See the notice on TED website

Portugal-Braga: Laboratory, optical and precision equipments (excl. glasses)
OJ S 203/2017 21/10/2017
Contract notice
Supplies

Legal Basis:
Directive 2014/24/EU

Section I: Contracting authority

I.1. Name and addresses

Official name: INL, International Iberian Nanotechnology Laboratory
Postal address: Avenida Mestre José Veiga
Town: Braga
NUTS code: PT112 Cávado
Postal code: 4715 330
Country: Portugal
Contact person: Adrian Watson
E-mail: adrian.watson@inl.int
Telephone: +351 253140112
Fax: +351 253140119
Internet address(es):
Main address: www.inl.int
Address of the buyer profile: https://in-tendhost.co.uk/inl/aspx/Home

I.3. Communication

The procurement documents are available for unrestricted and full direct access, free of charge, at: https://in-tendhost.co.uk/inl/aspx/Home
Additional information can be obtained from the abovementioned address
Tenders or requests to participate must be submitted electronically via: https://in-tendhost.co.uk/inl/aspx/Home
Tenders or requests to participate must be submitted to the abovementioned address

I.4. Type of the contracting authority

European institution/agency or international organisation

I.5. Main activity

Other activity: Nanotechnology Research Laboratory

Section II: Object

II.1. Scope of the procurement

II.1.1. Title

Contracts for the Supply and Installation of Nanofabrication and Microscopy Equipment and the Upgrades to Existing Nanofabrication Systems for the International Iberian Nanotechnology Laboratory.

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

Contracts for the supply and installation of nanofabrication and microscopy equipment and the upgrades to existing nanofabrication systems for the international Iberian Nanotechnology Laboratory
Lot No. 1 — Nano Imprint Lithography System
Lot No. 2 — PVD module add-on to an existing multi-target PVD tool
Lot No. 3 — Upgrade of set of INL systems dedicated to Deep Reactive Ion Etching (DRIE), Reactive Ion Etching (RIE) and Plasma Enhanced Chemical Vapour Deposition (PECVD)
Lot No. 4 — Ion Milling System for TEM samples
Lot No. 5 — Cryo Ultramicrotome

II.1.5. Estimated total value

Value excluding VAT: 2 290 000,00 EUR

II.1.6. Information about lots

This contract is divided into lots: yes
Tenders may be submitted for one lot only

II.2. Description

II.2.1. Title

Nano Imprint Lithography System
Lot No: 1

II.2.2. Additional CPV code(s)

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

II.2.3. Place of performance

NUTS code: PT112 Cávado
Main site or place of performance: Braga, Portugal.

II.2.4. Description of the procurement

Quantity: 1
Configuration
— Manual or automated 8-inch square full area thermal Nano Imprint Lithography system for R&D, allowing the possibility of conducting both thermal NIL (nanoimprint lithography) and hot embossing at temperatures up to 200°C.
— The system must include imprint and LED based UV modules (allowing the possibility of conducting both UV and thermal imprinting on the same platform), optical alignment system, equipped with technology allowing master to be replicated into a flexible polymer that in turn is used as a stamp when imprinting on the substrate (for improving master stamp lifetime as well as making it possible to imprint on curve substrates), computer controlled user interface (for control and analysis of the imprint process, log files and equipment diagnose), manual or automated loading system, water cooling unit and technology license grants from the bidder for limited volumes of commercial production and non-commercial R&D.
System Specifications
— Stamp Size: 200 200 mm (88 inch)
— Substrate Size: up to 200 200 mm (88 inch) (diameter/diagonal of round/square, possibility of processing substrates in the range of 10 mm to 200 mm)
— Stamp/Substrate: Thickness Standard thickness 2 mm

