

# Procurement Guide

**for the European open tender for a Lithography FIB system (a two-beam (focused ion beam (FIB) /focused electron beam)) - Dual-beam FIB/SEM system**

**Contracting Authority:**

The Netherlands Organisation for Applied Scientific Research (TNO)

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## Definitions

In this Procurement Guide, words written with an initial capital, both singular and plural, shall have the following meanings. Terms not mentioned in this list but defined in the Dutch Public Procurement Act [*Aanbestedingswet*] have the meaning assigned to them in the Procurement Act.

Contracting Authority	: TNO, Netherlands Organisation for applied scientific research
Procurement Guide	: the present document describing the Procurement Procedure.
Procurement Procedure	: the present European public Procurement Procedure by which the conclusion of the Contract is tendered.
Dutch Public Procurement Act	: Dutch Public Procurement Act 2012 (hereinafter: "Procurement Act" or "Aw") concerning the implementation of procurement directives 2014/23/EU, 2014/24/EU and 2014/25/EU
Procurement Documents	: all documents prepared by or on behalf of TNO for the purpose of the Procurement Procedure.
Announcement	: the Notice of Procurement Procedure at <a href="http://www.TenderNed.nl">www.TenderNed.nl</a> .
Annex(es)	: The Annexes to the Procurement Guide, namely: <ul style="list-style-type: none"> <li>• <b>A01</b> to <b>A05</b> - i.e. the formats to be used by the Tenderer in preparing and submitting its Tender,</li> <li>• <b>B01</b> to <b>B03</b> - i.e. the formats to be used by the intended beneficiary for the purpose of submitting supporting documents relating to the ESPD at the request of TNO,</li> <li>• <b>C01</b> to <b>C04</b> - i.e. documents and (additional) information, which form part of the Procurement Guide and are not intended for submission by the Tenderer or the intended beneficiary.</li> </ul>
Combination	: an alliance of enterprises tendering jointly as a single Tenderer, each of the Combination members being jointly and severally liable for the performance of the Contract.
Third Party	: natural persons on whom, or legal entities on which, a Tenderer may rely in order to meet the Suitability Requirements of financial and economic standing and/or technical and professional competence, irrespective of the legal nature of its links with said Third Party.
Suitability Requirements	: the requirements imposed by TNO on Tenderers not excluded on the basis of the Grounds for Exclusion, which Tenderers must meet as a minimum in order to be eligible for the award of the Contract, on penalty of invalidation, as described in Section 5.
Award criterion	: the criterion used by TNO in the assessment and ranking of Tenders for the purpose of awarding the Contract, as referred to in Section 6.
Award decision	: the written communication of TNO's choice of the Tenderer with which it intends to conclude the Contract or its choice not to conclude a Contract.
Tenderer	: an entrepreneur submitting a Tender.
Tender	: an offer/quotation made by a Tenderer.
Minimum Requirements	: the requirements set by TNO regarding the manner in which the Contractor must perform the Contract.
Information Notice	: the document containing further information about the Procurement Procedure and/or the Procurement Documents and in which TNO presents and answers the Tenderers' questions in anonymised form.
Contractor	: the Tenderer with which the Contract is concluded.

- Contract : the Contract concluded with the Contractor pursuant to the outcome of the Procurement Procedure. The Contract is concluded after it has been signed by TNO and the Contractor.
- Grounds for Exclusion : grounds for exclusion from participation in the Procurement Procedure, which – depending on the provisions of the Procurement Documents – relate to circumstances concerning the (person of the) Tenderer, the (person of the) Third Party and/or the (person of the) Subcontractor.
- European Single Procurement Document : the declaration as referred to in Article 2.84(1) of the Procurement Act, which TNO has attached to the Procurement Guide as Annex **A01** (hereinafter: ESPD).

## 1 Contracting Authority and Contract

### 1.1 TNO

TNO, Netherlands Organisation for applied scientific research, hereinafter referred to as "TNO", is a modern unit-driven Research & Knowledge organisation, established by law in 1932 to make scientific research applicable to enterprises, government bodies and civil-society organisations and thereby strengthen innovative capacity.

TNO is a public-law legal entity and operates under the ministerial responsibility of the Dutch Minister of Economic Affairs but, as an organisation, performs its tasks independently.

Every day, TNO's employees are working on the development and application of innovative research. TNO provides contract research and specialist consultancy and licenses patents and specialist software. TNO starts up new enterprises to bring innovations to market.

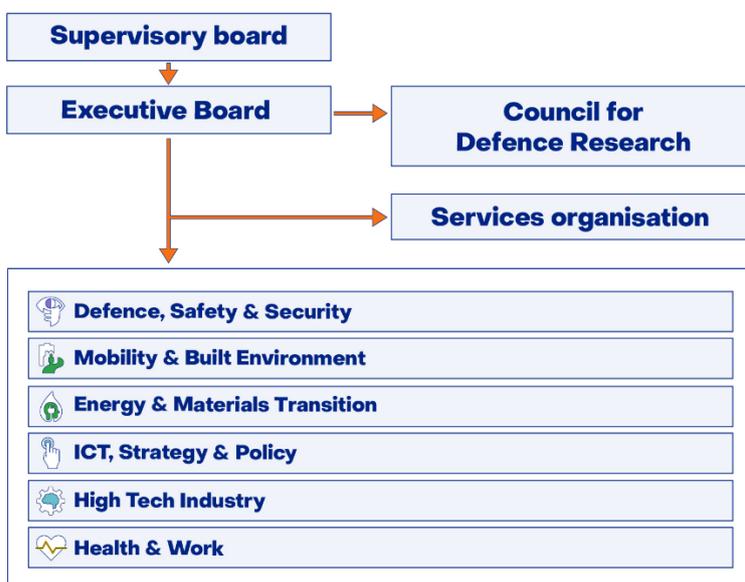
TNO's strength lies in its ability to combine diverse fields of science to create ground-breaking, sustainable solutions. Increasingly, TNO does so by collaborating with government bodies, industry, other knowledge institutions and civil-society organisations, both nationally and internationally. Through its work, TNO stimulates economic growth and social innovation.

TNO's mission is to create impactful innovations that contribute to the sustainable wellbeing and prosperity of society. The way TNO fulfils this mission is outlined in its strategic plan for 2026–2029. The strategy is built around three key priorities: placing greater focus through dynamic portfolio management by doing what we excel at; increasing impact through valorisation by bringing science to market; and enhancing customer and market centricity. TNO's overarching goal is to connect, change, and accelerate: Innovation for Life.

For more information on TNO, see: [www.TNO.nl](http://www.TNO.nl).

### 1.2 The TNO organisation

With TNO's highly ambitious approach comes an organisational form that effectively facilitates this ambition and a culture that challenges employees to innovate and collaborate. The TNO organisation has a unit structure as shown below:



The six organisational units (Units) are market-oriented and recognisable to TNO's customers and partners.

The Units are based across the Netherlands with a total of 21 locations/research facilities.

The head office is located in The Hague and accommodates the central staff bodies (Shared Services Organisation) and from where the entire TNO organisation is supported and managed.

#### *Procurement department*

The Procurement department is effecting the procurement on behalf of TNO in close cooperation with the Quantum Technology department, part of the unit High Tech Industry (HTI). Procurement, as part of the Finance, Procurement & Legal (FPL) department, is responsible for organising and executing procurement processes and ensuring that these processes are in line with the TNO objectives.

### 1.3 Purpose of the Tender

The purpose of the Tender is TNO's intention to enter into a Contract with one (1) Contractor for the supply/delivery of a Lithography FIB system (hereinafter referred as: "Dual-beam FIB/SEM system"). This supply/service shall be performed in accordance with the requirements and preferences as set out in the Procurement Documents.

### 1.4 Objective, scope and content of the proposed Contract

The Quantum Technology department at TNO focuses on the advancement of nanoscale quantum and photonic devices. One of the main pillars supporting the research and development is the field of nanofabrication. In Delft, the Netherlands, there already is a vast infrastructure with nanotechnology related equipment present. In order to further enhance the capabilities in the Delft scientific ecosystem but more importantly also strengthen the TNO control point on nanotechnology, the Quantum Technology department is interested in procuring a FIB-SEM ion lithography platform. Focused Ion Beam (FIB) technology is a powerful method of processing various materials and manufacturing circuit components. Unlike conventional photon and electron lithography tools, FIB technology centers on the direct removal of material without the need for masking procedures. However, wafer scale patterning accuracy or any meaningful scale up is still lacking, hence originally FIB systems were predominantly used for sample preparation, material/defect analysis and highly specific local milling applications. By combining both the precision of electron beam and photolithography systems, while being capable of ion milling various materials, opens up new strategies and can solve or circumvent encountered problems in conventional nanofabrication processes. A new approach of utilizing ion lithography offers new opportunities, shorten the prototype cycle duration and reducing general overhead, resulting in significant advancements in the development of quantum and photonic devices.

The Contract to be entered into provides for the supply of products and the provision of services, as specified in detail in the Programme of Requirements and Preferences (Sections 8 and Annex 04).

TNO is willing to consider offers for refurbished or overhauled equipment, provided that the work is carried out by the Original Equipment Manufacturer (OEM) and is fully guaranteed by the OEM for the required warranty period. Suppliers must confirm the availability of the equipment on the award date and submit proof of its condition prior to contract award (see R-8.100.006).

Following the present Procurement Procedure, TNO intends to award a contract for the purchase of a Lithography FIB system in accordance with the Procurement Guide.

In general terms, the contract involves:

- The equipment
- Two-year warranty including maintenance and services
- (Critical) Design review
- Factory Acceptance Test (FAT)
- Site Acceptance Test (SAT)
- Installation on site
- Operator & (basic) maintenance training
- Delivery according to Incoterm®2020 'Delivered Duty Paid'  
(DDP Location TNO Eindhoven, the Netherlands (further specified on PO))

### 1.5 Maintenance/Services Contract

System downtime can lead to loss of opportunities and possibly revenue. Therefore, in relation with this Tender procedure, TNO might intend to enter into a contract for maintenance/services for a period of one year up to a maximum of five years. In this light, TNO expects to receive a proposal or proposals that minimise such system interruptions.

TNO has divided maintenance/services into two types, being 'basic' and 'all-inclusive'. The price for the various options for maintenance/services must be submitted by the Tenderer in Annex A03. These quoted prices shall be fixed, and no indexation should take place the first 2 years after the final acceptance of the FIB-SEM by TNO.

For the elaboration of what exactly falls under the maintenance (for the relevant price, as offered in the price sheet), TNO expects an elaboration to be submitted as 'Annex A05 - Maintenance/Services' (own format).

*What is offered for the 'basic' and or 'all-inclusive' maintenance contract type?*

*What exactly does Tenderer offer and how does this match with the preferences of TNO, such as but not limited to response times, service-desk reachability, software updates, additional service hours which are not covered in this type of contract etc?*

Make a preventive and (if available) a corrective breakdown here. The maintenance time of the FIB-SEM shall not exceed two weeks per year. Therefore, state the consequences of not achieving or not fulfilling the service level specified by the tenderer.

The intention to enter into a maintenance contract depends on the price and whether it falls within the total available budget. For this reason, and to allow a fair price comparison, TNO will only include the price for a one-year basic

maintenance contract multiplied by five (5) years in the price assessment (para. 6.1). It should be clear to TNO what is covered by the maintenance contract, but also what is not covered by the contract, and thus will result in an additional cost to TNO.

If you typically provide different types of maintenance contracts, you can present these variations alongside the basic maintenance contract. However, please be aware that only the basic maintenance contract and its price will be assessed. The price for all potential variations in maintenance services, covering a period of one year up to and including 2030, considering the closed-cycle refrigerator FIB-SEM system, will only be available by 2025 (a total of (5 years). Tenderers can submit this information in Annex A03.

#### **1.6 Optional second Dual-beam FIB/SEM system**

TNO might have the intention to buy a second Dual-beam FIB/SEM system with the same similar requirements/preferences (chapter 8), and this within a period of maximum three years after final award decision and the signing of the Contract. Such a purchase will take place under the same tender conditions. For this reason, Tenderer is asked to fill-in the related line numbers in Annex A03.

## 2 Procurement Procedure

The Procurement Procedure is carried out in accordance with the relevant regulations stipulated under the Aw. TNO has opted for the open Procurement Procedure. This tender has been published on and will proceed through TenderNed, [www.TenderNed.nl](http://www.TenderNed.nl).

### 2.1 Schedule for the Procurement Procedure

The proposed schedule for the Procurement Procedure is as follows:

No.	Action points	Date
1.	Publication of Announcement of Contract (at <a href="http://www.TenderNed.nl">www.TenderNed.nl</a> )	07-01-2026
2.	Closing date for submission of questions by Tenderers	05-02-2026, 10:30 hrs (CET)
3.	Issue of (final) Information Notice	13-02-2026
4.	Closing date and time for submission of Tenders	24-02-2026, 10:30 hrs (CET)
5.	Notification of Award Decision	12-03-2026
6.	Closing date for submission of supporting documents by intended beneficiary	19-03-2026
7.	Closing date for submission of challenges	02-04-2026
8.	Final award	Close after 02-04-2026

The dates are indicative. TNO reserves the right to change the dates, subject of course to the minimum periods as laid down in the Dutch Public Procurement Act [*Aanbestedingswet*]. Affected enterprises will be notified of any change in the schedule via TenderNed.

### 2.2 Tender conditions

As part of the Procurement Procedure, TNO applies the following conditions.

#### 2.2.1 Agreement

Submission of the Tender implies that the Tenderer agrees to the terms and conditions of the Procurement Procedure and agrees to the contents of the Tender Documents, including any unwelcome answers in the Information Notice.

#### 2.2.2 Formats

The Tenderer should use the formats as included in the Annexes to this Procurement Guide. It is expressly not permitted to make changes to these formats, unless TNO has expressly stated otherwise.

