3 Emergency stop



Emergency stop buttons shall feature protection against unintentional operation. See the example on the photo.

11.2.4 "Service" nitrogen or compressed air connection

The chamber must not need any external connection to any fluid or gas distribution network.

11.3 Risks related to electricity

11.3.1 Generalities

The equipment shall comply with the regulations in force, in particular the following Directives:

- "Electrical Equipment" 2017/35/EU;
- "Electromagnetic compatibility" 2014/30/EU;
- "Restriction of the use of certain hazardous substances in electrical and electronic equipment" (2011/65/EU).

If the equipment is composed of electrical measurement, control and laboratory devices, it shall comply with standard NF EN 61010-1.

If the equipment forms an electrical test equipment facility, it shall comply with standard NF EN 50191.

If the equipment uses safety extra low voltage, its source shall comply with standard NF EN 61558-2-6.

If the equipment features a source capable of feeding electricity back to the power grid, it shall comply with standard DIN VDE 0126.

11.3.2 Presence of an uninterruptible power supply (UPS)

If the whole equipment must be supplied by an uninterruptible power supply (UPS), then this power supply shall be provided by CEA.

The supplier shall give all the required information for product definition (voltage, power, battery life).

The supplier shall provide connection terminals on the equipment to connect the uninterruptible power supply.

In the event that only a portion of the equipment is powered by an internal UPS integrated by the manufacturer, the following rules shall be observed:

- An all-pole isolating device shall be installed downstream of the UPS in order to enable maintenance operations.
- If voltage still remains after the master switch of the machine has been turned off, such presence shall be indicated close to the switch.

- All circuits that remain live after switch off shall be marked in orange colour in accordance with standard 60-204.

11.4 Risks related to fire

By default, the detectors integrated into the equipment shall not be connected to the fire safety system of the building and shall act only on the equipment concerned and its associated peripherals, if any.

11.5 Risks related to explosion

Not applicable

11.6 Risks related to chemicals

□ Not applicable

11.7 Risks related to handling

For those parts of the equipment requiring handling (pumping units, chamber lids, covers, etc.), in particular during maintenance or installation operations, suitable lifting means shall be provided and described in the safety instructions of the equipment.

Systems integrated into the equipment shall be given preference over removable systems.

11.8 Risks related to pressure vessels

11.9 Risks related to work at height

In the event that use, maintenance or installation operation of the equipment require access at height, the supplier shall give priority to the installation of collective protective equipment (e.g.: built-in work platform with handrail complying with the standards in force) or, failing that, provide personal protective equipment (e.g.: anchoring points or lifelines complying with the standards in force). In the latter case, the technical documents shall very clearly refer thereto, so that the associated regulatory checks can be implemented.

Where necessary, the associated personal protections may be required.

These shall have been validated by CEA.

11.10 Risks related to artificial optical radiation

Not applicable

11.11 Risks related to noise

The equipment shall comply with the regulations in force, in particular the "Machinery" Directive 2006/42/EC.

11.12 Risks related to temperatures

The equipment shall comply with the regulations in force, in particular the "Machinery" Directive 2006/42/EC.

11.13 Signalling

Residual risks shall be indicated on the machine by means of regulatory hazard pictograms (triangles with yellow background), accompanied by additional text when applicable. In this case, this text shall be written in French.

11.14 Regulatory inspections

CEA shall have the necessary regulatory inspections carried out by an authorised organisation of its choice, in order to verify that the supplied equipment complies with the regulations.

The Supplier shall remedy any non-conformity in the shortest time possible without being able to claim any compensation. Depending on the severity of the detected anomalies, CEA may decide to suspend the commissioning operations until the problems have been solved (refer to Article 30 of chapter 11 of the General Purchasing Conditions).

11.14.1 Inspection of the work equipment

The equipment supplied shall comply with the regulations in force in France.

These regulations include European texts.

The various standards applicable to the machine shall be complied with.

The general rules specified by the "Machinery" Directive 2006/42/EC on the use of work equipment and protection measures shall be complied with.

Refer to chapter 14. CEA shall have an inspection of the work equipment carried out on the place of installation. The report issued further to this inspection shall be free of any non-conformity. In the event of a non-conformity, a second inspection shall be carried out after the equipment is installed on the site.

11.14.2 Regulatory electrical inspection

Once the equipment is installed on the site and prior to commissioning, CEA shall have a regulatory electrical inspection carried out by an inspection body of its choosing.

12. ENVIRONMENTAL CLAUSES

The equipment must be designed in such a way as to limit polluting emissions into the environment, in particular by the implementation of clean technologies, the segregation and treatment of effluents and waste according to their characteristics, and the reduction of the quantities released.