— Imprint Area (Maximum) 200200 mm (88 inch)
— Imprint Pressure (Minimum): 1 bar
— Imprint Pressure (Maximum): 50 bar
— Imprint Temperature (Minimum): Ambient temperature
— Imprint Temperature (Maximum): 200 ºC
— Imprint Temperature Setting Accuracy: +/- 2 deg
— LED based UV module integrated into the nano imprint lithography system: Type LED, service life time >10 000 hours, wavelength 365 ± 10 nm, UV light power at sample 20 — 24 mW / cm2, exposure area of 200 x 200 mm (8 x 8 inch), imprint max. Temperature 200 °C, imprint max. pressure < 50 bar, air cooling.
Optical alignment system: Dual camera optical alignment system for integrated use with the imprint system, X, Y, and theta, in which the alignment is performed on the same fixture that supports the substrate-stamp in the NIL system, overlay alignment accuracy of 10 % of alignment mark line width after compensation for design mismatch between stamp and substrate, max. alignment accuracy of ±1 μm or better, stamp and substrate materials such as quartz and silicon, stamp size from 2 to 8 inch Ø (circular), substrate size from 2 to 8 inch Ø (circular), alignment marks positioned at radius 22 mm or larger.
Physical Dimensions
— L x W x H: not larger than 150 cm x 150 cm x 190 cm, excluding auxiliary equipment (e.g. pumps, chillers, etc.)
— Weight: not larger than 1 200 kg, excluding auxiliary equipment (e.g. pumps, chillers, etc.)
Conditions for Facility Requirements
— Clean-room class: at least 100
— Room temperature range: 18 — 32ºC
— Relative Humidity: 40 — 65 %
— Power 400 VAC: 3 phase, grounded, pre-fused to 32 A, 50/60 Hz, 16 kVA
— Compressed Air: ca. 6 — 8 bar, 40 l / min
— Exhaust: ca. 1500 l / min
Product Safety
— CE Mark, interlocked safety cover, lock out/tag out disconnect and EMOS.

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: 350 000,00 EUR

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

Duration in days: 6
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: no

II.2.13. 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:

II.2.14. Additional information

II.2. Description

II.2.1. Title

PVD module add-on to an existing multi-target PVD tool
Lot No: 2

II.2.2. Additional CPV code(s)

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

II.2.3. Place of performance

NUTS code: PT112 Cávado
Main site or place of performance: Braga, Portugal.

II.2.4. Description of the procurement

Quantity: 1
General specifications:
— PVD module to be interfaced with a TIMARIS Singulus tool, connecting at one of the existing two ports of the transfer chamber.
— The module must be able to handle 200 mm wafers
— The base pressure must reach a pressure <=5E-8 mbar
— The module must be equipped with a turbo-pump and a water pump (or in alternative a cryopump).
Sputtering Specifications
1) The module must contain at least 4 operational deposition cathodes, all of them with the capability to deposit both conductive and insulating materials. The module should be modularly upgradable in the future, allowing the installation of additional identical cathodes up to a total of 12.
2) All cathodes must incorporate individual shutters than can effectively prevent cross-target contaminations and target contamination during ion milling.
3) The module must be capable of co-sputtering from 2 cathodes. The module should be modularly upgradable in the future, allowing the use of up to 4 cathodes in co-sputtering.
4) The target size should not exceed a diameter/length of 100 mm (4 inch).
5) The deposition must be made under an in-situ magnetic field strong enough to set a well-defined magnetic anisotropy over the whole wafer when depositing all magnetic materials and alloys based on Co, Fe and Ni.
6) The tool should be capable of depositing layers as thin as 0.1 nm and as thick as 2 um with reasonable deposition times (target 0.2 nm/s).
7) The 1-sigma thickness non-uniformity measured over a 200 mm wafer must be <=3 % with an edge exclusion <5 mm.
8) The wafer-to-wafer sputtering reproducibility must be demonstrated in a lot of 25 wafers. The absolute thickness variation across the total area of the 25 wafers cannot exceed 10 %. The tool reproducibility must be demonstrated for thin films (<5 nm) and thick films (>500 nm).
Ion Milling specifications:
1) The module must contain one Ion Beam Source.
2) The Ion Beam Source should be capable of etching Ta with a rate of at least 10 nm/min while keeping
the substrate temperature bellow 80 ºC, avoiding thermal and electrostatic damage to photo-resist masks defined on the wafers.