#### 2.2.3 European Single Procurement Document (ESPD)

The Tenderer must submit an ESPD as specified in the instructions given below. The Tenderer must use the ESPD as appended in Annex A01.

To access and complete the ESPD electronically, the Tenderer must only use the Adobe Reader software program, preferably the latest version. Opening the ESPD in a program other than Adobe Reader may result in the ESPD appearing different from the version pre-filled by TNO and/or showing errors. Submission of an ESPD that differs from the version as provided by TNO with the Procurement Documents will render the Tender invalid, unless TNO considers this disproportionate in a specific case. The responsibility for opening the ESPD in the prescribed manner and submitting the correct version thereof rests with the Tenderer.

For legally valid signature of the ESPD, see Section 2.2.20 of this Procurement Guide.

#### 2.2.4 Precedence of Procurement Documents

In the event of discrepancies between the contents of the various Procurement Documents, the following order of precedence applies during the Procurement Procedure, in descending order of prevalence:

- Information Notice(s): from most recent to least recent;
- Procurement Guide with Annexes:
  - o Programme of Requirements and Preferences (Annex A04);
  - o The Price Sheet (Annex A03);
  - o Maintenance – Services (Annex A05)
  - o Reference projects (Annex A02)
- Announcement.

**2.2.5 Contact person and communication**

All communication relating to the Procurement Procedure, with the exception of Section 2.3 "Further Information (questions)", will take place via TenderNed only and in the manner specified in this Procurement Guide.

If direct contact with TNO is specified/necessary, communication will take place exclusively with the TNO contact person stated below, in writing at all times, via the TenderNed messaging module.

Name : Arjan Verhoeven  
Position : Procurement Advisor HTI  
Department : Procurement  
Postal address : PO Box 96800, NL-2509 JE The Hague

Tenderers cannot derive any rights from oral statements, undertakings and suggestions made by TNO employees and/or consultants in relation to the Procurement Procedure and/or the Procurement Documents. Tenderers may only rely on information provided in writing by or on behalf of TNO.

On penalty of exclusion, enterprises may not contact persons other than the contact person with regard to the Tender, unless TNO considers this disproportionate in a specific case. Nor is it permitted, on penalty of exclusion, to communicate with the contact person in any way other than via TenderNed, unless TNO considers this disproportionate in a specific case.

An instruction regarding digital procurement via TenderNed can be found by selected bidders in TenderNed's support environment (<https://www.TenderNed.nl/cms/help>). If you have any questions or are unclear about the operation of TenderNed (for example, if you are unable to log in or submit documents) or if TenderNed malfunctions, the TenderNed service desk can be contacted from 8.30 a.m. to 4.30 p.m. on working days on 0800 - 836 33 76 or via [servicedesk@TenderNed.nl](mailto:servicedesk@TenderNed.nl).

**2.2.6 Language**

Tenders must be written in the English language. Tenders in languages other than English will be excluded from participation. Official documents that cannot be submitted in the English language may be written in the language of the document's country of origin. Upon request, the Tenderer shall arrange a translation by a sworn interpreter-translator. The costs incurred shall be borne by the Tenderer.

**2.2.7 Single Tender**

An enterprise may only be involved in one (1) Tender: either as an independent Tenderer, a member of a Combination, or a subcontractor or Third Party. With regard to enterprises belonging to the same group as referred to in Sections 2:24b and 2:24c of the Dutch Civil Code, more than one company from the group may submit a Tender, provided that the enterprises demonstrate, at TNO's request, that the Tenders have been drawn up independently and autonomously.

Where this cannot be demonstrated by all the Tenderers concerned, all the Tenders emanating from enterprises belonging to the same group will be excluded.

**2.2.8 Combination**

A Combination of enterprises may submit a Tender jointly as a single Tenderer.

To do so, the following conditions must be met.

- All members of the Combination shall submit their own completed and validly signed ESPD. This states that registration takes place in Combination and, if selected, registered.
- The ESPD specifies which member of the Combination will fulfil the role of coordinator. The coordinator is the only member with which TNO corresponds regarding the Procurement Procedure and, where applicable, the Contract. The coordinator must have the power to legally bind all members of the Combination in respect of the Procurement Procedure and, where applicable, (the award of) the Contract.
- All members of the Combination must individually declare in their own ESPD whether they are subject to Grounds for Exclusion (see Section 5.1). The members of the Combination will each be assessed individually against the Grounds for Exclusion. If one or more Exclusion Grounds apply to one or more members, the entire Combination will be excluded.
- The Combination as a whole will be assessed against the Suitability Requirements, subject to any exceptions referred to in Section 5.2. In the ESPD, the Combination members declare how the Combination meets the Suitability Requirements. If the Combination as a whole does not meet all Suitability Requirements, the submission of the Combination will be laid aside.

By submitting the Tender, the Combination members declare that all the participants in the Combination are jointly and severally liable for the fulfilment of the obligations arising from the Procurement Procedure, as well as from any performance of the Contract. By submitting the Tender, the Combination members declare that the coordinator is authorised to validly represent the Combination and the individual Combination members in all matters relating to the Tender and, in the event of the award of the Contract, the Contract.

### 2.2.9 Subcontracting

A Tenderer may use one or more subcontractors to carry out the work. A cooperative venture in the form of a main contractor and subcontractors may tender as single Tenderer. The main contractor shall remain at all times responsible and liable for all work, including any work performed by a subcontractor.

TNO recognises the following subcontractors:

#### Reliance on subcontractor to meet Suitability Requirements

Where the Tenderer relies on the financial and economic standing and/or technical and professional competence of a subcontractor to meet the Suitability Requirements, said subcontractor shall also be deemed a Third Party. In this case, the Tenderer must follow the instructions as described in Section 2.2.10 concerning reliance on the resources of a Third Party or Parties. All Third Parties must be listed in Section IIC of the ESPD (Annex **A01**).

#### Deployment of subcontractor to perform the contract

Where a Tenderer meets the specified Suitability Requirements independently but wishes to use one or more subcontractors to carry out the work, the Tenderer need not disclose the identity of the subcontractor(s) in the Tender. While the Tenderer must tick the box in its ESPD, Part IID, to indicate that it intends to use subcontractors, their names need not be disclosed at this time. However, the Tenderer must do so not later than seven (7) calendar days after the provisional award, as TNO has to pre-approve the subcontractors to be used. If the Contractor wishes to replace a subcontractor during performance of the Contract, this will only be possible subject to TNO's prior consent in writing.

If a Tenderer wishes to use a subcontractor, a completed ESPD (Annex **A01**; parts IIA, IIB and III) must be submitted not later than seven (7) calendar days after the provisional approval of said subcontractor, as well as the supporting documents relating to the Grounds for Exclusion (Section 5). Where a subcontractor is subject to one or more Grounds for Exclusion and said subcontractor has not given convincing reasons in the ESPD why it should nevertheless not be excluded (see Section 5), the subcontractor will not be approved. Otherwise, approval of a subcontractor will not be unreasonably withheld.

If a Tenderer intends to use multiple subcontractors, a completed and duly signed ESPD (Annex A01) must be submitted from each subcontractor. The subcontractor has only to complete parts IIA, IIB and III of the ESPD. These ESPDs will be appended to the Tender.

The subcontractor's ESPD (Annex **A01**) must be duly signed. For signing authority, please refer to Section 2.2.20.

#### If the Tenderer does not intend to use subcontractors

The Tenderer should indicate its intention not to use subcontractor(s) by ticking only the "no" box in Part II D of the ESPD (Annex **A01**).

### 2.2.10 Reliance on Third Party resources?

The Tenderer may rely on the financial and economic standing and/or technical and professional competence of a Third Party or Parties.

If the Tenderer relies on the financial and economic capacity of a Third Party or Parties, both the Tenderer and the Third Party or Parties on whose financial and economic capacity the Tenderer relies will be jointly and severally liable for the obligations arising from the Procurement Procedure and for the obligations arising from the performance of the Contract, if awarded to the relevant Tenderer.

If the Tenderer relies on the technical and professional competence of a Third Party or Parties, said Third Party or Parties should also be involved in the performance of the Contract, if awarded to the relevant Tenderer.

#### No reliance on Third Party resources

If the Tenderer does not rely on the financial and economic standing and/or technical and professional competence of a Third Party or Parties, it should complete Part II C of the ESPD (Annex **A01**) to indicate that it does not rely on the financial and economic standing and/or technical and professional competence of a Third Party or Parties, by ticking the "no" box.

#### Reliance on Third Party resources

##### A) Requirements for submitting a Tender

If the Tenderer does rely on the financial and economic standing and/or technical and professional competence of a Third Party or Parties, the Tenderer should complete Part II C of the ESPD (Annex **A01**) to indicate:

1. that it is relying on the financial and economic standing and/or technical and professional competence of a Third Party or Parties, by ticking the "yes" box
2. the Suitability Requirements for which it relies on the Third Party or Parties and,
3. for each stated Suitability Requirement for which it relies on a Third Party or Parties, and the Third Party or Parties it relies on for that purpose.

In addition, if the Tenderer relies on the financial and economic standing and/or technical and professional competence of a Third Party or Parties, it shall submit the following:

4. a separately completed and duly signed ESPD (Annex **A01**) from each Third Party on whose financial and economic standing and/or technical and professional competence it relies, in which the Third Party completes Parts II A, II B and III in respect of the Third Party itself. The ESPDs of the Third Party or Parties must be duly signed as referred to in Section 2.2.20.

Additional requirement for submitting a Tender in the event of reliance on technical and professional competence of a Third Party or Parties

5. If and insofar as the Tenderer relies on the technical and professional competence of a Third Party or Parties, the Tenderer must submit a list of reference projects completed by the Third Party or Parties on whose technical and professional competence the Tenderer relies, in addition to any list of its own reference projects to be submitted by itself with its Tender. If and insofar as the Tenderer submits reference projects of a Third Party or Parties, it must also use the format for reference projects (Annex **A03**) for this purpose.

**B) Requirements for intended beneficiary relying on a Third Party or Parties**

The Tenderer to which TNO intends to award the Contract on the basis of the Award Decision and which relies on the financial and economic standing and/or technical and professional competence of a Third Party or Parties must submit at TNO's request within the period specified in Section 7.1 of the Procurement Guide:

1. a declaration by said Third Party or Parties stating that the Tenderer can actually access the resources of the Third Party or Parties relied upon. If the Tenderer relies on the financial and economic standing of a Third Party, it shall submit a declaration in the format provided in Annex **B01**. If the Tenderer relies on the technical and professional competence of a Third Party, it shall submit a declaration in the format provided in Annex **B02**;
2. any evidence as referred to in Section 5.1, which allows the Third Party or Parties whose suitability the Tenderer relies on to demonstrate that the Grounds for Exclusion do not apply to the Third Party.

Additional requirement for intended beneficiary in the event of reliance on financial and economic standing of a Third Party or Parties

3. The Tenderer to which TNO intends to award the Contract on the basis of the Award Decision and which relies on the financial and economic standing of a Third Party or Parties must, at TNO's request, submit within the period specified in Section 7.1 of the Procurement Guide, in addition to the documents referred to above under B) (regarding "*Requirements for the Intended Beneficiary*"): the documents that will be substituted for those that the Tenderer must submit to prove that it meets the Suitability Requirements regarding financial and economic standing.

**2.2.11 Variants**

Offering variants and/or alternative Tenders is not permitted and they will therefore be disregarded.

**2.2.12 "Or equivalent"**

The technical specifications are formulated as much as possible on the basis of EU and other standards, performance requirements and functional requirements. Where the Procurement Documents, including the Annexes, nevertheless refer to brand names, patents, types, manufacturing processes, etc., the Tenderer should read "or equivalent" after the relevant phrase.

Tenderers are free to provide an equivalent product, service or type of work. If they do so, the Tenderers must justify in or with their Tender why they are offering an equivalent product, service or type of work. It is up to TNO to assess whether the latter are actually equivalent. TNO reserves the right to have their equivalence assessed by a third party if necessary.

**2.2.13 Rights reserved by TNO**

1. TNO reserves the right to stop the entire Procurement Procedure temporarily or permanently. If TNO decides to discontinue the Procurement Procedure, legal protection is guaranteed in accordance with paragraph 2.4 of the Procurement Guide.
2. TNO reserves the right at all times to subject the data and statements provided by Tenderers to further investigation and verify their accuracy (or have them verified), as well as to approach any references provided, without prior notification thereof to Tenderer. The results thereof will be considered in the assessment of the Tender.

The Tenderer is aware that if at a later stage it is found that incorrect and/or incomplete information has been provided and/or that requirements set out in the Procurement Documents are not or no longer being met, the Tenderer will be excluded from further participation in the Procurement Procedure or agreements already made may be cancelled and contracts dissolved. In such cases, TNO cannot be held liable for the consequences thereof for the relevant Tenderer and TNO will not be obliged to reimburse any costs and/or any loss or damage of any kind.

**2.2.14 Confidentiality**

The Tenderer will observe strict confidentiality in respect of all information that is or becomes known to it through TNO. It will not make the information available to Third Parties and will only disclose it to its staff, including consultants, subcontractors and Third Parties, insofar as this is necessary for the submission of the Tender or – if and insofar as applicable – the performance of the Contract.

TNO acknowledges the confidentiality of the Tenderer's Tender and will not disclose to Third Parties any information known to it from this source. It will be necessary to disclose information from the Tender, where appropriate, in the context of justifying the Award Decision. The Tenderer recognises this and agrees accordingly.

#### **2.2.15 Distortion of competition**

Distortion of competition will result in exclusion. If TNO suspects that distortion of competition has occurred, it will give the relevant Tenderer(s) the opportunity to demonstrate that it has not been guilty of distorting competition. If TNO deems that the Tenderer has failed to do so, the Tenderer will be excluded from further participation in the Procurement Procedure.