13. EQUIPMENT DOCUMENTATION

The supplier undertakes to provide:

- The user's manual written in French.
- The servicing and maintenance manual.
- The work equipment inspection.
- The regulatory electrical inspection.
- The CE declaration.
- The equipment safety analysis and in particular the supervisory system, the safety instructions and risk identification.
- The drawings.
- The as-built file (DOE).

14. ACCEPTANCE CONDITIONS

Acceptance is given after complete delivery of the equipment and at the end of the installation and commissioning operations, and after satisfactory tests. If there were any remarks during the pre-acceptance (if it was carried out in the factory, see 11.14.1 Checking work equipment), it will be necessary to check that the solutions provided comply with the safety requirements (for example, refer to form FOR259).

Criteria for granting acceptance:

- Supply of the documents stipulated in the "Documentation" paragraph 13.
- Validation of all the technical criteria that were demanded in the order.

15. TRAINING

The supplier undertakes to provide the following training:

15.1 Training on the use of the equipment

The supplier undertakes to conduct training on the use of the equipment for **6 people**.

The supplier shall specify the duration of the required training courses in its bid.

This training shall include the control, remote and not remote, of the climatic chamber, controlled by:

- PC (Windows), if a proprietary software is delivered with the chambers,
- Chamber's native display and buttons,
- Ethernet connection directly interfaced without the use of a proprietary software, but with API REST communication interface.

The supplier must also organize a training session to show to the CEA permanent personnel how to perform maintenance and calibration procedures by ourselves. It is important that all the features that allow the calibration parameters adjustments are easily unlockable and that the maintenance actions are clearly listed and explained.

15.2 Training on first level maintenance

Not applicable

15.3 Training on advanced maintenance

Not applicable

16. WARRANTY

Notwithstanding the legal warranty, the equipment shall be guaranteed 2 year(s) as from acceptance against any material, manufacturing, installation and operating defect, in compliance with the technical requirements of the specifications.

Said warranty shall cover the parts (excluding consumables), workmanship, transportation and travel.

Throughout the warranty period, the supplier undertakes to carry out repair work at the latest within 1 week following receipt of a fax or an email form CEA requesting a service call. These services shall be carried out every day from Monday to Friday, from 8 a.m. to 5 p.m.

In the event of equipment unavailability, the warranty period shall be extended by a period of time equal to the equipment downtime.

Moreover, we ask the supplier to include a 5-year maintenance and calibration contract in the offer. The maintenance and calibration must occur at the frequency specified by the manufacturer.

17. MAINTENANCE

At the end of the warranty, CEA shall be given the possibility to purchase a maintenance contract.

The supplier shall include in its price base, a cost estimate, of the maintenance services by taking into account the following levels of requirement:

- Full service (commitments on the availability time of the equipment including the preventive maintenance services, unlimited corrective maintenance and supply of spare parts). By default, the performance expected in the Full Service contract is that stipulated herein;
- Preventive maintenance (parts and manpower) + corrective maintenance on demand (hourly rate) including compliance with service and repair lead times.

Following adjustment of CEA's maintenance requirements, the maintenance contract may be put in place after the warranty period, further to negotiations.

18. ELEMENTS TO BE PROVIDED IN THE BID

- ☐ Comments from the Equipment Manufacturer on the Equipment Specifications (refer to § Annex 1).
- ☐ The description of required utilities. Completed characteristics of fluid requirements, power supply and all other necessary interfaces (refer to § Appendix 2).
- ☐ Maintenances costs
- ☐ The duration and description of the planned training
- ☐ Safety analysis of the equipment (refer to § 11.1)
- ☐ Environmental impact of the manufacturing of the equipment.

Appendix 1. Equipment Specifications compliance - to be provided by the equipment manufacturer

Supplier name	
Offer reference	

C = **Compliant**
NC = **Non Compliant adaptations are necessary**
NA = **Non Applicable**

Spécification Topics	Compliant ?			Supplier Comments	Supplier Alternative proposal	Final decision
1.Purpose	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
6. Confidentiality	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
7.1 Expected Spécifications	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
7.3 IT equipment	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
8.1 Supply limits	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
8.2 Environnement facilities	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			

Spécification Topics	Compliant ?			Supplier Comments	Supplier Alternative proposal	Final decision
8.3 Delivery	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
8.4. Conditions for performing work on the CEA site	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
9-Lead Times	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
10 Quality	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11 1.Risk analysis	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.2.1- Power supply disconnection and separation device	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.2.2 Power supply lockout/tagout device	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.2.3- Emergency stop	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.2.4- "Service" nitrogen or compressed air connection	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			

