SPECIFICATION SHEET

Supply, installation and commissioning of an *Automated Wire Bonder* for the ICFO, financed by FEDER Catalunya 2021-2027

FILE NUMBER: ICFO-2026-043

CLAUSE 1. Object of the contract

The purpose of this contract is the supply, installation and commissioning of a "**Automated Wire Bonder**" for the ICFO, financed by FEDER Catalunya 2021-2027.

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

PhotonChip is a platform project that will help bring photonic technologies, in particular integrated photonics and photonic chips, from scientific feasibility to prototype stage to be applied in, for instance, communications as 6G transceivers, sensors, quantum computing and technology platforms.

Once operational, PhotonChip will cover the whole photonic chip value chain (design, packaging, testing) and train new experts thanks to dedicated programs.

As part of the Institute of Photonic Sciences (ICFO), PhotonChip will use advanced technologies as quantum technologies for cybersecurity, virtual and augmented reality, artificial intelligence, and machine learning.

In the development of the project, ICFO needs to acquire the supply of an **Automated Wire Bonder.**

This equipment allows the electrical interconnection between Integrated Circuits and different devices, substrates and/or packages. This is obtained by welding thin wires (usually of Aluminium or Gold) in different configurations, like wedge-wedge and ball wedge.

CLAUSE 3. Technical requirements

Technical proposal structure - minimum mandatory equipment characteristics

The Automated Wire Bonder will have the following minimum functional and technical requirements:

1. Minimum effective bonding area 150x200mm
2. Performance specifications
    a. Placement accuracy: ±5µm or better
    b. Axis resolution: ±1µm or better
    c. Bonding speed: minimum 1 bond per wire
3. The system shall be compatible with the following thin wire and thin ribbon specifications
    a. Gold wire diameter: 12.5 - 50µm
    b. Aluminium wire diameter: 12.5 – 75µm
    c. Thin ribbon: 30 x 12.5µm
4. Loop design control capability.
5. Precise and programmable bond force control
6. Heated chuck or work holder, including the temperature controller.
7. The system shall support interchangeable Bond heads, including:
    a. Ball -wedge bonding head
    b. Wedge-wedge bonding head, designed to allow deep access bonding and support ribbon bonding applications.
    c. Storage box for bonding heads

8. It shall support both manual and automatic operating modes. In automatic mode, it shall include an automatic pattern recognition system.
9. The supplier shall provide all accessories required for machine startup and acceptance, including:
    a. ball-wedge bonding capillary and 25µm gold wire spool.
    b. wedge-wedge bonding capillary and 25µm aluminium wire spool.

Software requirements

10. The system must include the software required to manage all required functionalities described above and shall be supplied with a permanent (non-expiring) license.

Technical documentation or manuals to be delivered

A set of documentation shall be provided, covering the following topics:

- Comprehensive system user manual, including both hardware and software descriptions, routine servicing and troubleshooting.

CLAUSE 4. Power distributions and safety

The system shall include:

- Electrical Operation: 230V ±10%, 50 Hz (per UNE-EN 61010-1, Spanish adoption of IEC 61010-1)
- CE-certification

CLAUSE 5. System layout and services

The proposal shall include a set of “system layout and services documentation”, containing the following information:

- System layout, including overall footprint, weight, drawings and detailed description of the different system components.
- Installation and start-up requirements, including required utilities, service connections, and any applicable environmental specification.

CLAUSE 6. Transportation, installation, start-up.

- Contract includes the installation and start-up of the system, including system checking, functional tests and the supply of all those elements necessary for its correct operation

- The proposal will include transportation to ICFO’s facilities including insurance and all export/import and customs duties.

- Any other customs or miscellaneous expenses, unexpected and not covered in the tender, which may arise until the equipment arrives at ICFO, must initially be borne by the Supplier and will be reimbursed by ICFO upon submission of supporting documentation proving the actual incurrence of such expenses.

- The machine will be placed in the designated location by ICFO. The contractor shall cover all costs, organization, and coordination related to the placement, including the provision of any required specialized equipment or vehicles, as well as any necessary component disassembly and reassembly for unloading and transportation inside the building, strictly following the route specified by ICFO.

- The contractor will be responsible for the removal and proper disposal of the packaging when the machine is delivered and unpacked, or its storage during the warranty period in case the original packaging needs to be kept.

Process qualification

No Factory Acceptance Test (FAT) is required for the proposed system. The Site Acceptance Test (SAT) will be carried out at ICFO facilities. Final acceptance of the system will be granted upon successful completion of the following technical demonstrations. It shall include, at minimum, the following:

a) Wire bonding test. The system shall realize wire bonds on a gold-plated substrate
b) Machine parameters verification, such as axis calibration, ultrasonic transducer checking, etc. demonstrating compliance with the specification.
c) All test results, reports and data shall be included in the documentation delivered to ICFO.

CLAUSE 7. Warranty and Follow-on Support

- 1-year Full Warranty on all parts and components of the system irrespective of the manufacturer. The warranty will include the replacement of any faulty or damaged part(s) during normal use of the system, no matter the manufacturer of the component(s). 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.

- System lifetime support.

- Spare parts will be available during, at least, 10 years after system supply.

CLAUSE 8. Training

- System training for ICFO personnel shall be included in the proposal.

- The training shall ensure proper and safe operation of the system and shall cover basic and advanced functionalities, including process development, programming and automation features.

- The training program shall also provide an overview of basic maintenance procedures, covering routine preventive tasks and essential troubleshooting guidelines.

CLAUSE 9. Delivery and Installation Time

The maximum execution period of the contract shall be **FOUR (4) MONTHS**, counted from the day following the date of its formalisation.

Within this period, the supplier must complete the manufacturing, transportation, delivery, installation, integration, commissioning of the system, and the execution of the Site Acceptance Tests (SAT). The delivery time shall therefore be understood as the full period required to complete all contractual obligations up to the successful acceptance of the equipment at ICFO facilities.

CLAUSE 10. Tender budget (maximum price)

- The tender budget (maximum bid price) for the supply is **205,000 €** (VAT excluded).
- Payment terms: Full payment will be made once the final receipt of supply, installation and commissioning is issued.

Castelldefels, on the date of its digital signature

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