
**Denmark-Kgs. Lyngby: Laboratory, optical and precision equipments (excl. glasses)
2023/S 176-552418**

Contract notice

Supplies

Legal Basis:

Directive 2014/24/EU

Section I: Contracting authority

I.1) Name and addresses

Official name: Danmarks Tekniske Universitet - DTU

National registration number: 30060946

Postal address: Anker Engelunds Vej 1

Town: Kgs. Lyngby

NUTS code: DK01 Hovedstaden

Postal code: 2800

Country: Denmark

Contact person: David Fajnzylber

E-mail:

Telephone: +45 93596840

Internet address(es):

Main address: Address of the buyer profile

I.3) Communication

The procurement documents are available for unrestricted and full direct access, free of charge,

Additional information can be obtained from the abovementioned address

Tenders or requests to participate must be submitted electronically

Tenders or requests to participate must be submitted to the abovementioned address

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Education

Section II: Object

II.1) Scope of the procurement

II.1.1) Title:

X-ray diffractometer (XRD)

II.1.2) Main CPV code

38000000 Laboratory, optical and precision equipments (excl. glasses)

II.1.3) Type of contract

Supplies

II.1.4) Short description:

This tender is for the acquisition of a multipurpose high-resolution X-ray diffractometer (XRD) system intended for a university facility, which provides access to an extensive suite of characterization tools as one of its core purposes. The facility caters to users from various levels of experience and technical backgrounds within the university and serves commercial customers as well.

II.1.5) Estimated total value

Value excluding VAT: 600 000.00 EUR

II.1.6) Information about lots

This contract is divided into lots: no

II.2) Description**II.2.2) Additional CPV code(s)**

38300000 Measuring instruments

38400000 Instruments for checking physical characteristics

38900000 Miscellaneous evaluation or testing instruments

II.2.3) Place of performance

NUTS code: DK0 Danmark

II.2.4) Description of the procurement:

Instrument Specifications:

The instrument configuration must be a vertical diffractometer with horizontal sample mounting. The goniometer should support an in-plane (non-coplanar) arm and allow uncoupled movements of the source (ω), in-plane (coplanar/ $2\theta\chi$), and out-of-plane (2θ) arms. Additionally, the sample stage should support tilt (χ) and rotation ($\#$).

Techniques to be Supported:

The instrument will be used for the following techniques:

- Reciprocal space mapping (RSM)
- X-ray reflectivity (XRR)
- In-Plane Diffraction ($2\theta\chi$, $\#/2\theta\chi$)
- Grazing incidence XRD (2θ scans)
- HRXRD (high-resolution rocking curves, etc.)
- Phase analysis (coupled and uncoupled $\theta/2\theta$ and $2\theta/\omega$ scans)
- Residual stress measurements
- Texture analysis
- Other options requiring dedicated focusing solutions, such as micro-area XRD, may also be considered.

Radiation Source:

The instrument is intended to have a rotating anode that produces monochromatic Cu K α radiation. It should support switchable Bragg-Brentano (divergent beam) and Parallel Beam configurations and include a solution for point focus. To eliminate Cu K α 2 and improve angular resolution in HRXRD, an incident beam monochromator and receiving analyzer need to be provided.

Detector Requirements:

The detector should support 0D, 1D, and 2D measurement modes to eliminate the inconvenience of preparing and switching individual detectors for different applications. It must possess a large active area, small pixel size, and fluorescence suppression. The detector's orientation must be changeable from vertical to horizontal mounting.

Sample Handling:

The instrument will perform XRD analysis on a variety of samples with varying shapes, textures, and sizes, including powders and thin films. Versatile sample holders must be included to enable the analysis of samples ranging from tiny amounts of powders and small chips to 150 mm wafers. A mapping option is needed to measure points sequentially across larger samples with high accuracy. Another desired feature includes optical imaging of the sample and easy and accurate navigation to desired measurement positions identified through the camera.

Automation and User-Friendly Interface:

Given the multi-user environment, it is essential that the operation procedure is highly automated. Manual handling of slits, monochromators, focusing mirrors, etc., should be minimized. Additionally, simple guided routines for optics and sample alignment and the most common types of measurement are expected to facilitate safe operation by new users with little or no experience after proper training. The instrument must be largely operated by means of a computer with software featuring a dedicated user-friendly interface.

Data Processing and Network Solution:

Comprehensive routines for powder XRD, evaluation of HRXRD and XRR, texture analysis, and stress evaluation should be included to process the acquired data. To accommodate multiple users, a network solution or similar approach must be provided to guarantee simultaneous access to data analysis. The software solutions should be intuitive and straightforward to use, considering the intended

number of users.

II.2.5) **Award criteria**

Price is not the only award criterion and all criteria are stated only in the procurement documents

II.2.6) **Estimated value**

Value excluding VAT: 600 000.00 EUR

II.2.7) **Duration of the contract, framework agreement or dynamic purchasing system**

Duration in months: 120

This contract is subject to renewal: no

II.2.10) **Information about variants**

Variants will be accepted: no

II.2.11) **Information about options**

Options: yes

Description of options:

Option: Optics, divergent beam monochromatization: Flat multilayer mirror for creating a monochromated divergent beam.

Option: Heating stage: Non-ambient heating stage with heating up to at least 300 degrees in a controlled gas atmosphere.

Option: Airtight specimen holder: Airtight specimen holder for environmentally sensitive thin films on a flat substrate. Best if it's possible to mount sample in a glovebox and move it to the goniometer protected from air.