Spécification Topics	Compliant ?			Supplier Comments	Supplier Alternative proposal	Final decision
11.3.1 Risks related to electricity - Generalities	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.3.2 Presence of an uninterruptible power supply (UPS)	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.4- Risk related to fire	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.5 Risks related to explosion	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.6 Risks related to chemicals	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.7 Risks related to handling	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.8 Risks related to pressure vessels	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.9 Risks related to work at height	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.10 Risks related to artificial optical radiation	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.11 Risks related to noise	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			

Spécification Topics	Compliant ?			Supplier Comments	Supplier Alternative proposal	Final decision
11.12 Risks related to temperatures	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.13 Signalling	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.14.1 Work equipment inspections	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
11.14.2 Regulatory electrical inspections	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
12. Environmental Clauses	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
13. Equipment documentation	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
14 Acceptance Conditions	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
15.1 Training on the use of the equipment	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
15.2 Training on first level maintenance	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
15.3 Training on advanced maintenance	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			

Spécification Topics	Compliant ?			Supplier Comments	Supplier Alternative proposal	Final decision
16 Warranty	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
17 Maintenance	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			
18 Elements to be provided in the BID	C <input type="checkbox"/>	NC <input type="checkbox"/>	NA <input type="checkbox"/>			

Validation summary of the points to be clarified			
	Name	Date	Signature
SUPPLIER			
CDPE			
Division Manager			

**Dispatch : Head of the Department- CDPE (Chef de Projet Equipement) - Service Achats
 - Chef d'installation - Responsable plateforme**

Appendix 2. Specifications for installing equipment - to be provided by the equipment manufacturer

Features completed with fluid requirements, power supply and any other interfaces he deems necessary for a good estimate of the cost of installing the equipment.

- 1) This appendix will allow the CEA to produce the fluids PID and electrical PID.
- 2) These PIDs will then be sent for verification to the equipment supplier for approval.
- 3) The Hook Up and Fit Up will begin after the official validation of the PIDs by the supplier.



Annexe2_Datasheet
_for_Tool_Installatio

This file can be sent at a compagnie.

The file content is put here as an illustration of the requested content.

Modèle de l'équipement :

Liste des Equipments & sous-equipments						
Nom	Location (Fab or sub-fab)	Type (Chiller, pump...)	Model	Dimensions (L x w x h) in mm	Weight (Kg)	Supplied by

Dimensionnement nécessaire des facilities pour le bon fonctionnement de l'équipement				Connection		Consumption (e) = "Consomation"				Pressure (bar) at the connection on the tool		Temp (° C)		Purity		
Fluid (a)	From	To	Description (b)	ID (c.)	Size (d)	Type	Min	Max	Average	Min	Max	Min	Max			Supplied by

Comments

(a): Voir feuille "Fluids" pour quelques exemples

(b): Pour décrire le but et les caractéristiques de connexion

(c): Nom de la connexion identifiée sur l'équipement

(d): Taille de la connexion, l'unité doit être précisée

(e): Flows (débit entrant et sortant) et consommations qui doivent être converti comme décrit ci-dessous :

Exhaust : m3/h

ERP (PCW), EDI (DIW), VP, drain : l/min

Gaz : Slm (Standard liter per minute)

(f): Mettre les remarques et contraintes à connaître pour l'installation de l'équipement : par exemple longueur maximale, ...

Exigences Electriques									
From	To	Type (power, signal..)	Voltage	Phases	Breaker Amp = limite en ampères de sécurité	FLA (Full Load Amperage)	Average Amp	Supplied by	Installed by

Nuisances									
From	To	Type (power, signal..)	Voltage	Phases	Breaker Amp = limite en ampères de sécurité	FLA (Full Load Amperage)	Average Amp	Supplied by	Installed by

Nuisances		unity	level
Security description must be attached	Noise	dB	
	Vibrations		
	X rays		
	Magnetic		
	Dust		
	"Nano" particles		

Fluids	Descriptions
ACS / CDA	Air Comprimé Sec / Compressed Dry Air
N2S	Nitrogen Service
N2P	Nitrogen Process
Ar	Argon Process
He	Helium Process
Exhaust	Exhaust
Acid Drain	Acid Drain
HF Drain	HF Drain (if [HF] > 1%)
Solvent Drain	Solvent Drain
ERP / PCW	Eau de Refroidissement Process / Process Cooling Water
EDI / DIW	Eau Dé-Ionisée / Deionised Water
VP	Vide Process / Vacuum (P=-880mbar) (expect pump)
Process Gas	Example : H2, SiH4, CH4...
Process Fluid	Example : IPA, HF, H3PO4...