

**Portugal-Braga: Transmission electron microscope**

OJ S 88/2014 07/05/2014

Contract notice

Supplies

Directive 2004/18/EC

**Section I: Contracting authority**

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**I.1. Name and addresses**

Official name: INL, International Iberian Nanotechnology Laboratory

Postal address: Avenida Mestre José Veiga

Town: Braga

Postal code: 4715 330

Country: Portugal

Contact person: [http://inl.int/contractors\\_projects?section=contract-opportunities](http://inl.int/contractors_projects?section=contract-opportunities)

For the attention of: Adrian Watson

E-mail: [adrian.watson@inl.int](mailto:adrian.watson@inl.int)

Telephone: +351 253140112

Fax: +351 253140119

**Internet address(es):**General address of the contracting authority: [www.inl.int](http://www.inl.int)Address of the buyer profile: <http://inl.int/contractors/info>Electronic access to information: [http://inl.int/contractors\\_projects?section=contract-opportunities](http://inl.int/contractors_projects?section=contract-opportunities)**Additional information can be obtained from:**

the abovementioned address

**Specifications and additional documents (including documents for competitive dialogue and a dynamic purchasing system) can be obtained from:**

the abovementioned address

**Tenders or requests to participate must be submitted:** the abovementioned address**I.2. Type of the contracting authority**

European institution/agency or international organisation

**I.3. Main activity**

Other: Nanotechnology Research Laboratory

**I.4. Contract award on behalf of other contracting authorities**

The contracting authority is purchasing on behalf of other contracting authorities: no

**Section II: Object of the contract**

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**II.1. Description****II.1.1. Title attributed to the contract by the contracting authority**

Contract for the supply and installation of a transmission electron microscope and a magnetic resonance imaging desktop system to the international iberian nanotechnology laboratory.

**II.1.2. Type of contract and place of performance or delivery**

Supplies

Main site or place of performance: Avenida Mestre José Veiga, Braga 4715-330, Portugal.  
NUTS code PT112 Cávado

### **II.1.3. Information about a framework agreement or a dynamic purchasing system**

The notice involves a public contract

### **II.1.4. Information about framework agreement**

#### **II.1.5. Short description of the contract or purchase(s)**

The subject matter of this contract is the supply and installation of a transmission electron microscope and a magnetic resonance imaging desktop system to the international iberian nanotechnology laboratory

The tenders consists of 2 Lots:

Lot 1: 200 kV Transmission Electron Microscope (TEM) with Cryo and Tomography capabilities.

Lot 2: Magnetic Resonance Imaging Desktop System

#### **II.1.6. CPV code(s)**

38511200 Transmission electron microscope, 33113000 Magnetic resonance imaging equipment

### **II.1.7. Information about the Government Procurement Agreement (GPA)**

The procurement is covered by the Government Procurement Agreement: no

### **II.1.8. Lots**

This contract is divided into lots: yes

Tenders may be submitted for one or more lots

### **II.1.9. Information about variants**

Variants will be accepted: no

## **II.2. Scope of the procurement**

### **II.2.1. Total quantity or scope**

One Transmission Electron Microscope and One Magnetic Resonance Imaging Desktop System.

Estimated value excluding VAT: 1 275 000 EUR

### **II.2.2. Information about options**

Options: no

### **II.2.3. Information about renewals**

This contract is subject to renewal: no

## **II.3. Duration of the contract or time limit for completion**

Information about lots

Lot No: 1

Lot title: LOT 1: 200 kV Cryo and tomography transmission electron microscope

#### **1) Short description**

Lot 1 is a Transmission Electron Microscope (TEM) with Cryo and Tomography capabilities. It will be devoted to imaging a wide range of samples, as well as to imaging samples at low temperature, and to do tomography studies. It is expected to be very flexible and have high reliability and fast operation in order to maximize the number of analyzed samples in the shortest possible time. This system is expected to be digitally controlled and equipped with a

computerized and motorized goniometer.

#### Technical Specifications:

- 200 kV Transmission Electron Microscope (TEM) mounting a thermionic gun.
- Digitally controlled microscope. Components like the electron gun, optical elements, vacuum system, stage etc., must be controlled by software.
- User interface to control the microscope with the possibility to automatically recall all optimized operating conditions including lens settings, gun parameters, optical alignments for all the different techniques such as TEM imaging, STEM imaging, Diffraction, CBED, and X-rays spectroscopy.