#### **2.2.16 Withdrawal by Tenderer**

Any Tenderer who has submitted a Tender may withdraw it until the closing date for tenders. After that moment, the period of validity starts. The Tender is irrevocable during the period of validity.

#### **2.2.17 Period of validity**

The Tenderer shall uphold its Tender for a period of one hundred and twenty (120) calendar days from the closing date for submission of the Tender (Section 2.1). The period of validity is automatically extended until the final conclusion of the Contract with the first-ranked Tenderer.

If summary proceedings are instituted against the Award Decision, the period of validity will be automatically extended by a period of thirty (30) calendar days from the date of the decision of the preliminary relief judge.

TNO may request Tenderers to extend the period of validity. Tenderers cannot derive from this any right to be awarded the Contract.

#### **2.2.18 Contract terms**

The Contract will be awarded in accordance with:

- Contract entitled: 'PURCHASE AGREEMENT TNO – [name Contractor], the draft version of which is included in Annex C02;
- TNO's Purchasing Conditions for Goods, December 2025 (hereinafter referred to as "PC-Goods 2025"), as set out in Annex C03, shall apply unless explicitly modified in the Procurement Documents.

In accordance with Section 2.3 of this Procurement Guide, Tenderers are permitted to submit proposed text and amendments to both the Contract and the PC-Goods 2025. The final Information Notice will address these proposals and include the definitive version of the Contract and the PC-Goods 2025.

The general terms and conditions (including terms of supply) or terms and conditions of Third Parties (including subcontractors and auxiliary persons) used by the Tenderers, both during this Procurement Procedure and also, in the event of award, during the performance of the final Contract and any contracts to be concluded under its terms, are expressly rejected by TNO. If they declare their own terms and conditions applicable, this will render their Tender invalid.

In the final Information Notice, TNO will indicate where final changes have been made. Acceptance of the Final Contract and PC-Goods 2025 is a minimum requirement. Failure to comply with these conditions will result in the Tenderer's exclusion from further participation in the procedure.

#### **2.2.19 Conditional Tender**

TNO will exclude conditional Tenders from further participation in the Procurement Procedure.

#### **2.2.20 Legally valid signature**

The Tender must be validly signed. "*Validly signed*" means that the ESPD has been signed by the duly authorised representative(s) of the Tenderer as stated in TenderNed. A validly signed ESPD means that the Tender as a whole has been validly signed, unless a separate valid signature is required for one or more documents. TNO would point out that the trade register may state that two or more persons are joint authorised representatives, or that a representative is authorised only up to a certain monetary value. This has implications for the authority to sign and Tenderers should anticipate this. The authority to sign should be evidenced by an extract from the trade register. It is also possible for the Tender to be signed by a proxy. In this case, a power of attorney must be issued by a legally authorised representative of the Tenderer, as evidenced by the trade register, or the power of attorney must be recorded in the trade register.

The extract or the power of attorney need only be issued to TNO if a request to that effect has been made by TNO, as specified in the requirements set out in Section 7.1 of the Procurement Guide.

A Tender not validly signed shall be deemed not to have been made and shall be invalid.

This provision also applies to the ESPD submitted by members of a Combination and/or for the Third Party or Parties on whose standing/experience/resources the Tenderer relies. In their case too, only the ESPD need be validly signed and this signature will also serve as a valid signature for other documents completed and submitted by them.

*Electronic signature*

Signature in the form of an electronic signature is also permitted. The following requirements apply in this regard: an E-recognition tool ("eHerkenning" in Dutch) with at least security level 4 (EH4) must be used.

**2.2.21 Reimbursement of expenses incurred in submitting the Tender**

Any expenses incurred by Tenderers in preparing and submitting the Tender will not be reimbursed.

**2.2.22 Statement of prices and expenses**

Prices and costs must be stated in euros excluding VAT and will be fixed for the term of the Contract unless otherwise specified. TNO hereby explicitly states that no price negotiations will be entered into as part of this Procurement Procedure.

**2.2.23 Publicity**

No publicity will be given to the Procurement Procedure by the Tenderer or by partners and/or subcontractors to be engaged by the Tenderer except with TNO's consent in writing. All information on the Tender will be treated confidentially by Tenderer and the parties to be engaged by them.

**2.2.24 Intellectual property**

Subject to exceptions as specified in the Dutch Copyright Act [*Auteurswet*], no part of the Procurement Documents may be reproduced (other than for the purpose of submitting a Tender) in any manner whatsoever without TNO's consent in writing. Tenders and all Annexes submitted by Tenderers as part of the Procurement Procedure will become TNO's property upon receipt.

**2.2.25 TNO logo**

The TNO logo may not be copied, altered or otherwise used on documents submitted by the Tenderer as part of the Procurement Procedure.

**2.3 Further information (questions)**

The Procurement Documents shall be prepared with the utmost care. Tenderers may request further information on the Procurement Procedure and/or the Procurement Guide up to the closing date and time "closing date for submission of questions" as stated in the schedule in Section 2.1. Said further information may, for example, address any lack of clarity, ambiguities, discrepancies. Further information should be requested within the time limit and in the manner described in this section. Questions and comments not submitted on time and/or correctly will in principle not be dealt with in the Information Notice, except in cases where this is deemed necessary and/or desirable at TNO's sole discretion.

Moreover, at the time of the above deadline, Tenderers will have the opportunity to ask reasoned questions on, or propose text or amendments to, the draft contract, as included in Annex **C02** and in the General Purchasing Conditions TNO, Annex **C03**. Text proposals will serve only to improve the Contract and must not affect its essence. TNO would point out that it reserves the right at all times to accept or not to accept these text or amendment proposals.

If the Tenderer fails to raise questions about and/or challenge to (lack of clarity, ambiguities or discrepancies in) the Procurement Procedure and/or the Procurement Guide and/or in the manner described in this section, or does not do so in a timely manner, it will forfeit its right to challenge any deficiencies identified at a later stage, e.g. in interlocutory proceedings.

Questions and/or comments should be communicated **exclusively** to the TNO contact person (see Section 2.2.5) using the "Standard Template for Tenderer Questions" in Annex **C01** ("editable" MS Excel file) prepared by TNO. Using the "pull-down" menu in this Excel file, the Tenderer should indicate which section of the Procurement Guide the question relates to. Once completed, Annex **C01** should be submitted via [the TenderNed messaging module](#).

TNO is therefore **not using the question module in TenderNed**. Questions submitted in this question module will not be considered.

The TNO contact person will compile the questions and/or comments, along with their responses, in anonymised form within one or more Information Notices. The final date for asking questions is included in the schedule in Section 2.1. The Information Notices will be published at [www.TenderNed.nl](http://www.TenderNed.nl) as per the schedule in the table in Section 2.1.

All the questions and their answers should be considered an integral part of this Procurement Guide. The basic premise is that the Procurement Guide will be deemed final after publication of the last Information Notice.

TNO may decide to hold one or more additional briefing rounds. Parties will be informed of this in the Information Notice. Questions and comments submitted as part of an additional briefing round may relate solely to the contents of the immediately preceding Information Notice. Questions and comments that do not relate to the immediately preceding Information Notice may be disregarded by TNO – without notice.

The responsibility for submitting questions and/or comments in a timely and correct manner rests with the Tenderer. Questions raised after the expiry of the deadline will in principle not be answered in the Information Notice unless answering is necessary, in TNO's opinion, for the submission of a proper Tender.

TNO would advise Tenderers to wait until the last Information Notice is published before submitting their Tender as the Information Notice may contain further clarifications and amendments to the Procurement Guide that are relevant to the preparation of the Tender.

TNO would expressly remind Tenderers that it can answer their questions in confidence (Section 2.53(3) Aw). If a Tenderer does not wish to have a question answered in the Information Notice, the Tenderer must give reasons as to why a public answer would damage its legitimate economic interests. TNO will take a decision on whether or not to answer a question in confidence based on these reasons. If TNO decides not to do so, it will notify the questioner accordingly, giving reasons. The questioner will then have the option of withdrawing or submitting its question for the Information Notice.

## **2.4 Applicable law and disputes**

This Procurement Procedure is governed by the laws of the Netherlands. The Preliminary Relief Judge at the District Court of The Hague shall have exclusive jurisdiction to settle disputes relating to the present Procurement Procedure. Tenderers should bring their challenges to all or part of the Procurement Procedure, to all or part of the information provided or to other aspects relating to the Procurement Procedure to the attention of the TNO contact person (see Section 2.2.5) at the shortest possible notice.

The period within which legal action must be taken against the Award Decision and/or the Procurement Procedure is twenty (20) calendar days from the date of the Award Decision. Any summons should be served within this period, which is a (contractual) expiry date, at TNO's address. If this objection period, also expiry date, is exceeded without legal proceedings having been commenced by service of a summons, any right to do so shall (inadmissible) lapse. The standstill period is automatically extended to the next working day if the standstill period ends at the weekend, on a public holiday or a so-called "notice-free day" [when bailiffs cannot issue writs].

A Tenderer wishing to initiate summary proceedings is requested to request foreclosures from TNO.

If a summons has been served within the standstill period, the relevant Tenderer is requested to send a copy of the served summons via TenderNed to the contact person for the Procurement Procedure no later than two (2) working days after service. This is because the processing of documents within TNO can lead to delays in processing the summons.

If a Tenderer institutes summary proceedings in a timely and valid manner in respect of the Award Decision and/or the Procurement Procedure, the Tenderer to which the contract has been provisionally awarded shall intervene in the summary proceedings. If the Tenderer to which the Contract has been provisionally awarded does not intervene, said Tenderer shall exercise the right to institute court proceedings or third-party proceedings in the event that the judgment in the first-instance summary proceedings orders the amendment or revocation of the Award Decision. This is because it is important for all the parties to obtain clarity as soon as possible and put all the arguments on the table in the first instance. If the standstill period is exceeded, this situation cannot be remedied.

Any Tenderer that has instituted summary proceedings is obliged to provide a copy of the summons when requested to do so by other Tenderers so that said Tenderer(s) can determine whether intervention is appropriate. Of course, it is up to the Tenderer that initiated the summary proceedings to determine whether or not confidential business information will be disclosed at that stage and, if so, which. If the Tenderer that initiated the summary proceedings does not (expeditiously) provide a copy of the summons to the Tenderer requesting it, TNO reserves the right to provide a copy of the summons itself. In doing so, TNO will determine at its own discretion whether confidential business information will be deleted and, if so, which.

If summary proceedings have been instituted in a timely and legally valid manner and the judgment does not oppose the conclusion of the Contract, TNO will be free to enter into the Contract. TNO is not obliged to await any appeal or proceedings on the merits. In other cases, TNO will consider the next steps to be taken based on the judgment in first instance.

## **2.5 Submission of the Tender**

### **2.5.1 Digital tendering**

The Tender consists of the completed and, where necessary, validly signed Annexes **A01 to A04**, the formats of which are appended as Annexes to the Procurement Guide. When the ESPD is validly signed, the Tender as such is also validly signed. The absence of a legally valid signature on the ESPD will render the Tender invalid.

For legally valid signatures, see Section 2.2.20.

For this Tender, TNO is using a digital procurement system via TenderNed. The Tender must be uploaded to the TenderNed digital vault not later than the date and time specified in the schedule in Section 2.1 under "Closing date for submission of Tenders". After uploading, the Tenderer will receive a transaction code via SMS. This code must be entered in TenderNed. The Tender is not actually submitted until the correct transaction code has been entered. The SMS code must therefore be entered within the tendering period for the Tender to be deemed complete and correct.

Tenders received late and/or Tenders not deposited in the digital vault and/or Tenders submitted by means other than via TenderNed will not be considered and will therefore be excluded from participation. Tenderers will remain at all times solely responsible for submitting their Tender on time and in the correct manner.

Tenderers are strongly advised to take careful note of the guide provided by TenderNed for the digital submission of Tenders, particularly as regards placing documents in the digital vault. In doing so, uploading should be completed with the tendering wizard (authorisation by SMS code).

Tenderers are advised to start uploading documents in good time. If a Tenderer experiences problems with the system due to a malfunction of TenderNed, the TNO contact person (Section 2.2.5) and TenderNed should be contacted without delay. In the event that a TenderNed malfunction actually occurs, as a result of which the submission of Tenders is not possible, shortly before the closing date and TNO has not taken note of Tenders that have been uploaded to the TenderNed digital vault on time despite the malfunction, TNO will extend the closing date for submission of Tenders pursuant to Section 2.109 Aw.

TNO further advises Tenderers to take note of the content of Section 2.109a Aw and, in accordance with the provisions of that section, to be prepared to submit the encrypted version of their Tender in a timely manner if occasioned by TenderNed malfunctioning.

### 2.5.2 Sending and grading Tender

The Tender consists of the following documents. Documents in **Part A** relate to the Tenderer. Documents in **Part B** relate to either Third Party(ies) whose experience/resources the Tenderer appeals to under the Eligibility Requirements and/or the Declaration of Willingness of Tenderer for the required insurance. The documents under **Part B** need to be submitted only if Third Party(ies) are invoked or if Tenderer is not (yet) in possession of either the insurance company's policy or satisfactory statement within the stipulated timeframe.

#### Part A Submission of the Tender

The Tender, under penalty of invalidity, must consist of the following components.

- Annex A01** European Single Procurement Document (Tenderer, if applicable: all individual Combination members; the individual Third Party or for the benefit of one or more subcontractors to be used for the work).
- Annex A02** Format for reference projects
- Annex A03** Price sheet
- Annex A04** Format for answering questions/fulfilling preferences, sub-award criterion: quality

All sheets must be completed in their entirety. Only the ESPD and the Price Sheet (Annex A03) are required to be duly signed.