3) The 1-sigma thickness non-uniformity measured over a 200 mm wafer must be <=3 % with an edge exclusion <5 mm.
4) The ion beam source should be capable of operating in the above conditions for a wide range of ion energies: from low energy (< 150 eV) up to large energy (>1 000 eV)
5) The wafer-to-wafer sputtering reproducibility must be demonstrated in a lot of 25 wafers. The absolute etched thickness variation across the total area of the 25 wafers cannot exceed 10 %. The tool reproducibility must be demonstrated etching thin layers (<5 nm) and thick layers (>200 nm).
Compatibility with the existing TIMARIS Cluster:
1) The new module must be interconnected with the TIMARIS Cluster tool and be operated from the same user interface that controls the cluster.
2) The operation of the module should be integrated with the main tool, with the same user control, logging and recipe creation interfaces common to all modules installed in the cluster.
3) The cluster recipes must allow free movement of the wafer among all modules contained in the cluster, without limitations concerning the amount of transfers among chambers or the order by which they are executed.
Conditions for Facility Requirements
— Power 400 VAC: 3 phase, grounded
Product Safety
— CE Mark, interlocked safety cover, lock out/tag out disconnect and EMOS.

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: 900 000,00 EUR

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

Duration in months: 12
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: no

II.2.13. 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:

II.2.14. Additional information

II.2. Description

II.2.1. Title

Upgrade of set of INL systems dedicated to Deep Reactive Ion Etching (DRIE), Reactive Ion Etching (RIE) and Plasma Enhanced Chemical Vapour Deposition (PECVD)
Lot No: 3

II.2.2. Additional CPV code(s)

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

II.2.3. Place of performance

NUTS code: PT112 Cávado

Main site or place of performance: Braga, Portugal.

II.2.4. Description of the procurement

Quantity 1

Current Configuration

INL currently possesses and operates 4 tools dedicated to DRIE, RIE and PECVD:

Tool 1: SPTS system with Pegasus process module and LPX single wafer load-lock transfer system

Tool 2: SPTS system with ICP RIE process module and LPX single wafer load-lock transfer system

Tool 3: SPTS system with APS RIE process module and LPX single wafer load-lock transfer system

Tool 4: SPTS system with PRO2 PECVD process module and MPX 2-wafer load-lock transfer system

The 4 systems above are fully operational, sustained by all required support systems (vacuum pumps, chillers, thermal exchange units, etc.).

Required Upgrade Configuration

The current tender refers to

1. the acquisition of 1 additional, fully operational ICP process module with identical technical specifications to those of the current ICP process module at INL and

2. the acquisition of 2 25-wafer cassette transfer modules, including support systems such as vacuum pumps, chillers and/or other relevant parts and

3. clustering of the new and existing modules according to:

a. Adaption and installation of existing MPX transfer module (from tool 4) into process module of tool 1 (SPTS Pegasus)

b. Clustering of existing process moduli from tool 2 (ICP) and tool 4 (PECVD) into a single system using one of new 25-wafer cassette transfer modules.

c. Clustering of existing process modulus from tool 3 (APS) and new ICP process module (ICP) into a single system using one of new 25-wafer cassette transfer modules.