Option: Above sample observation camera: Optical imaging of the sample and easy control of navigation to measurement positions viewed using the camera.

Minimum option: Software: Texture ODF analysis (if not included in a basis software package).

Minimum option: Software: Rietveld Analysis Powder (if not included in a basis software package).

II.2.13) **Information about European Union funds**

The procurement is related to a project and/or programme financed by European Union funds: no

II.2.14) **Additional information**

Section III: Legal, economic, financial and technical information

III.1) **Conditions for participation**

III.1.2) **Economic and financial standing**

List and brief description of selection criteria:

The Tenderer must state the general average yearly turnover for the last three audited financial years.

Minimum level(s) of standards possibly required:

The minimum level for suitability is 2 x the contract value calculated as an average of the turnover in the last three financial years.

If the Tenderer can't state the required figures for economic and financial standing, the Tenderer can document their economic and financial standing by sending an On-demand guarantee with a value of DKK 6.000.000.

If the Tenderer cannot comply with the requirement, the Tenderer can rely on the capacities of other entities or make a consortium.

III.1.3) **Technical and professional ability**

List and brief description of selection criteria:

As a minimum the Tenderer must provide references for comparable agreements.

Minimum level(s) of standards possibly required:

As a minimum the Tenderer must provide 3 references for comparable agreements.

Comparable agreements mean concluded agreements with a value of at least DKK 3.000.000 concerning the acquisition of a 'X-ray diffractometer (XRD)' or equivalent within the last 3 years.

If the Tenderer cannot comply with the requirement, the Tenderer can rely on the capacities of other entities or make a consortium.

Section IV: Procedure

IV.1) Description

IV.1.1) Type of procedure

Open procedure

IV.1.3) Information about a framework agreement or a dynamic purchasing system

IV.1.8) Information about the Government Procurement Agreement (GPA)

The procurement is covered by the Government Procurement Agreement: yes

IV.2) Administrative information

IV.2.2) Time limit for receipt of tenders or requests to participate

Date: 09/10/2023

Local time: 12:00

IV.2.3) Estimated date of dispatch of invitations to tender or to participate to selected candidates

IV.2.4) Languages in which tenders or requests to participate may be submitted:

English

IV.2.6) Minimum time frame during which the tenderer must maintain the tender

Tender must be valid until: 09/01/2024

IV.2.7) Conditions for opening of tenders

Date: 09/10/2023

Local time: 12:00

Section VI: Complementary information

VI.1) Information about recurrence

This is a recurrent procurement: yes

VI.3) Additional information:

VI.4) Procedures for review

VI.4.1) Review body

Official name: Klagenævnet for Udbud

Postal address: Nævnenes hus, Toldboden 2

Town: Viborg

Postal code: 8800

Country: Denmark

E-mail:

Telephone: +45 35291000

Internet address:

VI.4.3) Review procedure

Precise information on deadline(s) for review procedures:

Complaint regarding prequalification:

Complaint regarding prequalification must be submitted no later than 20 calendar days after notification has been sent to the concerned Candidates informing them who has been selected, if the notification includes the grounds for the decision, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, Section 1.

Complaint regarding award of contract:

Complaint regarding the award of a contract must be submitted no later than 45 calendar days from the date after the Contracting Authority has published a notice in the European Union Official Journal informing that the Contracting Authority has awarded/concluded a contract, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, Section 2, no. 1.

Complaint regarding award of a contract under a framework agreement with a reopening of the competition (mini-tender):

Complaint regarding the award of a contract under a framework agreement with a reopening of the competition must be submitted no later than 30 calendar days from the date after the Contracting Authority has notified the concerned Tenderers that a contract based on a framework agreement with a reopening of the competition has been awarded/concluded, if the notification includes the grounds for the decision, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, Section 2, no. 2.

Complaint regarding the award of a framework agreement:

Complaint regarding the award of a contract must be submitted no later than 6 months from the date after the Contracting Authority has notified the concerned Candidates and Tenderers that a framework agreement has been concluded, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, Section 2, no. 3.

Complaint regarding direct award of contract:

Complaint that the Contracting Authority, contrary to the Public Procurement Act, has concluded a contract without prior publication of a contract notice in the European Union Official Journal must be submitted no later than 30 calendar days from the date after a contract award notice has been published by the Contracting Authority in the European Union Official Journal and that contract award notice includes the grounds for the decision to award the contract directly, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, section 3.

Compliant regarding public procurements below the EU threshold:

Complaint regarding violation of public procurements below the EU threshold must be submitted no later than 45 calendar days from the date after the Contracting Authority has notified the Tenderers about the award of contract, if this notification includes the grounds for the decision; and no later than 6 months from the date after the Contracting Authority has notified the concerned Candidates and Tenderers that a framework agreement has been concluded, if the notification includes the grounds for the decision, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, section 4, no. 1 and 2. Complaint regarding prequalification on procurement below the EU threshold must be submitted no later than 20 calendar days from the date after the Contracting Authority has sent a notification to the concerned Candidates who has been selected and this notification includes the grounds for the decision, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, Section 5.

VI.4.4) **Service from which information about the review procedure may be obtained**

Official name: Konkurrence- og Forbrugerstyrelsen

Postal address: Carl Jacobsens Vej 35

Town: Valby

Postal code: 2500

Country: Denmark

E-mail:

Telephone: +45 41715000

Internet address:

VI.5) **Date of dispatch of this notice:**
08/09/2023