
SPECIFICATION SHEET

SUPPLY, INSTALLATION AND STARTING-UP OF AN “ULTRA LOW VIBRATION CRYOSTAT FOR OPTICAL MICROSCOPY” FOR ICFO’S LABORATORY THROUGH AN OPEN PROCEDURE NOT SUBJECT TO HARMONIZED REGULATION

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Finançat per



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CLAUSE 1. Object of the contract.

The purpose of this contract is the supply, installation and commissioning of a "Supply, installation and commissioning of an Ultra-low Vibration Microscopy Cryostat" for ICFO's laboratory L210.

The types of items supplied are linked to the CPV (Common Public Procurement Vocabulary), **38000000-5** Laboratory, optical and precision equipment (except glasses).

CLAUSE 2. Needs to satisfy.

The cryostat should enable optical, electrical and optoelectronic measurements in the temperature range (at the sample) of 12K up to at least 350K. It should be with low vibrations so as to allow for microscopy measurements and will be used for the characterization of optical properties (light absorption and emission) of materials in a wide temperature range. It will also be used to electrically characterize semiconductor thin films across the full temperature range. A specific use for this system is foreseen to allow for measurements of light emission (down to single photon) from single quantum light emitters (e.g. quantum dots) across the full temperature range. The system should operate in both reflection and transmission modes and therefore should have optical windows on both sides and the appropriate sample holder. The working distance should be adjustable in the range 2.5 – 7 mm.

CLAUSE 3. Technical specifications of the products.

Microscopy Cryostat with Ultra Low Vibrations

Closed-cycle cryocooling system

- Closed-cycle Pneumatic Gifford McMahon Cryocooler
 - Base temperature: 9K
 - 1.6W at 10K
- Water-cooled helium compressor; 3 kW power usage; < 60 dB noise level
 - Air-cooling module available
- 12m helium hoses
- Sample Plate Temperature: 12K - 13K (prior to heat loads, customizations, and accessories)

Vibration Decoupling System

- Helium exchange gas vibration decoupling system.
- Vibration Amplitude: < 5nm, peak-to-peak.
- Must allow cryocooler to be mounted independently from the optical table.

Temperature Instrumentation

- Cold Finger: Heater and silicon diode sensor for temperature control.
- Sample Sensor: calibrated silicon diode sensor with 10cm free length.

Temperature Controller

- Two input channels for temperature sensors
- Two output heater control loops with PID and autotuning
- 75W total heater power
- IEEE-488 and USB interfaces

Experimental Wiring Instrumentation

- 6 coaxial wires leading to sample area for electrical manipulation of the sample.

Sample Chamber

- Window: Ø22mm clear view High Purity Quartz
- Working Distance: 2.5mm – 7mm (from cryostat exterior to sample plate)
- Reflection mode sample holder, Ø19mm
- Transmission mode sample holder (with additional window) available
- Electrical characterization kit with appropriate wiring and cabling to allow electrical measurements. The system must have 6 electrical connections from the sample to the output and the connection will coaxial.

Additional Features:

- The hoses length can be increased without degrading the performance.
- The holder can be rotated to be either parallel or normal to the surface.
- Additional window material choices should be available for future purchases.
- The compressor must include a closed-cycle cooling water system to allow for air cooling of the compressor.

CLAUSE 4. Transport, installation and start-up.

- The proposal will include transportation to ICFO's facilities and all export/import and customs duties. **DAP incoterms will apply.**
- Installation and start-up of the system, including system checking, functional tests and process qualification must be done in person or remotely to verify the specifications of the system.
- The system must be configured to operate with EU power grid and sockets.
- The system must be configured in a way to tolerate sudden power cuts and be straightforward to reinitiate operation after a power cut.

CLAUSE 5. Warranty and support.

- 1-year full warranty, starting at system acceptance. The warranty will include the replacement of any faulty or damaged part(s) during the normal use of the system, no matter the manufacturer of the component(s) but does not have to include third party parts such as vacuum pump, and consumables. It will cover any cost related with the disassembly, transportation, reparation and re-assembly of the damaged component(s), including all travelling and living costs of the required service engineer(s). An on-site repair, or a justified alternative to reduce the system down time to the minimum, will always be the first service option. A team of properly qualified and skilled service engineers will have to be available for assistance.
- System lifetime support:
 - By phone and e-mail with a response within 24 hours.
 - Emergency intervention after a system breakdown within 10 working days, including remote assistance.
- Spare parts will be available during, at least, 10 years after system supply and, in case of failure, will be delivered within 1 month.
- An estimation of the cost of a warranty extension or available support contract options after warranty period will be included.

CLAUSE 6. Delivery time

The machine should be delivered within 16 weeks starting from tender assignment.

CLAUSE 7. Technical proposal structure

No variant of these requests will be accepted.

CLAUSE 8. Target price

- The target price for the system is 66.500\$ USD (VAT excluded).
- Payment terms:
 - 40% upon order,
 - 60% after installation and acceptance.

Castelldefels, on the date of its digital signature

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