As a result of such arrangement, 3 obsolete LPX single-wafer transport modules will be available, which the tender awardee should take while taking into consideration their current market value for the proposed value / price of the overall installation and upgrade. The resulting 3 clusters (Pegasus with 2 wafer transport module, ICP plus PECVD with 25 wafers transport module, ICP plus APS with 25 wafers transport module) must be fully automated through appropriate control electronics and single software package (per cluster). INL may consider other proposed configurations — still the minimum required is (1) supply of one new ICP process module, (2) supply of two 25 wafer cassette transfer modules, (3) installation of existing MPX 2 wafer transport module into Pegasus process module, (4) clustering of all parts in 3 systems, (5) retake 3 LPX transport modules and (6) software control for ICP process module: Low pressure, high density plasma, module envelope containing all process control hardware, PC control unit, source/bias RF generator, bias matching unit, variable matching units, heated pendulum valve for closed-loop pressure control, electro-static chuck, PSU and He back-pressure control, heated lower chamber, lid and 1 m heated foreline, lower chamber shielding, filter endpoint system for inter-wafer cleans only, extracted gas box containing at least 8 MFCs (for processes focused on Al/TiW and SiO2 RIE), Temperature managed turbo

pump, turbo bypass for module roughing, chamber capacitance manometers (0.1 and 1.0 torr), foreline mini-capacitance manometer and perfluoroelastomer seals. The system must be compliant with Fluorine based plasmas.
Transport modules (x 2 modules): enclosed vacuum chamber housing, single our double cassette handler, automatic pressure control system, wafer alignment as required for process, cassette and wafer presence detection, cross-slot checking and wafer slide-out, load-lock and transport mechanism from cassette to process modules, windows based control software integrated with software from process modules, capability of connecting up to at least 3 process modules, dry pump interface. Preferably, the 2 transport modules will be of the same kind and technical specifications. Vacuum pumps, compatible with current processes and gases, provided.
— Support systems: All required, adequate vacuum pumps, chillers, thermal exchange units and others must be included in the offer (suitable gas abatement and lines connections down.

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: 840 000,00 EUR

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

Duration in months: 6
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: no

II.2.13. 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:

II.2.14. Additional information

II.2. Description

II.2.1. Title

Ion Milling System for TEM samples
Lot No: 4

II.2.2. Additional CPV code(s)

38519000 Miscellaneous compounds for microscopes

II.2.3. Place of performance

NUTS code: PT112 Cávado
Main site or place of performance: Braga, Portugal.

II.2.4. Description of the procurement

Quantity: 1
General specifications

— Ion milling system for TEM samples with 2 guns;
— Gun angle can be adjusted within ± 10°, for each gun independently, even during the milling process;
— Sector milling over a range of 5° and 90°.
— Sector milling variation with increments of 0.1º
— 2 penning ion guns each independently adjustable gas control utilizing mass flow controllers to allow either rapid milling or slow precise ion polishing;
— Current in each gun can be adjusted within the range 0 to 100 μA;
— 10” colour touch screen with control software and ability to create and save recipes with the different milling parameters during a process;
— Current should be measurable for each gun independently and measured at the gun and not a on a Faraday cup located past the sample;
— Airlock for sample change with automatic shutter to avoid contamination of the viewing window. Sample is illuminated in reflection and transmission with adjustable intensity through the touch screen;
— The microscope is compatible with a digital camera;
— Oil-free vacuum system, with a two stage diaphragm backing a turbo drag pump with a minimum capacity of 80 l/s;
— Work chamber base pressure 5x10-6Torr and operating pressure 8x10-5Torr. Penning gauge shall monitor the chamber vacuum.
— XY stage for selecting the milling area;
— Cooling stage with electronic control of the temperature between -180°C up to 100°C;
— Dewar and conductor rod should share the main vacuum system.
— Built in Dewar heater
— 6-8 hour Dewar capacity
— Sample holder and guns must allow milling above and below sample at the same time;
— Sample size: 3 or 2.3 mm
Valued specifications
— Ion beam energy must have as a minimum 0.1 keV and maximum of 8.0 keV;
— Spot size less then 2 mm in diameter at any energy of the guns;
— Beam modulation: single gun, double gun or off.
— Through the inactive sectors when using beam modulation rotation speed should be 12 rpm;
— Power consumption during operation less than 200 W and 100 W with guns off;
Ultrasonic Disc Cutter
— Cuts simple holes, unique shapes or transmission electron microscope (TEM) discs from hard or brittle materials;
— Sample Size: <1 -10 mm;
— Sample Thickness: <0.04 — 5 mm;
— XY stage for centering the sample;
— Manual tuned frequency driver
Grinder System
— Produces parallel sided samples in the microns range
— Parallel sided discs of 50 μm thickness
— Specimen diameter.