Gather the pdf files, Annexes **A01** to **A05**, as separate "loose" files into a compressed file (zip file) named: "....."\_part A. The Tenderer should replace the dotted line with all or part of its company name. Upload this compressed file to TenderNed's digital vault.

#### Part B Submission of supporting documents

- Annex B01** Format for Declaration as to Reliance on Financial and Economic Standing of Third Party or Parties
- Annex B02** Format for Declaration as to Reliance on Technical and Professional Competence of Third Party or Parties
- Annex B03** Format for Statement of Policy/Declaration as to Insurance

The above sheets must be completed in full. Only the ESPD need be validly signed.

Gather the pdf files, Annexes **B01** to **B03** as separate "loose" files into a compressed file (zip file) named: "....."\_part B. The Tenderer should replace the dotted line with all or part of its company name. Upload this compressed file to TenderNed's digital vault.

### 3 Assessment of Tenderers and Tenders

#### 3.1 Assessment team

A team of subject-matter and process experts has been constituted to conduct a qualitative assessment of the Tenders, focusing on the qualitative Award Criteria. The assessment team evaluates the quality of the Tenders without any knowledge of the financial part of the submissions. For this reason, in no circumstances shall a Tenderer include any pricing information in their submission, except within the Price Sheet, **Annex A03**. This stipulation ensures that all financial details are confined to the designated section, thereby maintaining the integrity and uniformity of the evaluation process.

The members of the assessment team assess, on a strictly personal basis and independently, the elaboration of the qualitative (sub-sub-)award criteria for the Tenders. For these criteria, see section 6.1.2 and its elaboration in Chapter 8. In a meeting of the individual assessors, the average of the individual scores is then determined.

The average of the individual scores then determines the overall score for a sub-sub-award criterion. Average scores are rounded to one decimal place.

In the announcement of the Intention to Award, TNO will state the numbers of completed points per (sub-)sub-award criterion. The total score for sub-award criterion: Quality (QY) has been arrived at by totalling unrounded scores on the sub-sub-award criterion, after which this total score is rounded to a whole number for the purpose of said announcement.

#### 3.2 Assessment procedure

The assessment procedure is as described in the following sections.

- Section 4** : concerns the assessment of the timeliness, formal requirements and completeness of the Tender submitted.
- Section 5** : concerns requirements formulated in respect of Grounds for Exclusion and Suitability Requirements. If one or more Grounds for Exclusion apply and/or if a Tenderer fails to meet the Suitability Requirements, the Tenderer will be excluded/the Tender will be invalid.
- Section 6** : concerns the description of the assessment by TNO of the Tenders against the Award Criterion. The Award Criterion is assessed by allocating points to the Tender
- Section 7** : concerns the assessment of supporting documents and other documents requested by TNO from the intended beneficiary.
- Section 8** : this describes the assessment carried out by TNO in respect of the Minimum Requirements. This involves assessing TNO's requirements and preferences for the performance of the Contract, i.e. the Programme of Requirements and Preferences ("PoR"):

TNO assesses and ranks the Tenders on the basis of the Award Criterion: Best Value for Money (BVM), see Section 6 in this regard.

TNO may ask the Tenderer for clarification with regard to the submitted Tenders up to the end of the Procurement Procedure. The Tenderer is deemed to be willing and able to answer questions within 48 hours of sending the questions. If questions are not answered (in a timely manner), TNO may interpret the Tender in any manner it sees fit, based on the documents known to it.

## **4 Assessment of timeliness, formal requirements and completeness**

### **4.1 Assessing timeliness of submission**

The Tender must be submitted in a timely manner, i.e. within the tendering period (see Section 2.1). Tenders not submitted in a timely manner are invalid and TNO will discard them.

### **4.2 Assessing for other formal requirements and completeness**

Tenders submitted by means other than through TenderNed will not be assessed and will be discarded. The foregoing is subject to any malfunctions of TenderNed, recognised as such by TenderNed.

The Tenders will be assessed as regards completeness and the formal requirements applicable in the Procurement Procedure, including at all events the legally valid signature. Tenders that are incomplete and/or fail to meet all the formal requirements will be declared invalid by TNO and discarded. Missing answers, documents, or data will result in exclusion if there is no rectifiable omission. Tenderers are reminded that TNO is not obliged to have deficiencies rectified. TNO has the discretionary power to offer a rectification option.

If – for whatever reason – a question cannot be answered or the requested data cannot be submitted in full or at all, this must be explicitly stated at the time of the Tender, together with reasons. Depending on the nature of the deficiency, TNO will assess whether the Tender is invalid, in which case it will be discarded, or whether the deficiency is amenable to rectification.

Deficiencies for which TNO offers a rectification option must be rectified within the timeframe as stated in the relevant request from TNO. If a deficiency is not rectified within the notified period or at all, the Tender will be invalid after all.

## **5 Assessment of Grounds for Exclusion and Suitability Requirements**

### **5.1 Assessing Grounds of Exclusion**

The Tenderer will be assessed in terms of the Grounds for Exclusion listed in the ESPD (Section III). The Tenderer declares in the ESPD whether the Grounds for Exclusion used are applicable or not at the time of tendering. Where one or more Grounds for Exclusion apply, the Tenderer will generally be excluded. The Tenderer will have the opportunity to give reasons in the ESPD why it should not be excluded after all because of self-cleansing measures or at least why exclusion would be disproportionate. TNO will take these reasons into account in its decision on the final exclusion of the Tenderer. The reasons must be included in or appended to the ESPD. Tenderers may not continue to submit and/or alter the reasons once the tendering period has elapsed.

If the Tenderer is a Combination and a Ground for Exclusion applies to any of the participants in that Combination, the Combination as a whole will be excluded. Each Combination member must submit its own legally signed ESPD.

If the Tenderer relies on the suitability of a Third Party or Parties as described in Section 2.2.10 of the Procurement Guide and a Ground for Exclusion applies to one or more Third Parties, TNO will reject its reliance on the suitability of the Third Party or Parties in question. If the Tenderer, whose reliance on a Third Party or Parties has been rejected, fails – after having been given the opportunity to do so by TNO – to rely (in a timely manner) on the resources of a substitute Third Party or Parties, or if the Tenderer does rely on a substitute Third Party or Parties but fails to comply fully or at all with the requirements set for that purpose, the Tenderer will be excluded from participating in the Procurement Procedure. The substitute Third Party or Parties must be proposed within seven (7) calendar days of a request to that effect from TNO, submitting all the documents requested in the Procurement Documents for that purpose. Proposing a substitute Third Party is not considered an amendment to the Tender. If a Tenderer is permitted to propose a substitute Third Party, the Tenderer may only substitute the Third Party while submitting the relevant documents in this connection. Other parts of the Tender, including, but not limited to, the elaboration of the award criteria remain unchanged.

The completed and validly signed ESPD will suffice in the first instance as evidence that the Grounds for Exclusion do not apply to the Tenderer. At TNO's request, the Tenderer to which TNO intends to award the Contract will provide – by the date specified in Section 7.1 of the Procurement Guide – the supporting documents referred to in section 7.1. If the Tender is submitted in Combination, all the Combination members must submit the supporting documents listed below. If the Tenderer relies on the standing/resources/experience of one or more Third Parties, then the supporting documents listed below from each Third Party should be submitted.

Tenderers are reminded that it may take several weeks to obtain some supporting documents. Tenderers are therefore advised to request the supporting documents at the earliest possible stage so that they can be supplied in a timely manner – in response to any request from TNO. TNO would point out that any Tenderer relying on a Third Party is itself responsible for the timely submission of supporting documents in respect of the Third Party's ESPD. TNO therefore advises Tenderers to inform, in a timely and appropriate manner, Third Parties on whose suitability they rely which documents may be requested by TNO in the event of award to the Tenderer and the time required to obtain these documents. Failure to obtain supporting documents in a timely manner or at all remains at the Tenderer's risk. If the supporting documents are not supplied in a timely manner and/or complete, the Tenderer will still be excluded. If a supporting document has not been obtained in a timely manner, but has been requested in good time and the failure to obtain it is not due to a circumstance within the Tenderer's sphere of risk, the Tenderer will not be excluded. To this end, the Tenderer must demonstrate that the relevant supporting document has been requested not later than two (2) working days after publication of the announcement of the Procurement Procedure.

### **5.2 Assessing Suitability Requirements**

The Tenderer must, at the time of Tendering, possess a certain minimum level of expertise and ability to perform the contract: the Suitability Requirements.

The Tenderer will be assessed on the Suitability Requirements. If the Tenderer relies on the suitability of a Third Party or Parties as referred to in Section 2.2.10 of the Procurement Guide, TNO will assess whether the Third Party or Parties meets the specified Suitability Requirements, for which the Tenderer relies on said Third Party or Parties.

The Suitability Requirements refer to the required financial and economic standing, technical and professional ability and professional competence that the Tenderer must meet in order to be eligible to submit a Tender.

The Tenderer must meet all the Suitability Requirements at the time when the Tender is submitted. If the Tenderer fails to meet all the Suitability Requirements, with or without relying on one or more Third Parties, the Tender will be invalid.

If tendering in Combination, the Combination as a whole must meet the Suitability Requirements and in principle not all the individual Combination members. However, this may be different for a specific Suitability Requirement.

## 5.2.1 Financial and economic standing

### 5.2.1.1 Insurance

The Tenderer shall maintain valid insurance coverage for both business liability and professional liability, with a minimum coverage amount of €1,250,000 per occurrence or series of related occurrences, and an annual aggregate limit of no less than €2,500,000. In the absence of such coverage at the time of Tender submission, the Tenderer shall demonstrate the ability and express the willingness to procure the required insurance coverage upon receipt of a notice of Intention to Award. The Tenderer is responsible for ensuring that, if awarded Contract, it remains insured at least in accordance with this requirement during the term of the Contract. The Contractor will inform TNO without delay of any changes to the insurance policies. If the Contractor's insurance does not or no longer meets this Suitability Requirement during the term, TNO will be entitled to dissolve the Contract without notice of default or judicial intervention and without being liable to pay compensation to the Contractor.

Ticking the "yes" box in Part IV of the Tenderer's ESPD (Annex **A01**) will suffice in the first instance as evidence that the Tenderer meets this requirement.

At TNO's request, the Tenderer whose Tender was ranked first will provide the evidence of insurance within the set timeframe as referred to in Section 7.1. This supporting document comprises a policy showing the required insurance cover, the insurance contract, the policy schedule or a satisfactory declaration from the insurance company showing that the Tenderer is insured as required in the Procurement Documents. If a group policy is submitted, the Tenderer must supply a copy thereof to demonstrate that it is jointly insured.

If the Tenderer does not (or not yet) have the insurance company's policy or satisfactory declaration in its possession within the set timeframe, it should sign a Declaration of Readiness instead (Annex **B03**). By signing this declaration, the Tenderer declares that it will provide a copy of the policy or of a satisfactory statement by the insurance company within seven (7) calendar days after the notification by TNO that it intends to enter into the Contract with the Tenderer under the suspensive condition of the required insurance, based on the assessment of the supporting and other documents already submitted (see Sections 7.1 and 7.2). Said notification will be issued by TNO only after the standstill period has expired without summary proceedings being instituted or – where summary proceedings have been instituted – the relevant judgment states that the Award Decision can be upheld. The Contract will be not be entered into until such time as evidence of the Tenderer being adequately insured has been received. If the Tenderer is unable to provide the required insurance policy or a satisfactory declaration from the insurance company within the set timeframe, the Contract will not be concluded and TNO will retain the right to award the Contract to the Tenderer which would be ranked in first place after the number one was eliminated in accordance with the assessment system, and which has stood by its Tender.

## 5.2.2 Technical and professional competence

Competence requirements state the degree to which Tenderers may be considered capable of performing the actual activities under the present Contract as required.

### 5.2.2.1 Reference projects

The Tenderer should demonstrate experience in the required core competences by providing details of reference projects. The Tenderer should cite one reference project for each core competence. The Tenderer may cite the same reference project to fulfil the different core competences.

As evidence that the Tenderer has experience in the core competences listed below, the Tenderer shall cite the required reference projects immediately upon submission of the Tender. To this end, the Tenderer should submit a fully completed Annex **A02** for each core competency. If the Tenderer uses one reference for multiple core competences, then a completed Annex **A02** must be submitted for each core competence. The completed Annex **A03** must show that the reference project cited fulfils all aspects of the core competence. Additions or amendments to the details in Annex **A02** are not permitted after the expiry of the tender date.

If the Tenderer relies on the technical and professional competence of a Third Party or Parties, the Tenderer shall submit for each core competence for which it relies on the relevant Third Party or Parties an Annex **A02** fully completed by said Third Party or Parties.

If a project is cited that has not yet been (fully) completed, only the actual results achieved under the current Contract may be stated and a forecast of results is not sufficient.

TNO has identified the following core competences that correspond to the desired experience in key areas of the present Contract.

**Core Competence 1:** The Tenderer has demonstrable technical expertise in the design, manufacturing, and delivery of dual-beam FIB/SEM systems, including electron optics, ion optics, high-vacuum technologies, advanced detectors, nano-fabrication workflows, and automated sample-preparation capabilities.

*Reference project:* The Tenderer must have delivered a project that fulfils Core Competence 1 in the past 3 years from the date of Announcement of this Procurement Procedure and whose contract value was a minimum of € 650,000 excluding VAT. The project must have been delivered in accordance with the conditions agreed at the time, including timely completion and adherence to the agreed budget.

**Core Competence 2:** The Tenderer has a demonstrated capacity for continuous innovation, including development of new imaging modes, automation workflows, software enhancements, and hardware improvements such as plasma FIB technologies or advanced detector integration.

*Reference project:* The Tenderer must have delivered a project in the past 3 years that demonstrates the application of innovative FIB/SEM technology or related system upgrades. The contract value must have been at least € 250,000 excluding VAT, delivered on time and within the agreed budget.

