TECHNICAL SPECIFICATIONS TO BE FOLLOWED IN THE OPEN TENDER PROCEDURE FOR THE SUPPLY, INSTALLATION AND COMMISSIONING OF A SCREEN PRINTING MACHINE.

1. PURPOSE OF THE CONTRACT

The purpose of this document is to define the technical conditions that must govern the supply, installation, and commissioning of a screen printing machine to print sheets made of several materials, dimensions, and thicknesses. The machine must be able to correct the sheet's position automatically with a repetitively of position ± 15 microns. The equipment will be used as part of the in-mould electronics production sequence, aiming to improve productivity, throughput and process quality.

Also, it will be the object of the contract, without any additional cost:

- Fundación Cidetec's technical staff training. Minimun 2 days.
- Preventive maintenance service for two years. It must include presential assistance before the end of the period.

The CPV code for the contract is the following: 30120000-6 (Photocopiers, offset machines and printers machines).

2. SCOPE OF SUPPLY

In addition to the supply, installation and commissioning of the equipment, the scope of supply encloses the preventive maintenance previously detailed.

3. WARRANTY

A warranty period of at least 24 months, limited to 1000 hours of use, is established from the date of reception of the equipment, and upon agreement of the CIDETEC technical managers. The warranty includes travel, labour, parts and consumables necessary for the repair due to manufacturing defects.
If during the warranty period, the existence of faults or defects in the goods supplied is demonstrated, CIDETEC will have the right to demand from the contractor the replacement of the defective goods or their repair if that is considered sufficient.
If CIDETEC considers, during the warranty period, that the supplied product is not fit for its intended purpose, as a consequence of the faults or defects observed in it and attributable to the contractor, and there is a presumption that the replacement or repair of the product will not be sufficient to achieve such purpose, it may, before the expiration of said period, request the replacement of the unit with a new one.

4. TECHNICAL REQUIREMENTS

1. Process flow steps.

    a. Placement and adjustment of the screen (screen printing) automatic, squeegee and flooder. (manual or automatic)

    b. Add ink on the screen (manual)

    c. Load the sheet (manual)

    d. Fix the sheet by vacuum

    e. Test and correct sheet position (automatic)

    f. Printing the sheet (automatic)

    g. Remove sheet (manual)

2. Machine parts and minimum technical requirements.

Max. Print size >=	[mm]	600 x 600
Max. Sheet size >=	[mm]	620 x 620
Max. screen frame size >=	[mm]	1050 x 1000
Min. screen frame size <=	[mm]	300 x 240
Size of vacuum area >=	[mm]	600 x 600
Outside dimensions: (W / L / H) , better to be more compact	[mm]	2085 x 1770 x 2200
Approximate weight	[kg]	1050
Max. substrate thickness >=	[mm]	20
Table fine adjustment Y-Y-X >=	[mm]	±8
Adjustable speed squeegee	[mm/sec]	50 - 1000
Mechanical repeatability screen alignment	[µm]	±15
Mechanical repeatability substrate alignment	[µm]	±15
Power supply	[V]	400 / 230

- Automatic screen alignment with CCD cameras
- Screen camera with 3 stop-positions
- Adjustable screen support bars, with pneumatic clamping
- Automatic substrate alignment with CCD cameras
- CCD cameras for substrate alignment, height adjustable
- Teachable camera software to allow different fiducial marks
- Squeegee system with automatic pressure control and self alignment
- Automated change of screen without removal of squeegee and flood bar
- Motorized peel-off
- Programmable squeegee pressure
- Electromotor-driven screen adjustment in 3 axes
- Blow back switchable when table out
- Hard anodized printing table with 1,5 mm vacuum holes
- PLC Control of all printing parameters with color touch panel
- Documentation and download of process parameters to perform statistics
- Screen insertion from the front side
- Anti-Drip-Unit during flooding for 2 flooding-/ 2 printing cylinders, longer cycle time
- Cleaning unit that includes a sword brush continuously micro-humidify with an anti-static liquid.

3. All accessories and components will be the first brands with technical support in Spain. Remote support by original company service engineers is also desirable.

4. Criteria for FAT acceptance

    a. Verifying that all the technical characteristics compiled in this document are included.

    b. Functional test.

    A video showing the process of printing one sheet of polycarbonate sheets size 385 x 410 mm and 250µm thickness. We will print 3 layers, 2 on the front side and 1 on the back side. The design will be a vernier, fiducial marks and several line types and as a result, we could know printing quality, precision and repeatability.

    Test will be Ok:

- Printing 25 sheets 1 layer with automatic adjustment on in less than 9 min.

5. Criteria for SAT acceptance:

   a. Verifying that all the technical characteristics compiled in this document are included.

   b. Functional Test.

      We will be printing 25 polycarbonate sheets size 385 x 410 mm and 250µm thickness. We will print 3 layers, 2 on the front side and 1 on the back side. The design will be a vernier, fiducial marks and several line types and as a result, we could know printing quality, precision and repeatability.

      Test will be Ok:

      - Printing 25 sheets 1 layer with automatic adjustment on in less than 9 min.
      - Screen alignment mechanical repeatability will be measured at adhesive feducials on the screen. Tolerance will be assured by 50 measurements inside the tolerance +/- 15 µm.
      - Substrate alignment mechanical repeatability will be measured at register marks on the printing table. Table in printing position below printing unit. Tolerance will be assured by 50 measurements inside the tolerance +/- 15 µm.

6. Documentation: It will be necessary to have one copy in paper format in Spanish, and another in electronic form. It must include electrical diagrams, tyres, installation plans, a user manual and detailed maintenance schedules indicating all spare parts.

7. The equipment must have CE marking and a declaration of conformity.

5. TRANSPORTATION, INSTALLATION AND TRAINING

The transport, unloading, put in place and commissioning of the equipment supplied will be the responsibility of the successful bidder and will not involve any additional costs whatsoever.

The successful bidder will provide the necessary training with qualified personnel of the company that guarantees that the staff of FUNDACIÓN CIDETEC will be able to correctly use the acquired equipment, for the time necessary to prove the ability to put the machine into operation without any assistance from third parties.