

SPECIFICATION SHEET

SUPPLY, INSTALLATION AND START-UP OF A HMDS OVEN FOR APPLYING ADHESION PROMOTER ON SUBSTRATES FOR OPTOELECTRONICS GROUP

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1. Object of the contract

ICFO Optoelectronics Group (OptoGroup) needs a HMDS (Hexamethyldisilazane) oven to improve adhesion of photoresist and other coatings on a variety of substrates for microfabrication processes. Such process will be used also for making photonic integrated chips and structured surfaces for quantum technologies, including quantum communication, processing and sensing. The equipment will enable uniform vapor priming, controlled process conditions, and reproducible surface treatment, essential for high-yield lithographic patterning. In the following lines minimum requirements for HMDS oven are described.

2. System overview

The HMDS oven will be used in a cleanroom or controlled laboratory environment. It must be a complete, fully operational system, including all necessary hardware, control electronics, and software for safe and repeatable operation. The system must provide Uniform HMDS vapor priming over the full substrate area.

3. Technical and operation specifications

- 3.1. Substrate size compatibility: up to 200 mm wafers and smaller pieces.
- 3.2. Process method: HMDS vapor priming with controlled temperature and time.
- 3.3. Temperature range: ambient to ≥ 200 °C with accuracy ± 1 °C.
- 3.4. Chamber material: corrosion-resistant and HMDS-compatible.
- 3.5. Uniformity: process variation across substrate $\leq 5\%$.
- 3.6. Process repeatability: cycle-to-cycle variation $\leq 2\%$.
- 3.7. Integrated HMDS reservoir with vapor delivery control.
- 3.8. Automatic purging with dry nitrogen or clean dry air.
- 3.9. Control interface: touch screen or PC-based GUI, with recipe storage.
- 3.10. Data logging of process parameters.
- 3.11. Communication with a PC station must be provided through standard ports (USB and/or Ethernet).
- 3.12. GUI for setting temperature, priming time, purge time, and recipes.
- 3.13. Safety interlocks for door opening, over-temperature, and HMDS leakage detection.
- 3.14. Initial calibration and test recipes preloaded.
- 3.15. Supplier to provide a process qualification guide and initial characterization report.

4. Power distribution and safety

- 4.1. Power system compatible with standard Spanish voltages, frequencies and configurations and with all Spanish laws and regulations.
- 4.2. CE marking.
- 4.3. HMDS handling compliant with chemical safety regulations (REACH).
- 4.4. Built-in HMDS vapor leak detection and exhaust connection to cleanroom ventilation.
- 4.5. Emergency stop and safe shutdown procedures.
- 4.6. Appropriate hardware and software safety interlocks. Extended error diagnostics.
- 4.7. The equipment must be protected in case of unexpected power cuts.
- 4.8. The equipment must provide diagnostic tools to verify the proper functioning after power cuts.

5. Initial transportation, installation and start-up

- 5.1. The proposal will include transportation to ICFO's facilities and all export/import and customs duties.
- 5.2. The equipment will be placed in the selected location by ICFO. Contract winner will cover all costs of shipping to ICFO premises.

6. Documentation

- 6.1. Complete set of manuals, drawings, schematics and layouts about system assembly and configuration.
- 6.2. Complete systems user manual, including routine servicing, troubleshooting and basic repairs.
- 6.3. Systems components spare list, specifying quantity, manufacturer, part number, etc.
- 6.4. All the above documentation will be supplied in English, in pdf format.

7. Warranty and support

- 7.1. A 2-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). 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. It will also cover the costs and the maintenance related to the machine move and installation on the new building.
- 7.2. Spare parts will be available during at least 5 years after system supply.
- 7.3. An estimation of the cost of a warranty extension after warranty period will be included.

8. Additional optional improvements

The contractor must access to potential future upgrades of the equipment.

9. Delivery time

The entire equipment must be delivered no later than 15 December 2025.

10. Target price

80.000 euros (VAT excluded)

Castelldefels, on the date of its digital signature

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