**Core Competence 3 -** The Tenderer has proven experience installing and supporting dual-beam FIB/SEM systems in high-tech, R&D, materials science, and/or semiconductor-related environments. This includes demonstrated system performance, availability, and reliability under comparable operating conditions.

*Reference project:* The Tenderer must have completed, within the past 3 years, at least one installation of a dual-beam FIB/SEM or comparable advanced micro-/nano-analysis system in a semiconductor, materials science, or high-tech R&D environment. The project must have been valued at € 650,000 or higher (excluding VAT) and delivered according to agreed performance conditions.

**Core Competence 4 -** The Tenderer has a qualified, locally available service and support organization capable of providing preventive maintenance, corrective repairs, spare-parts availability, remote diagnostics, and guaranteed response times, ensuring high system uptime.

*Reference project:* The Tenderer must have completed, within the past 3 years, at least one installation of a dual-beam FIB/SEM or comparable advanced micro-/nano-analysis system in a semiconductor, materials science, or high-tech R&D environment. The project must have been valued at € 650,000 or higher (excluding VAT) and delivered according to agreed performance conditions.

**Core Competence 5 -** The Tenderer has trained application specialists capable of supporting end-users with workflow development, sample-preparation methods, imaging optimization, automation, and training programs required to fully utilize the dual-beam FIB/SEM system.

*Reference project:* The Tenderer must have delivered, within the past 3 years, at least one project including application training and workflow support for complex FIB/SEM or other advanced microscopy systems. The contract value for the application support elements must have been at least € 650,000 excluding VAT.

TNO reserves the right to check references with the referee without involving the Tenderer. TNO assumes that the Tenderer has informed the referees accordingly. The information obtained by TNO from the referent will be taken into account in the assessment of the Tender.

If the Tenderer has not demonstrated in its Tender that it has the required experience in all the core competences, this will result in the Tender being rendered invalid.

### **5.2.3 Professional competence**

By completing the ESPD (Annex **A01**) and ticking the "yes" box in Part IV, the Tenderer declares that it is registered in the professional or trade register in accordance with the regulations of the Member State in which it is based.

At TNO's request, the Tenderer to which TNO intends to award the Contract within the period specified in Section 7.1 of the Procurement Guide will provide relevant evidence:

- for enterprises based in the Netherlands, an extract from the trade register of the Chamber of Commerce must be submitted, which is not more than six months old at the time of submission of the Tender. For enterprises based outside the Netherlands, a similar document should be appended in accordance with the applicable regulations of the relevant country in which the enterprise is based;
- where the Tenderer is a partnership or general partnership, the Tenderer shall submit the extracts of those that form the partnership/general partnership (if recorded in the trade register) as well as a declaration signed by all the partners showing the power of representation for the purposes of this Tender;
- where the Tenderer is a Combination, the Tenderer shall submit extracts from all participants in that Combination, and;
- where the Tenderer submits a Tender relying on the standing/capacity/experience of one or more Third Parties, the Tenderer shall submit extracts from all Third Parties or subcontractors, as the case may be.

#### 5.2.4 Legal suitability to perform an assignment

On 8 April 2022, the EU adopted a fifth sanctions package regarding the Russian war in Ukraine (Council Regulation 2022/576). This reference includes all prior and future sanctions packages adopted by the EU in this context, which shall be considered equally applicable. In that package, contracting authorities are prohibited from granting assignments to (1) natural persons with Russian nationality or legal entities established in Russia, (2) legal entities that are owned for 50% or more by one of the natural persons or legal entities referred to under (1), and/or (3) natural persons or legal entities acting in the interests or on the instructions of a natural person or legal entity referred to under (1).

TNO applies the above requirements as a suitability condition for this Procurement Procedure. A Tenderer will be legally unsuitable to perform the assignment (Section 2.90(4) of the Dutch Public Procurement Act (*Aanbestedingswet*)), and its Tender will be invalid, if:

- 1) the natural persons have Russian nationality or the legal entities are domiciled in Russia; and/or
- 2) they are legal entities that are owned for 50% or more by natural persons or legal entities referred to under (1); and/or
- 3) they are natural persons or legal entities acting in the interests or on the instructions of a natural person or legal entity referred to under (1).

The Tenderer must therefore demonstrate in its Tender that:

- 1) the Tenderer does not have Russian nationality and/or is not domiciled in Russia; and
- 2) the Tenderer is not owned for 50% or more by a natural or legal person referred to under (1); and
- 3) the Tenderer is not acting in the interests or on the instructions of a natural or legal person referred to under (1), including the payment of monies to a natural or legal person referred to under (1), whether or not it is legally obliged to do so and whether or not it is actually possible at present.

If one or more of the above three (3) requirements cannot be demonstrated, the Tender will be invalid.

Where the Tenderer tenders in Combination, this requirement shall apply to all the individual Combination members. Where the Tenderer relies on the standing/resources/experience of one or more Third Parties, this requirement shall also apply to the Third Parties on whose standing/resources/experience the Tenderer relies. If the Tenderer wishes to use one or more subcontractors during the performance of the Contract, the Contractor will have to demonstrate – for that subcontractor – that it meets this requirement at the time a subcontractor is presented to TNO for approval.

Ticking the "yes" box in Part IV of the Tenderer's ESPD (Annex **A01**) will suffice in the first instance as evidence that the Tenderer meets this requirement.

To this end, the Tenderer to which TNO intends to award the Contract within the set timeframe as referred to in Section 7.1, shall provide the means of proof relating to this Suitability Requirement. This concerns the following documents:

- a) a recent (not older than six (6) months from date of Tender) extract from the trade register reflecting the most recent state of affairs; and
- b) an up-to-date report on the holding structure (where the Tenderer is part of a holding structure) showing the direct and indirect ownership relationships of the Tenderer; and
- c) a copy of the Tenderer's current articles of association.

The Tenderer shall submit an unequivocal declaration confirming that no products, whether semi-finished or finished, falling under Annex XVII of Council Regulation (EU) No 833/2014 on sanctions against Russia will be supplied. If any products listed in Annex XVII are nonetheless included in the scope of supply, the Tenderer must demonstrate the non-Russian origin of these materials by providing a Mill Test Certificate (MTC) or an equivalent certificate, ensuring full traceability and verification of the country of origin. This documentation is required to comply with EU sanctions law, as reinforced by Council Regulation (EU) 2022/1904, which mandates origin evidence for iron and steel products and prohibits the import of items originating from Russia without verified proof of origin.

The Tenderer must continue to meet the Suitability Requirement. TNO will be entitled to verify this during the term of the Contract. If it becomes apparent during the term of the Contract that the Contractor does not meet – or no longer meets – the Suitability Requirement, TNO will be entitled to terminate the Contract with immediate effect, without being liable to pay damages to the Contractor and without the necessity of a notice of default or judicial intervention.

## 6 Assessment of Award Criterion

### 6.1 Award Criterion: Lowest Price (LP)

TNO evaluates tenders based on the award criterion of Lowest Price, which includes both equipment and the maintenance & services contract.

The decision to apply the 'lowest price' criterion is justified by the nature of the assignment, which does not permit qualitative differentiation between bids. The assignment is clearly defined through minimum, objectively verifiable requirements. As a result, quality is ensured by these requirements and the contractual provisions. In this context, TNO considers the use of the lowest price as an award criterion to be proportionate, transparent, and efficient.

This approach follows from the fact that the Dual-beam FIB/SEM system is precisely specified in Annex 04. Consequently, there are no quality criteria relevant to TNO that would allow tenderers to distinguish themselves.

If the prices are equal, a draw will be held among the Tenderers with equal prices which are eligible for award. The protocol for the draw, if any, will be shared with the Tenderers among which lots will be drawn.

If, after the provisional award, the Tenderer with the lowest price nevertheless proves to be invalid/is excluded from the procedure, the Tenders will be reassessed on the basis of the lowest price Criterion. TNO will award the Contract again based on this reassessment.

To establish the award criterion of Lowest Price (LP), TNO requires each Tenderer to submit its price proposal using the Price Sheet provided by TNO in MS Excel, as specified in Annex A03. This Price Sheet must be fully completed and attached to the Tender submission.

Tenderers are required to strictly adhere to the structure and format of the Price Sheet. Any omission, incorrect completion, or failure to submit the Price Sheet will result in the Tender being declared invalid and excluded from further participation in the procurement procedure. Furthermore, any modification to the format or layout of the Price Sheet (Annex A03) will also render the Tender invalid.

The allocation of pricing items for the Lowest Price (LP) criterion is presented in the table below:

Criterion
<p><b>Price TP 1 – Dual-beam FIB/SEM system, this includes:</b></p> <ul style="list-style-type: none"> <li>- Two-year warranty including maintenance and services;</li> <li>- (Critical) Design review;</li> <li>- Factory Acceptance Test (FAT) - report;</li> <li>- Site Acceptance Test (SAT);</li> <li>- Installation on site;</li> <li>- Operator- &amp; First-Line maintenance training;</li> <li>- Delivery according to Incoterms®2020 Delivered Duty Paid (DDP) (location: TNO Delft, the Netherlands).</li> </ul>
<p><b>Price TP 2 – Maintenance/Services</b></p> <p>A one-year contract for maintenance and services, commencing after the two-year warranty period and subsequently renewable on an annual basis for a maximum total duration of three years. The scope of this Maintenance and Services contract also applies to the warranty period.</p>

When completing the Price Sheet, the following Minimum Requirements apply:

- 1) Prices and expenses should be stated in euros excluding VAT, and to two (2) decimal places;
- 2) The prices/rates listed in the Price Sheet are all-inclusive. This means that all the costs/services/obligations/etc. required for the performance of the Contract in accordance with the contract terms have been factored into the prices and rates. During the performance of the Contract, the Contractor shall not be entitled to any other and/or additional remuneration other than that in accordance with the Price Sheet;
- 3) The Price Sheet should include a price proposal on all the required items. The Tenderer shall use the Price Sheet prepared by TNO unchanged;
- 4) The Tenderer is solely responsible for stating figures and adding them correctly;
- 5) The prices quoted by the Tenderer should be based on the Procurement Documents without reservations of any kind;
- 6) Specific Minimum Requirements or additional instructions relating to the Price Sheet are included in the "additional instructions" tab and are accepted by the Tenderer reservations of any kind;

The value of the lowest TP (Total Price) is determined based on the cumulative costs in the Price Sheet defined by TNO.

## **6.2 Award of Contract**

### **6.2.1 Notification of the Award Decision**

All Tenderers will receive from TNO, expectedly on the date referred to in the schedule under Section 2.1, the notification of the final result of the assessment of the Tenders and the intended Award Decision.

In this notification of the Award Decision, TNO will indicate the Tenderer to which it intends to award the Contract, as well as, for unsuccessful Tenderers, reasons for their rejection.

### **6.2.2 Challenge**

If a Tenderer disagrees with the Intention to Award as notified by TNO, it will be given the opportunity to challenge the Intention to Award within twenty (20) calendar days after the date of publication of the Intention to Award in the manner described in Section 2.4 of the Procurement Guide.

### **6.2.3 Final award**

Once the standstill period has expired without summary proceedings having been instituted or, if summary proceedings have been instituted in a timely manner, the judgment in first instance does not oppose final award, TNO will contact the successful Tenderer as soon as possible to proceed with the award, except where a situation exists in which summary proceedings have been instituted in a timely manner. No final award will be made until the Contract has been validly signed by both Parties. If this is not the case, there is no question of TNO being bound in any way.

#### *Kick-off meeting*

TNO may intend to hold a kick-off meeting before the final contract is awarded. The Kick-off meeting objective is to cross-check and clarify (if any need) the Supplier proposed design including the complete set of compliance against customer applicable documentation at the issue that is relevant for the contract/kick off.

#### *Digital Signature of Contract*

To this end, TNO signs its Contracts using a so-called advanced digital signature tool, known as ValidSign. On receipt of the provisional award, the Tenderer is requested to provide the e-mail address and personal mobile phone number of the organisation's authorised signatory. The telephone number is needed to make the Contract legally binding (using SMS authentication).

On receipt of the final award, the Tenderer receives an e-mail containing a link to the documents to be digitally signed and clicks on "sign the documents" and is automatically redirected to ValidSign where the signature fields are visible. To sign, the Tenderer clicks "click to sign" and then "confirm". Once the documents have been digitally signed by the Tenderer and TNO, the Tenderer can download the digitally signed documents within a timeframe of thirty (30) days.

#### *Progress meetings*

After the Contract award, the Tenderer is required to participate in regular progress meetings. These meetings shall be held biweekly basis. The purpose of these progress meetings is to ensure effective communication, monitor the progress of the Contract, address any issues or concerns, and deadlines are being met. Each progress meeting shall include, but is not limited to, the following agenda items:

- Review of the current status
- Discussion of completed and upcoming tasks
- Identification and resolution of any issues or risks
- Review of timelines and milestones
- Any other relevant topics as agreed upon by both parties

The Tenderer must ensure that key personnel, including the project manager and relevant team members, attend these meetings. TNO will also designate representatives to attend the meetings.

## 7 Assessment of supporting and other documents from intended beneficiary

### 7.1 Requesting supporting and other documents from intended beneficiary

The Tenderer to which TNO intends to award the Contract must submit the supporting documents for the ESPD and any other documents and/or data within seven (7) calendar days after the date of TNO's request.