#### Microscope Column and Electron – Optics:

- High Tension range: up to 200 kV, adjustable at least in steps or in preferred values.
- LaB6 thermionic cathode.
- 120 kV and 200 kV fully aligned at delivery.
- Objective lens optimized for high contrast imaging or for high tilt
- Point resolution: 0.27 nm, or better.
- Magnification range: up to 700 kx or better.
- Lenses setups that allow for conventional TEM, HRTEM and STEM imaging modes.

#### Stage and Specimen Chamber

- Computerized, 5 axes motorized.
- Movements:
  - +/- 1 mm on X-Y plane or better.
  - +/-0.2 mm on Z direction, or better.
  - Maximum attainable tilt angle: +/-70° or better.
- Suitable sample holder for single tilt tomography.

#### Digital Imaging Recording:

- Side mount annular camera:
  - Suitable for ADF and HAADF imaging.
  - Controlled via a user-friendly software interface.
- Bottom mount digital camera:
  - High sensitivity optimized for cryo samples.
  - Resolution: 4k x 4k, or better.
  - Pixel size: 15 x 15 µm, or better.
  - Dynamic range: 16 bit, or better.
  - Controlled via a user-friendly software interface.

#### X-rays Energy Dispersive Spectrometer:

- Large-Area Silicon Drift Detector.
- 0-20keV energy range, or better.
- 130 eV energy resolution, or better.
- Suitable software for spectra treatment and quantification.
- Controlled via a user-friendly software interface.

#### Cryo:

- Nitrogen cooled device to shield the specimen against residual gases, to reduce the ice growth rate on cold specimens inside the device.
- Low dose exposure technique to minimize the sample damage by the electron beam.

#### Tomography:

- Tomography Data Acquisition Software.
- High Field-of-View Single-Tilt Tomography Holder.

#### Vacuum System

- Preferably fully interlocked differentially pumped column.
- Gun and column area pumped separately preferably by Ion Getter Pumps.

- Cooling device with cold trap and liquid nitrogen Dewar in the objective lens block to maintain the cleanliness of the vacuum.
- Automated routine allowing the column to be pumped during warm-up cycle of the cooling device.

#### Auxiliary Systems

- Cooling unit.
- Compressor.

#### Software and Control

- Software and hardware to control and operate the microscope, including two monitors.

### 2) CPV code(s)

38511200 Transmission electron microscope

### 3) Quantity or scope

One

Estimated value excluding VAT: 800 000 EUR

### 4) Indication about different time frame or duration

### 5) Additional information about lots

Lot No: 2

Lot title: Lot 2: Magnetic resonance imaging desktop system

#### 1) Short description

Magnetic resonance imaging (MRI) systems allow the obtaining of preclinical and molecular imaging in biomedical and pharmaceutical research, as well as evaluation of the suitability of chemical compounds as contrast agents for MRI. In particular, cryogenic-free and compact MRI systems constitute affordable techniques for routine MR imaging with translational results to clinics.

Technical Specifications:

1- Plug & Play installation.

2- Compact tool design requiring maximum free space for installation around 4 m<sup>2</sup>.

3- No high- and radio-frequency shielding required

4- Magnet system:

- The system must have a permanent magnet without cryogenic liquids.

- The field strength must be at least 1.0 T

- The bore diameter must be at least 70 mm

5- Solenoid volume probes for both mice and rats must be included.

6- Gradient:

- Air cooled and eddy current free gradient set including high power gradient amplifier.

- The system must have 3 shim channels (linear via gradient), Z0 digital.

- Frequency corrections should be available (prospective linear and non-linear drift corrections)

7- Electronics:

- The Frequency resolution of the system must be <0.005 Hz with Phase resolution <0.006° and Bandwidth of the RF transmitter between 40-50 MHz

- Trigger channels should be included to control external devices or triggered data acquisition by external events (i. e. ECG and respiratory signals)

8- RF Coils:

- The equipment should include all the necessary RF coils to cover in-vitro (phantoms, contrast agents) and in-vivo (mice, rats) experiments, involving head and body imaging.