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: 115 000,00 EUR

II.2.7. Duration of the contract, framework agreement or dynamic purchasing system
Duration in months: 4
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: no

II.2.13. 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:

II.2.14. Additional information

II.2. Description

II.2.1. Title
Cryo Ultramicrotome
Lot No: 5

II.2.2. Additional CPV code(s)
38000000 Laboratory, optical and precision equipments (excl. glasses)

II.2.3. Place of performance
NUTS code: PT112 Cávado
Main site or place of performance: Braga, Portugal.

II.2.4. Description of the procurement
Quantity: 1
General specification
High stability mechanical drive system for specimen advance and cutting;
Cutting stroke from 0.1 mm to 15 mm
Numeric & digital displays of number of sections cut, total specimen feed advanced, section thickness, cutting speed and specimen feed remaining;
— Bright LED approach backlight with independent LED specimen transillumination/spotlight for specimen localization;
— Electronic stepping control for automatic specimen advance/return;
— Five memory channels to store frequently used cutting and trimming parameters;
— Built-in diagnostic and set-up routines;
— Built-in report generator and data base with specimen parameter recall mode;
— On-screen measurements of specimen and knife with built-in VIA digital micrometer system;
— Auto thin sectioning from 5 nm;
— Auto thick sectioning to 15 µm;
— 1 nm incremental steps for ultra, semi thin sectioning and block facing;
— Dual footswitch control for switch control for semi thin (or trim) and ultra-thin sectioning;
— Cutting speed range from 0.1 — 99.9 mm/sec in 0.1 mm/sec. increments with digital display;
— Mechanical advance with digital linear scale control;

— Specimen auto feed 200 microns;
— Variable return speed over entire cutting speed range;
— High-precision, manually operated knife stage with positive micrometer control of the N-S, E-W knife position;
— Stereomicroscope 7.7:1 zoom range, 6.5 x to 50 x magnification with 10 x WF (23 mm) eyepieces;
— Built-in ergonomic swivel away hand rest for restful section manipulation.
— Anti vibration table;
— Table-top 12 litre Dewar for 5 hours operation;
— Cryochamber heaters are individually controlled by adjusting heater power levels for particular applications;
— Workstation surrounds without touching the cryo chamber. Hands do not get cold and sectioning is not disturbed;
— Invar metal specimen arm for thermal stability for improved sectioning consistency;
— Video option can be added at any time and can be controlled by the PC;
Valued specifications:
— Power driven cutting stroke for the hardest specimen and largest block
— Scan and tilt Single control knob for quickly scanning the entire knife edge and sectioning area;
— Ergonomic stereomicroscope system with constant radial focus, eucentric tilt control adjustment;
— PC controlled cryo-ultramicrotome supplied complete with all in one, slim design computer, "Touch Screen" control monitor 21.5’
Knife Maker
— Compatible with commercial glass strips ranging from 6 to 8mm in thickness;
— Able to produce glass knives for cryo ultramicrotomy.

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: 85 000,00 EUR

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

Duration in months: 4
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: no

II.2.13. 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:

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

Selection criteria as stated in the procurement documents

III.1.3. Technical and professional ability

Selection criteria as stated in the procurement documents

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: no

IV.2. Administrative information

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

Date: 27/11/2017 Local time: 17:00

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.2.7. Conditions for opening of tenders

Date: 28/11/2017 Local time: 12:00

Section VI: Complementary information

VI.1. Information about recurrence

This is a recurrent procurement: no

VI.3. Additional information

VI.4. Procedures for review

VI.4.1. Review body

Official name: Director General of INL
Town: Braga
Country: Portugal

VI.5. Date of dispatch of this notice

19/10/2017