The following supporting documents must be supplied to TNO by the Tenderer to which TNO intends to award the Contract within seven (7) calendar days after the date of the request:

- Certificate of Conduct for Procurement (not more than two years old as at the date for submission of the Tender): The Tenderer, where applicable: all individual Combination members; all individual Third Parties;
- Declaration of Payment Behaviour from the Dutch Tax and Customs Administration (not more than six months old as at the date for submission of the Tender): The Tenderer, where applicable: all individual Combination members; all individual Third Parties;
- Extract from trade register (not more than six months old as at the date for submission of the Tender): The Tenderer, where applicable: all individual Combination members; all individual Third Parties;
- ISO 9001 Certification or similar measures;
- Insurance policy or Declaration of Readiness as to insurance (Annex **B03**);
- If applicable: Declaration as to Reliance on Financial and Economic Standing of Third Party or Parties (Annex **B01**);
- If applicable: Declaration as to Reliance on Technical and Professional Competence of Third Party or Parties (Annex **B02**).

#### Certificate of Conduct

The Certificate of Conduct (GVA; Dutch: Gedragsverklaring Aanbesteden) is a statement from the Minister of Security and Justice. The GVA indicates that an investigation into the natural or legal person concerned has not resulted in any objections in connection with the application and tendering for public contracts, special sector contracts, concession agreements for public works and/or services or competitions. After a provisional award, the provisionally awarded tenderer(s) must submit a valid GVA as proof that the grounds for exclusion do not apply to them.

Because the processing time of an application varies from a minimum of 4 to 8 weeks, it is advisable to apply for the GVA in time. It is the responsibility of the provisionally successful tenderer(s) to obtain a valid GVA in good time. Failure to provide the GVA (in time) will result in unconditional exclusion from the tender procedure.

For more information on the GVA, the contracting authority refers to the website of the Ministry of Security and Justice (<https://justis.nl>).

Foreign companies without a Dutch subsidiary cannot apply for a GVA. If a tenderer has its corporate seat in a country that does not issue a GVA or an equivalent form, the tenderer must provide a statement in which the tenderer solemnly declares under oath that the grounds for exclusion do not apply to the business. The statement must be made before a competent judicial or administrative authority, a civil-law notary or a competent professional body of that country and must be addressed to the contracting authority.

TNO will request the intended beneficiary to submit the supporting documents. TNO will assess the following aspects of these documents:

- ascertain whether supporting documents submitted by Tenderer are submitted in a timely manner
- assess whether all the supporting documents requested by TNO have been submitted and whether the supporting documents received are complete. The absence of all or part(s) of supporting documents and/or other data will result in exclusion if there is no rectifiable omission. Depending on the nature of any deficiency, TNO will assess whether, as a result of that deficiency in the supporting documents, the Tender is invalid after all and will be disregarded, or whether the deficiency is amenable to rectification. The offer of rectification is a discretionary power of TNO and not a (legally enforceable) obligation.
- assess whether the Tenderer demonstrates through the supporting documents submitted that it complies with what it has declared through its Tender.

If the supporting documents are not, not completely and/or not timely received, or if the supporting documents show that the information in the Tender is incorrect, the Tenderer will be excluded after all/the Tender will be disregarded after all. If this is the Tenderer with the lowest price, the score for the sub-award criterion on price (TP) will be recalculated, after which a new ranking will be determined. If this was not the Tenderer with the lowest price, the ranking order will be maintained and the Contract will be provisionally awarded to the Tenderers ranked in order of succession.

TNO is also entitled to verify the Tender from the Tenderer to which it intends to award the Contract. If this verification shows that the Tender contains inaccuracies or cannot be fulfilled, the Tender will be disregarded after all. If this is the Tenderer with the lowest price, the score for the sub-award criterion on price (TP) will be recalculated, after which a new ranking will be determined. If this was not the Tenderer with the lowest price, the ranking order will be maintained and the Contract will be provisionally awarded to the Tenderers ranked in order of succession.

**7.2 Contract subject to condition precedent**

If the Tenderer is unable to provide a copy of the policy, nor a satisfactory statement from the insurance company, within the timeframe referred to in the previous section, but has signed the Declaration of Readiness in accordance with Annex **B03** then TNO will notify the Tenderer after a positive outcome of the assessment of the other (supporting) documents and after the standstill period has expired without summary proceedings having been instituted or – where summary proceedings have been instituted within the standstill period – the relevant judgement shows that the Award Decision can be upheld, that TNO will enter into the Contract with the Tenderer subject to a condition precedent. This condition precedent implies that the Contract will only actually be entered into if, after a timeframe of seven (7) calendar days (see Section 7.1), the Tenderer provides TNO with a copy of the required insurance policy or a satisfactory statement from the insurance company showing that the Tenderer is insured as required in the Procurement Documents. The Contract will not be entered into until after receipt of either document.

If the Tenderer is unable to provide the required insurance policy or a satisfactory statement from the insurance company within the set timeframe, the Contract will not come to fruition and TNO will retain the right to award the Contract to the Tenderer which would be ranked in first place after the number one which was eliminated in accordance with the assessment system.

## 8 Programme of Requirements and Preferences

TNO assesses the Tenders against the Programme of Requirements and Preferences. The Programme of Requirements and Preferences includes Minimum Requirements, Performance Requirements and Preferences. The Minimum Requirements must be met on penalty of invalidity at the time of submission of the Tender, the Performance Requirements only at the time of performance of the Contract and the Preferences must be worked out by Tenderers as part of the award of the Contract. Tenderer shall demonstrate compliance with requirements through appropriate technical documentation, which shall be submitted as part of the tender response.

TNO has the right, but not the (legally enforceable) duty, to ask for clarification as regards meeting the Minimum Requirements and how the Tenderer expects to meet the Minimum Requirements.

As stated in Section 6.1.2 of this Procurement Guide, in addition to the Minimum Requirements and performance requirements, this PoR also contains a number of preferences as regards the quality of the **service/supply**. The preferences must be answered/elaborated upon by the Tenderer in the Tender in response to the qualitative sub-award criteria.

Any changes to the PoR that may occur during the performance of the Contract will be implemented in accordance with the conditions of the Contract. In this regard, TNO will ensure that no material amendment will be made to the Contract.

The objective and scope of the Contract (including this PoR) as well as a description of the current conditions have been described in Section 1.

This Programme of Requirements and Preferences is laid out in the following sections:

- 8.1 General system requirements
- 8.2 FIB lithography requirements
- 8.3 Main elements
- 8.4 Other elements
- 8.5 Documentation
- 8.6 Training
- 8.7 Contractual Aspects

### Verification method:

- Test (T) : The operation of the system, or part of the system, using instrumentation or other special test equipment to collect data for later evaluation.
- Demonstration (D) : The operation of the system, or a part of the system that relies on observable function not requiring the use of the instrumentation, special test equipment, or subsequent analysis.
- Inspection (I) : The visual examination of system components, documentation, etc.
- Certification (C) : A declaration by designated stakeholder, usually the supplier or developer.
- Review (R) : Detailed review of the received specification of the supplier or developer on the (sub-)system.

### 8.1 Subject-matter 'general system requirements'

Requirement no.	Requirement description	Verification method
Requirement 8.100.005	The Dual-beam FIB/SEM system shall be a newly build first hand system.	I + R
Requirement 8.100.006	<p>TNO is willing to accept offers for refurbished or newly overhauled equipment, provided that strict conditions are met. The refurbishment or overhaul must have been carried out, or be scheduled to be carried out, exclusively by the Original Equipment Manufacturer (OEM). All warranty and maintenance obligations related to the offered refurbished or newly overhauled equipment must be fully guaranteed by the OEM for the duration specified in this tender. The Tenderer must ensure the availability of all necessary spare parts and consumables throughout the intended lifespan of the equipment.</p> <p>Prior to the final award of the contract, and in addition to paragraph 7.1, the Tenderer shall provide written evidence that the refurbished or newly overhauled equipment will be available on the contract award date as described in paragraph 2.1. The Tenderer must clearly indicate whether the proposed system is new, refurbished, or newly overhauled.</p> <p>To enable TNO to verify the actual condition of the offered equipment, the Tenderer must submit appropriate proof. Acceptable forms of evidence include an OEM certificate of refurbishment or overhaul, factory test reports, serial number validation (production or refurbishment), OEM documentation specifying the refurbishment date and scope of work, or a formal OEM statement confirming the equipment's status.</p>	I, C + R

Requirement no.	Requirement description	Verification method
	TNO reserves the right to contact the OEM directly, request serial number validation, or conduct additional due diligence to confirm the authenticity of the equipment status prior to awarding the contract.	
Requirement 8.100.010	<p><b>Two-Beam FIB/SEM system</b></p> <p>The Tenderer shall provide a fully integrated, turnkey two-beam station combining a Focused Ion Beam (FIB) and a Focused Electron Beam (SEM), specifically designed for submicron prototyping and surface functionalization using the FIB.</p> <p>The system must include all components necessary for full operational capability, requiring only the following infrastructure provisions by TNO:</p> <ul style="list-style-type: none"> <li>- Electrical power</li> <li>- Electrical grounding</li> <li>- Clean Dry Air (CDA)</li> <li>- Clean nitrogen</li> <li>- Vacuum exhaust</li> </ul> <p>Remark: An installed phone line in the laboratory and a LAN connection will be provided by TNO.</p>	I + R

## 8.2 Subject-matter 'FIB lithography specifications'

Requirement no.	Requirement description	Verification method
Requirement 8.200.005	<p><b>Milling Resolution</b></p> <p>The system shall support ion beam milling with a minimum feature size of <math>\leq 20</math> nm when using Si<sup>++</sup>, Au<sup>++</sup>, and Ge<sup>++</sup> ion species at a beam energy of 35 keV.</p> <p><u>Rationale:</u> This resolution is required for the fabrication of quantum technologies.</p>	T
Requirement 8.200.010	<p><b>Beam size</b></p> <p>The system shall support ion beam size resolution of <math>\leq 12</math> nm when using Si<sup>++</sup>, Au<sup>++</sup>, and Ge<sup>++</sup> ion species at a beam energy of 35 keV, determined by the sharpness of intensity scans.</p> <p><u>Rationale:</u> This resolution is required for the fabrication of quantum technologies.</p>	T
Requirement 8.200.015	<p><b>Field size</b></p> <p>The lithography system shall support a field size of up to 200<math>\mu</math>m, with automatic correction mechanisms for distortion and stigmatism.</p> <p><u>Rationale:</u> A field size of 200<math>\mu</math>m shall provide adequate coverage for FIB tasks, while automatic corrections shall ensure consistent alignment during processes.</p>	D
Requirement 8.200.020	<p><b>Beam position stability</b></p> <p>The system shall demonstrate beam position stability of <math>\leq 400</math> nm over a continuous period of 8 hours, measured with a stationary (resting) stage using a Si<sup>++</sup> ion beam at 35 keV.</p> <p><u>Rationale:</u> Beam position stability is critical for long-duration patterning and milling operations.</p>	T
Requirement 8.200.025	<p><b>Beam current stability</b></p> <p>The system shall maintain a beam current stability of <math>\leq 1\%</math> per hour, measured using a Si<sup>++</sup> ion beam at 35 keV.</p> <p><u>Rationale:</u> Stable beam current is essential for ensuring consistent material removal rates and reproducible patterning results.</p>	T
Requirement 8.200.030	<p><b>Stitching</b></p> <p>The system shall provide automatic management of larger area work by means of stitching. The field stitching precision, specifically for Si<sup>++</sup> at the highest beam energy, in a 100 <math>\mu</math>m field, shall be less than or equal to 50 nm (mean plus three sigma). This value is determined based on blind stitching, without the use of additional alignment marks.</p> <p><u>Rationale:</u> Baseline High-precision stitching without the use of additional alignment marks is essential to ensure the functional integrity and performance of devices produced over larger areas.</p>	T

Requirement no.	Requirement description	Verification method
Requirement 8.200.035	<p><b>Overlay</b> The system shall provide management of level-by-level alignment strategies (overlay). The software must be capable of automatically recognizing alignment marks and automatically calculating the correction parameters to be applied. Overlay accuracy, specifically for Si<sup>++</sup> at the highest beam energy, in a 100 µm field, shall be less than or equal to 50 nm (mean plus three sigma).</p> <p>Rationale: Accurate overlay is essential to ensure that features on successive layers are correctly aligned, which is critical for the functionality and yield of advanced devices.</p>	T
Requirement 8.200.040	<p><b>Stitch-free continuous tracks</b> The system shall support stitch-free patterning of lines over large distances (1 mm) by enabling uninterrupted structure fabrication with a quasi-stationary beam during stage movement. Confirmation is reached via straightness and width uniformity tests over a 1 mm long line fabricated on a metal coated silicon sample. For a line with less or equal to 120 nm width, the straightness shall be below or equal to 20 nm and the uniformity shall be below or equal to 10 nm.</p> <p>Rationale: This capability is essential to ensure the structural and functional integrity of long distance continuous nanostructures, particularly in applications where stitching defects would compromise device performance, uniformity, or reliability.</p>	T
Requirement 8.200.045	<p><b>Stitch-free periodic structures</b> The system shall support stitch-free patterning of periodic structures over large distances (1 mm) by enabling continuous, uninterrupted structure fabrication with a deflected beam during stage movement. Confirmation is reached via patterning of two grating stripes of 2mm length with a measured average pitch of 400nm +/-0.2nm and 400.5nm +/-0.2nm. Fabrication is demonstrated by ion beam exposure of a resist layer on a silicon sample.</p> <p>Rationale: This capability is essential to ensure the structural and functional integrity of large scale periodic nanostructures, particularly in applications where stitching defects would compromise device performance, uniformity, or reliability.</p>	T