- 9- Equipment must include physiological signals monitoring (ECG, respiratory, body temperature signals) and temperature conditioning units for small rodents.
  - Anyway, morphological and functional imaging with free breathing and without triggering on ECG and respiration must be possible of performing.
- 10- Sample holders:
  - Animals beds available
  - Animal position system available
- 11- Acquisition workplace included (PC, monitor, keyboard, etc.).
- 12- Software (methods, protocols, sequences, etc.) for data acquisition should be included, multiuser and friendly experimental operation:
  - Methods and protocols required for T1/T2 based MRI contrasts (T1/T2 mapping) and MR relaxometry as well as diffusion weighted MRI, should be available.
  - Methods required for rapid echo-planar and short echo time sample imaging should be available.
  - Simultaneous acquisition of several slices with difference angulations should be available.
  - Pre-optimized protocols for in-vivo experiments (mice and rats) should be available.
  - Both 2D and 3D images should be possible.
  - Movie generation function should be available.
  - An integrated sequence development (programming) environment should be available
- 13- The system must enable DICOM export and import from other imaging modalities.
- 14- Product installation and training by a manufacture specialist should be included (at least 3 days training).

**2) CPV code(s)**

33113000 Magnetic resonance imaging equipment

**3) Quantity or scope**

One

Estimated value excluding VAT: 475 000 EUR

**4) Indication about different time frame or duration**

**5) Additional information about lots**

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**Section III: Legal, economic, financial and technical information**

**III.1. Conditions related to the contract**

**III.1.1. Deposits and guarantees required**

Bank Guarantee 10 % of Contract Value for Duration of the Warranty Period.

**III.1.2. Main financing conditions and payment arrangements and/or reference to the relevant provisions governing them**

**III.1.3. Legal form to be taken by the group of economic operators to whom the contract is to be awarded**

**III.1.4. Contract performance conditions**

The performance of the contract is subject to particular conditions: no

**III.2. Conditions for participation**

**III.2.1.**

**Suitability to pursue the professional activity, including requirements relating to enrolment on professional or trade registers**

**III.2.2. Economic and financial ability**

**III.2.3. Technical and professional ability**

**III.2.4. Information about reserved contracts**

**III.3. Conditions specific to services contracts**

**III.3.1. Information about a particular profession**

**III.3.2. Information about staff responsible for the performance of the contract**

## **Section IV: Procedure**

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**IV.1. Type of procedure**

**IV.1.1. Type of procedure**

Open

**IV.1.2. Information about the limits on the number of candidates to be invited**

**IV.1.3. Information about reduction of the number of solutions or tenders during negotiation or dialogue**

**IV.2. Award criteria**

**IV.2.1. Award criteria**

The most economically advantageous tender in terms of Price is not the only award criterion and all criteria are stated only in the procurement documents

**IV.2.2. Information about electronic auction**

An electronic auction will be used: no

**IV.3. Administrative information**

**IV.3.1. File reference number attributed by the contracting authority**

AW/PF

**IV.3.2. Previous publication concerning this procedure**

no

**IV.3.3. Conditions for obtaining specifications and additional documents or descriptive document**

Payable documents: no

**IV.3.4. Time limit for receipt of tenders or requests to participate**

27.6.2014 - 17:00

**IV.3.5. Estimated date of dispatch of invitations to tender or to participate to selected candidates**

**IV.3.6. Languages in which tenders or requests to participate may be submitted**

English.

#### **IV.3.7. Minimum time frame during which the tenderer must maintain the tender**

#### **IV.3.8. Conditions for opening of tenders**

### **Section VI: Complementary information**

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#### **VI.1. Information about recurrence**

This is a recurrent procurement: no

#### **VI.2. Information about European Union funds**

The procurement is related to a project and/or programme financed by European Union funds:  
yes

Identification of the project: This project will be co-financed by The European Regional Development Fund (ERDF), namely through The Programa Operacional Regional do Norte ON.2 (Portugal).

#### **VI.3. Additional information**

#### **VI.4. Procedures for review**

##### **VI.4.1. Review body**

##### **VI.4.2. Review procedure**

##### **VI.4.3. Service from which information about the review procedure may be obtained**

#### **VI.5. Date of dispatch of this notice**

2.5.2014