### 8.3 Subject-matter 'main elements'

#### 8.3.1 Subject-matter 'FIB column'

Requirement no.	Requirement description	Verification method
Requirement 8.310.005	<p><b>Ion column</b> the FIB column shall be positioned orthogonally to the interferometric stage.</p> <p>Rationale: For maximum stability of ion lithography processes, it is vital the main FIB column is mounted orthogonally to the stage.</p>	I
Requirement 8.310.010	<p><b>Liquid metal alloy Ion Source</b> The FIB column shall be equipped with a Liquid Metal Alloy Ion Source (LMAIS) comprising of at least gold (Au), silicon (Si) and germanium (Ge).</p> <p>Rationale: This configuration ensures flexible and precise ion beam processing. Heavy atoms (Au) serve a high sputter yield. Elements Si and Ge allow for compatibility with sensitive materials for quantum technologies.</p>	I
Requirement 8.310.015	<p><b>Software-Controlled Ion Type Switching</b> The system shall support switching between specific ion types by software means only, with a switching time of less than one minute, provided the operating voltage remains unchanged.</p> <p>Rationale: Fast and software-controlled ion switching is essential for efficient multi-species processing workflows.</p>	D
Requirement 8.310.020	<p><b>Beam Voltage Range</b> The system shall support a continuously adjustable beam voltage range from 10 kV to 35 kV.</p> <p>Rationale: This voltage range is essential to accommodate a wide variety of ion beam applications.</p>	D

Requirement no.	Requirement description	Verification method
Requirement 8.310.025	<p><b>Beam Blanker</b> The system shall be equipped with an electrostatic beam blanker with a rise time of at least 50 nsec.</p> <p>Rationale: A fast beam blanker is essential for overall process duration.</p>	I
Requirement 8.310.030	<p><b>Beam Current Range with Motorized Aperture Selection</b> The system shall support a selectable beam current range between approximately 5 pA and 1 nA, depending on the ion species used. Selection of beam current shall be accomplished via motorized aperture control.</p> <p>Rationale: A wide and precisely selectable beam current range is essential for accommodating diverse nanofabrication tasks.</p>	I

### 8.3.2 Subject-matter 'SEM column'

Requirement no.	Requirement description	Verification method
Requirement 8.320.005	<p><b>Electron Source Type</b> The system's electron column shall be equipped with a thermal field emitter of the Schottky ZrO/W type.</p> <p>Rationale: A Schottky ZrO/W thermal field emitter provides high brightness, excellent beam stability, low energy spread and long lifetime.</p>	I
Requirement 8.320.010	<p><b>Beam Control and Scan Field Range</b> The system's SEM column shall include all necessary components for beam focusing and deflection, and shall support a selectable scan field size ranging from 1 <math>\mu\text{m}</math> to approximately 400 <math>\mu\text{m}</math>, depending on beam energy and working distance.</p> <p>Rationale: Precise control over beam focus and deflection is essential for high-resolution imaging and accurate nanostructure inspection. A flexible scan field range enables both detailed analysis of small features and overview imaging of larger areas.</p>	I
Requirement 8.320.015	<p><b>Imaging Resolution</b> The system's SEM column shall achieve an imaging resolution better than 5 nm at an accelerating voltage of 20 kV.</p> <p>Rationale: High-resolution imaging is essential for accurate inspection, metrology, and nanostructure verification in advanced research and development.</p>	T
Requirement 8.320.020	<p><b>Beam Voltage Range</b> The system's SEM column shall support a continuously adjustable beam voltage range from 5 kV to 20 kV.</p> <p>Rationale: This voltage range is essential to accommodate a variety of imaging conditions, from low-voltage surface-sensitive inspection to high-voltage deep-structure visualization.</p>	D
Requirement 8.320.025	<p><b>Beam Blanker</b> The system shall be equipped with an electrostatic beam blanker with a rise time of at least 50 nsec.</p> <p>Rationale: A fast beam blanker is essential for overall process duration.</p>	I
Requirement 8.320.030	<p><b>Beam Current Range</b> The system's SEM column shall support a typical beam current range between 10 pA and greater than 600 pA, depending on operating conditions and configuration.</p> <p>Rationale: This current range is essential to accommodate both high-resolution imaging at low currents and faster acquisition or broader-area inspection at higher currents.</p>	D

### 8.3.3 Subject-matter 'Sample stage'

Requirement no.	Requirement description	Verification method
Requirement 8.330.005	<p><b>Sample Stage Configuration</b> The system shall be equipped with a sample positioning stage offering three-axis movement (X, Y, Z).</p>	I

Requirement no.	Requirement description	Verification method
	Rationale: Three-axis positioning is essential for precise sample alignment, focus control, and navigation during imaging and nanofabrication processes.	
Requirement 8.330.010	<p><b>Stabilized Laser Source</b> The system shall implement position control in the XY plane using a double interferometer configuration, based on a stabilized laser source.</p> <p>Rationale: Double interferometric control ensures nanometer-level precision and repeatability in stage positioning.</p>	I
Requirement 8.330.015	<p><b>XY Stage Travel Range</b> The system shall be equipped with an interferometric stage for the XY plane (sample surface plane), providing a minimum travel range of 100 mm × 100 mm or larger, to ensure compatibility with 4-inch sized samples.</p> <p>Rationale: A large and precise XY travel range is essential for handling standard wafer formats and enabling high-resolution patterning or inspection across extended sample areas.</p>	I
Requirement 8.330.020	<p><b>True Mechanical Positioning Resolution</b> The system's interferometric XY stage shall achieve a true mechanical positioning resolution of 1 nanometer.</p> <p>Rationale: Nanometer-level mechanical positioning is essential for high-precision patterning, stitching, and alignment tasks in advanced nanofabrication workflows.</p>	D
Requirement 8.330.025	<p><b>XY Stage Speed</b> The system shall support a stage speed of ≥ 2 mm/s in the XY plane.</p> <p>Rationale: A stage speed of ≥ 2 mm/s ensures efficient processing.</p>	D
Requirement 8.330.030	<p><b>Z-Axis Travel Range and Resolution</b> The system's sample stage shall provide a minimum travel range of 10 mm along the Z-axis, with a resolution of 1 μm or better.</p> <p>Rationale: A vertical resolution of ≤ 1 μm is essential for accurate focusing, sample alignment, and multi-layer processing. A travel range of at least 10 mm offers flexibility in height positioning.</p>	D

#### 8.4 Subject-matter 'Other elements'

The system - comprising the plinth, chamber, sample stage, and columns - is housed within a temperature-controlled enclosure to ensure optimal performance and stability.

##### 8.4.1 Subject-matter 'Chamber'

Requirement no.	Requirement description	Verification method
Requirement 8.410.005	<p><b>Working Chamber Integration with Load Lock</b> The system's working chamber shall house the sample stage and shall be directly connected to a load lock for sample transfer.</p> <p>Rationale: Integrating the sample stage within the working chamber ensures optimal environmental control. Connection to a load lock enables fast sample exchange without venting the main chamber, which is essential for maintaining stable vacuum conditions.</p>	I
Requirement 8.410.010	<p><b>Load-Lock Sample Entry System</b> The system shall include a load-lock mechanism for sample introduction, capable of handling samples up to 100 mm × 100 mm in size and transferring them to the stage without breaking vacuum.</p> <p>Rationale: A load-lock system enables efficient sample exchange, which is essential for maintaining vacuum integrity while. Compatibility with samples up to 100 mm × 100 mm ensures support for standard wafer formats and large-area substrates.</p>	I
Requirement 8.410.015	<p><b>Optical Height Sensing System with Automatic Focus Adjustment</b> The system shall include an optical height sensing system, capable of automatically measuring sample height after each stage movement to maintain focus. The system shall operate over a Z-range of 2 mm or greater, with a reproducibility of 1 μm or better.</p>	D

Requirement no.	Requirement description	Verification method
	Rationale: Accurate and automated height sensing is essential for maintaining consistent focus when working across samples with varying topography. A Z-range of $\geq 2$ mm ensures compatibility with typical sample height variations, while reproducibility of $\leq 1$ $\mu\text{m}$ guarantees reliable focus correction.	
Requirement 8.410.020	<p><b>Chamber-Mounted Secondary Electron Detector</b></p> <p>The system shall include a chamber-mounted secondary electron detector, featuring automatic contrast and brightness control with manual override.</p> <p>Rationale: A secondary electron detector is essential for high detailed surface imaging with excellent signal-to-noise ratio.</p>	I
Requirement 8.410.025	<p><b>Built-In Infrared Camera System for Interior Observation</b></p> <p>The system shall include a built-in infrared camera system with integrated optics, enabling visual control and orientation within the working chamber.</p> <p>Rationale: Real-time visual observation is essential for safe and precise sample handling, alignment, and operational monitoring.</p>	I
Requirement 8.410.030	<p><b>Fully Automatic Dry Vacuum System with Column Isolation and UHV Capability</b></p> <p>The system shall be equipped with a fully automatic vacuum system, incorporating column isolation valves and vacuum gauges for monitoring and control. The vacuum system shall be of the dry type, comprising a pre-pump, a turbomolecular pump, and ion getter pumps, enabling ultra-high vacuum (UHV) generation in the gun region.</p> <p>Rationale: A robust and automated vacuum system is essential for maintaining stable operating conditions and ensuring contamination-free environments. Column isolation valves and vacuum gauges provide operational safety and diagnostic capability. The use of dry pumping technology eliminates oil-related contamination risks, while the combination of turbomolecular and ion getter pumps ensures UHV levels required for optimal emitter performance and beam stability.</p>	I
Requirement 8.410.035	<p><b>Integrated Air Damping Vibration Isolation System</b></p> <p>The system shall incorporate an integrated air damping vibration isolation system within the plinth structure.</p> <p>Rationale: An integrated air damping system within the plinth provides a stable mechanical foundation, reducing the influence of building vibrations and acoustic noise.</p>	I
8.410.040	<p><b>Integrated Plasma Cleaner</b></p> <p>The system shall incorporate an integrated plasma cleaner.</p> <p>Rationale: An integrated plasma cleaner is required for cleaning basic contaminants inside the main chamber.</p>	I

#### 8.4.2 Subject-matter 'Control System'

Requirement no.	Requirement description	Verification method
Requirement 8.420.005	<p><b>PC-Based Multi-User Control Software with Integrated Patterning and Metrology Capabilities</b></p> <p>The system shall include a PC-based control software platform that supports multi-user access and provides comprehensive functionality for pattern design, processing, imaging, and metrology. The software shall feature a fully integrated GDSII CAD editor, supporting beam control and parameter management through recipe-based configurations, allowing reproducible and automated operation across different user profiles.</p> <p>Rationale: Multi-user capability ensures accessibility and workflow continuity across research teams. The integration of a GDSII CAD editor streamlines design-to-pattern processes, while recipe-based beam control and parameter handling enhance repeatability and reduce setup time.</p>	I
Requirement 8.420.010	<p><b>Fully Digital Column Control with Parameter Set Save and Reload</b></p> <p>The system shall feature a fully digital column control interface, enabling precise management of all column-related parameters. The control system must support the saving and reloading of complete parameter sets. The interface shall be integrated into the main system software and accessible via the multi-user platform.</p> <p>Rationale: Digital column control enhances reproducibility, precision, and ease of use in complex nanofabrication and imaging workflows. The ability to save and reload parameter</p>	I

Requirement no.	Requirement description	Verification method
	sets ensures consistent performance across sessions and users, reduces setup time, and minimizes human error.	
Requirement 8.420.015	<p><b>Automation Interface with Python Scripting for Unattended Batch Job Generation</b></p> <p>The system shall provide an automation interface that supports Python scripting for the creation and execution of unattended batch jobs. This interface must allow users to define, schedule, and run complex workflows without manual intervention, including patterning, imaging, and metrology tasks. The scripting environment shall be fully integrated with the system control software and offer access to all relevant operational parameters and functions.</p> <p>Rationale: Automation through Python scripting enables flexible and scalable control over nanofabrication and imaging processes. It supports reproducibility, reduces operator workload, and allows for advanced customization of experimental protocols.</p>	I
Requirement 8.420.020	<p><b>Software Licensing and Offline Data Preparation</b></p> <p>The system shall include perpetual licenses for the operating system of the PC system and for all software components described in this specification. In addition, the supplier shall provide a total of six offline licenses for data preparation, enabling installation and use on Buyer-owned Microsoft Windows PCs. These offline licenses must support full functionality for pattern design and preparation workflows, independent of the main system.</p> <p>Rationale: Perpetual licensing ensures long-term operational continuity and avoids dependency on subscription renewals or license expirations. Providing offline licenses supports distributed data preparation workflows, allowing multiple users to work in parallel without occupying the main system.</p>	I
Requirement 8.420.025	<p><b>Software Updates: Bug Fixes and Minor Improvements</b></p> <p>The Supplier shall provide software updates free of charge for the entire minimum expected lifetime of the system. These updates shall include, but are not limited to, bug fixes, security patches, and minor functional improvements. If the implementation of a software update requires a hardware modification, the Supplier shall present this option to TNO for prior approval. Should TNO choose to proceed with the hardware modification, no additional license fees shall apply for the software update. The cost of the required hardware shall be itemized separately in accordance with the agreed pricing schedule.</p> <p>Rationale: Continuous access to software updates is essential for maintaining system reliability, security, and performance. Free updates ensure that the system remains aligned with evolving operational requirements and technological standards. The option for hardware modification - subject to TNO's approval - provides flexibility for future enhancements without introducing hidden costs. This approach supports TNO's long-term research objectives in photonics, quantum devices, and semiconductor prototyping, where system integrity and adaptability are critical.</p>	I
Requirement 8.420.030	<p><b>Software Upgrades: Functional Enhancements and Major Releases</b></p> <p>The Supplier shall provide software upgrades free of charge to TNO for a minimum period of x years following delivery of the system, as part of regular product development. Software upgrades refer to substantial functional enhancements, new software versions, or performance improvements.</p> <p>Upgrades may include:</p> <ul style="list-style-type: none"> <li>- Introduction of new features or modules</li> <li>- Performance optimization and scalability improvements</li> <li>- Migration to newer platforms or operating systems (e.g., Windows upgrades)</li> <li>- Re-engineering of software architecture for maintainability and future-proofing</li> </ul> <p>If a hardware upgrade is required to implement a software upgrade, the Supplier must notify TNO in advance. TNO reserves the right to approve or reject the proposed hardware upgrade. If approved, no additional license fees shall be charged for the software upgrade. Hardware costs must be specified separately in accordance with the agreed pricing schedule.</p> <p>The Supplier shall also provide technical support for the implementation and operation of software upgrades throughout the minimum expected lifetime of the system. This support shall include assistance with installation, configuration, troubleshooting, and user guidance, and shall be delivered within agreed service levels at no additional cost to TNO.</p>	I

Requirement no.	Requirement description	Verification method
	<p>Rationale: Access to functional upgrades ensures that the system remains aligned with evolving technological standards and user needs. Free upgrades promote long-term value and adaptability, while technical support guarantees smooth implementation and operational continuity. These provisions are essential for TNO's research in photonics, quantum devices, and semiconductor prototyping, where system evolution and reliability are critical to maintaining scientific and engineering excellence.</p>	

#### 8.4.3 Subject-matter 'Sample Holders'

Requirement no.	Requirement description	Verification method
Requirement 8.430.005	<p><b>Load-Lock Integration</b> The system shall support sample mounting via dedicated sample holders. These sample holders must be compatible with the system's stage and introduced through a load-lock mechanism to ensure vacuum integrity and minimize contamination risk. The load-lock shall allow for efficient sample exchange without venting the main chamber, and the holders must provide secure and repeatable positioning for various sample types.</p> <p>Rationale: Controlled and contamination-free sample handling is essential for maintaining ultra-high vacuum conditions and ensuring reproducible results in high-resolution imaging and nanofabrication. The use of sample holders introduced via a load-lock enables fast and safe sample exchange, it also supports operational efficiency and protects sensitive components from environmental exposure.</p>	I
Requirement 8.430.010	<p><b>3D Sample Handling Module with Tilt and Continuous Rotation</b> The system shall include a dedicated 3D module for sample handling, enabling tilt and continuous rotation of small samples. This module must be fully compatible with the system's air-lock mechanism.</p> <p>Rationale: Tilt and rotation capabilities are essential for advanced imaging, metrology, and nanofabrication tasks that require multi-angle access to sample surfaces.</p>	I
Requirement 8.430.015	<p><b>Universal Piece Part Holder for Small Samples</b> The system shall include a universal piece part holder designed to accommodate small samples with dimensions up to 50 mm or 2 inches. The holder must ensure secure and stable mounting of various sample geometries and materials, and be fully compatible with the system's stage and load-lock mechanism.</p> <p>Rationale: A universal holder for small samples enhances operational flexibility and efficiency by allowing quick exchange and reliable mounting of diverse sample types without the need for custom fixtures. Compatibility with the load-lock ensures vacuum integrity and supports streamlined workflows.</p>	I
Requirement 8.430.020	<p><b>4" Wafer Holder According to SEMI Standard</b> The system shall include a dedicated 4" wafer holder designed in compliance with SEMI standards and be fully compatible with the system's stage and load-lock mechanism.</p> <p>Rationale: Dedicated holder that is required for integration into standardized 4 inch wafer fabrication platforms.</p>	I

#### 8.4.4 Subject-matter 'UPS'

Requirement no.	Requirement description	Verification method
Requirement 8.440.005	<p><b>Uninterrupted Power Supply (UPS) System</b> The system shall include an uninterrupted power supply (UPS) system with an autonomy time of at least 30 minutes during the first year of operation. The UPS shall be integrated with the system control software to enable a controlled and safe shutdown procedure when the critical threshold for main power loss is reached.</p> <p>Rationale: A reliable UPS system is essential for protecting sensitive equipment and data during unexpected power interruptions. The 30-minute autonomy ensures sufficient time for safe shutdown or power restoration, minimizing operational disruption. Integration with the system's control logic allows for automated response.</p>	D

**8.4.5 Subject-matter 'Water Air-Chillers'**

Requirement no.	Requirement description	Verification method
Requirement 8.450.005	<p><b>Water-Air Chillers</b> The system shall include water-air chillers as necessary to support stable thermal management of all components requiring active cooling.</p> <p>Rationale: Including water-air chillers ensures that temperature-sensitive components operate within their specified limits, preventing drift, degradation, or failure.</p>	D

**8.4.6 Subject-matter 'Operator table'**

Requirement no.	Requirement description	Verification method
Requirement 8.460.005	<p><b>Operator Table with Integrated Control Interfaces</b> The system shall include an operator table as part of the delivery. The table shall be equipped with flat panel displays, keyboard, joystick, control panel, and mouse, all integrated to support full system operation.</p> <p>Rationale: A dedicated operator table with integrated control interfaces is essential for efficient and comfortable system operation.</p>	I

**8.5 Subject-matter 'Documentation'**

Requirement no.	Requirement description	Verification method
Requirement 8.500.005	<p><b>System Documentation</b> The delivery shall include comprehensive operation and reference manuals in English, provided in digital form. These manuals must cover all aspects of system setup, operation, maintenance, troubleshooting, and safety procedures. Documentation shall be structured to support both routine use and advanced configuration.</p> <p>Rationale: Clear and complete documentation is essential for safe and efficient system operation, user training, and long-term maintainability. Providing manuals in English ensures accessibility across international teams and supports standardized procedures.</p>	I

**8.6 Subject-matter 'Training'**

Requirement no.	Requirement description	Verification method
Requirement 8.600.005	<p><b>Operator Training</b> The delivery shall include five (5) days of basic operator training conducted on site. This training must cover system operation, safety procedures, routine maintenance, and troubleshooting. The training shall be delivered by qualified personnel and tailored to the specific configuration and use cases of the delivered system. In addition, the Supplier shall offer optional advanced or follow-up training modules upon request.</p> <p>Rationale: On-site operator training ensures that users gain hands-on experience with the system in its actual operational environment. It supports safe and efficient use, minimizes startup time, and reduces the risk of operational errors. Optional training modules provide flexibility for future skill development and onboarding of new personnel.</p>	I

**8.7 Subject-matter 'Contractual Aspects'**

Requirement no.	Requirement description	Verification method
Requirement 8.700.005	<p><b>Critical design review (CDR)</b> The objective of the CDR is to confirm that the equipment and all deliverables satisfies the requirements. It establishes the compatibility of external &amp; internal interfaces and the compliance of the design with contractual requirements (predicted and/or measured). The successful completion of the CDR permits the Supplier to start the manufacturing of the system.</p> <p>The CDR will contain the following details:</p> <ul style="list-style-type: none"> <li>- Physical dimensions of the system and system components.</li> <li>- External and internal interface location and dimensions of the system.</li> </ul>	I + R

Requirement no.	Requirement description	Verification method
	<ul style="list-style-type: none"> <li>- Showing the design meets the functional and performance requirements.</li> </ul> <p>The acceptance of the CDR shall be achieved using a written document, to be signed by both parties.</p> <p>In the event that the CDR fails to meet the requirements, the supplier or TNO must set out such failure in a written statement, to be signed by both parties. The supplier must then provide TNO with corrective action plan within fourteen (14) calendar days from the date of signing. The supplier must remedy these deficiencies at no additional cost within the timeframe set out in the corrective action plan, but not exceeding 1 month.</p>	
Requirement 8.700.010	<p><b>Site Acceptance Test (SAT)</b></p> <p>The SAT contains the following checkpoints:</p> <ul style="list-style-type: none"> <li>- The FIB-SEM will be checked for damages;</li> <li>- The proper functioning of the equipment will be checked;                             <ul style="list-style-type: none"> <li>o Mechanical functions,</li> <li>o Electrical safety- and switching functions,</li> <li>o Gas safety and functions,</li> <li>o Vacuum functionality,</li> <li>o User interface(s), including software.</li> </ul> </li> <li>- All requirements and preferences, if offered, will be checked;</li> <li>- The presence and quality of the documentation will be checked.</li> </ul> <p>A full user acceptance test on-site of the contracted tenderer must be performed by the Tenderer in cooperation with TNO.</p> <p>Following approved user acceptance test on-site, the FIB-SEM shall be at the unrestricted disposal of TNO for one month. If the FIB-SEM works according to TNO's functional and technical specifications, without faults and/or malfunctions during operational mode, the test period is considered successfully concluded by TNO. If the FIB-SEM is not operating in this period according to TNO's functional and technical specifications, the faults and/or malfunctions will be remedied and another test period of one month must successfully be concluded and approved by TNO, up to a maximum of three test periods of one month each.</p> <p>The details of the site acceptance test shall be agreed between the user and the supplier. Tenderer must submit a draft test protocol for the site acceptance test with its Tender.</p> <p>In the event that the deliverables fail to meet the user Acceptance Criteria for the SAT, the Supplier must set out such failures in a written statement, to be signed by both parties. The supplier must then provide TNO with a corrective action plan for such failures within fourteen (14) calendar days from the date of signing of such statement. The supplier must remedy these deficiencies at no additional cost within the timeframe set out in the corrective action plan, but not exceeding 3 months. A new acceptance test will then take place.</p>	T + D
Requirement 8.700.015	<p>Terms and conditions of payment</p> <ul style="list-style-type: none"> <li>- 30% at order, after receipt of a bank guarantee covering 30% of the total amount.</li> <li>- 50% after delivery at location TNO Delft, STW. At this moment, after a positive visual inspection of the delivered item, TNO will return the bank guarantee.</li> <li>- 20% after installation and commissioning On-site and Site Acceptance Test (SAT), including test periods, approved by TNO, Management Quantum Technology and Procurement.</li> </ul> <p>The Tenderer to whom the Contract will be awarded must provide a bank guarantee to TNO, covering at least 40% of the total price. The Bank guarantee and the bank who issues the Bank guarantee have to be approved by TNO (minimal A rating). TNO must have the right to draw the bank guarantee in any and all cases where Tenderer falls short in fulfilling its obligations under the Contract. The validity of the bank guarantee may not expire until approval of the SAT by TNO Management and Procurement.</p> <p>Alternatively to a bank guarantee, TNO also accepts a Parent Company Guarantee, in which the parent company agrees to the repayment of the progress payment in the event that tenderer, or wholly owned subsidiary, defaults on the supply of an FIB-SEM, which is the subject of this order.</p>	I

Requirement no.	Requirement description	Verification method
Requirement 8.700.020	<p><b>MILL Test Certificate</b> When supplying the system, the Tenderer shall provide a Mill Test Certificate (MTC), or similar certificate such that it meets the requirements and obligations to establish the country of origin (further specified in paragraph 5.2.4).</p>	I
Requirement 8.700.025	<p><b>Maintenance/services Contract</b> Further specified in paragraph 1.5.</p>	I
Requirement 8.700.030	<p><b>Comprehensive Maintenance Facilities within Europe</b> To ensure uninterrupted operation and long-term reliability of the equipment, it is essential that the Tenderer maintains comprehensive maintenance facilities within Europe. These facilities must be capable of handling diagnostics, repairs, and parts replacement to minimize downtime and ensure rapid resolution of technical issues.</p> <p>Strategically located European facilities enable:</p> <ul style="list-style-type: none"> <li>- Efficient service delivery through proximity to operational sites.</li> <li>- Reduced logistical delays and transportation costs.</li> <li>- Faster turnaround times for maintenance and support.</li> </ul> <p>Furthermore, TNO strongly prefers to avoid export restrictions, elevated costs, and administrative burdens associated with cross-border servicing outside Europe. European-based facilities help mitigate risks related to:</p> <ul style="list-style-type: none"> <li>- Export control regulations that may limit the movement of equipment or parts.</li> <li>- Customs delays and additional fees.</li> <li>- Dependency on non-EU jurisdictions, which may introduce uncertainty over the lifetime of the equipment.</li> </ul> <p>This requirement aligns with TNO's strategic goals of operational continuity, cost-effectiveness, and regulatory compliance throughout the equipment's lifecycle.</p>	I
Requirement 8.700.035	<p>The Contract will be executed through a purchase order, incorporating the Purchasing Conditions TNO for Goods, December 2025, and Incoterms 2020 Delivered Duty Paid (DDP), see paragraph 2.2.18.</p>	I

## 9 List of Annexes

All the Annexes appended to the Procurement Documents are published with the Procurement Guide at [www.TenderNed.nl](http://www.TenderNed.nl).

The Annexes are divided into three (3) main groups, namely:

### A) Submission of Tender:

- Annex A01** The Tenderer's ESPD, "European Single Procurement Document" (ESPD)
  - *If applicable, this format should be multiplied in proportion to the number individual Combination members; the individual Third Party or for the benefit of one or more subcontractors to be used for the work).*
- Annex A02** Format for Reference Projects
- Annex A03** Format for Price Sheet
- Annex A04** Answer to questions/compliance with preferences, sub-award criterion: Quality
- Annex A05** Maintenance / Services

### B) Submission of supporting documents:

- Annex B01** Format for Declaration as to Reliance on Financial and Economic Standing of Third Party or Parties
- Annex B02** Format for Declaration as to Reliance on Technical and Professional Competence of Third Party or Parties
- Annex B03** Format for Statement of Policy/Declaration as to Insurance

### C) Additional information:

- Annex C01** Standard Template for Tenderer Questions
- Annex C02** Draft Contract
- Annex C03** TNO's General Purchasing Conditions, February 2022.
- Annex C04** TNO Supplier Code of Conduct

#### *Additional note on Section 2.2.2 Formats*

Some of these Annexes are accessible in "editable" MS Excel or MS Word versions. This is with the aim of simplifying the preparation of a Tender by the Tenderer and therefore also forms the basis for the assessment procedure as described in Section 3.

Some documents may be, partially, secured to prevent inadvertent and unintentional changes being made to the documents and texts (including format texts).

Changes to the formats are not permitted. The premise for these documents is that the text (including format text) as contained in the Procurement Guide and published on [www.TenderNed.nl](http://www.TenderNed.nl) will be the authoritative text at all times.