



Indian Institute of Technology Kanpur

Samtel Centre for Display Technologies

Enquiry number: SCDT/FlexE/2015-16/28

Date: January 15, 2016

Subject: Sealed Quotations from prospective vendors are invited by Samtel Center for Display Technologies, IIT Kanpur for the supply and installation of **“Screen printer and prepress system for printable electronics application”** with following specifications:

Note: All vendors are requested to send **“Technical and Financial Bid”** should be submitted together in separately sealed envelopes.

We are looking for a semi-automatic screen printing machine for printed electronics. Substrates will be flexible e.g. paper, plastic films, metal foil, glass and rigid material e.g. glass. The loading and unloading of substrate on printing table/platen will be done manually. Computerized input and control of printing parameters is required. Either the screen or the substrate on printing table/platen has to be movable to enable easy loading and unloading of substrate. Safety switches have to be installed to prevent operation in unsafe condition e.g. dust cover open detector, optical trip wire, twin button operation.

A prepress system for screen preparation including mesh stretching unit, emulsion coating unit, exposing unit and washing unit.

The screen printing machine

1. Maximum printing area has to be 150x150mm
2. Frame size 450mmx450mmx20mm
3. Frame fixation 4 point lock air cylinder
4. Alignment system pusher and adjusting screw for x-axis and y-axis
5. Fine alignment between table and screen $XY = \pm 3\text{mm}$ and $\text{angle} = \pm 1^\circ$
6. Repetition accuracy(platen/frame positioning) $\pm 10\mu\text{m}$
7. Distance between screen and platen 0.25mm ~ 10mm (0.25mm step size) with a precision mechanical screw system.
8. Machining accuracy as measured by dial gauge while machining for the following:
 - a. Parallelism between squeegee and table 0.020mm
 - b. Table Flatness 0.020mm
 - c. Parallelism between screen frame and table 0.020mm.
9. Squeegee head
 - a. Squeegee head speed 10~300mm/s easy selection from UI screen. (Step 1mm/sec)
 - b. Squeegee stroke 20~210 mm easy selection from UI screen. (step 1mm/sec)
 - c. Printing pressure 0.1~0.5MPa (Adjusted by air pressure) digital display/ No back pressure.
 - d. Separate squeegee holders for different squeegee angles.
 - e. Printing mode: Single print and multiple prints(custom delay time 0-100sec in step of 0.5sec)
 - f. Printing steps with print-flood and flood-print easy selection from UI screen.
10. Platen with vacuum assisted substrate mounting with maximum substrate size 300mmx300mm. Compatible vacuum system has to be included. Operating mechanism details have to be provided along with bid. Material for platen Stainless steel/Ceramic/Granite or special material proven to provide stable and accurate platen geometry and operability.

General

- Has to have a user interface via LCD display and touch screen.
- Drawing has to be provided along with technical bid.
- Dust proof cover for the printing machine.
- Emergency stop switch has to be provided.
- Machine has to come with in-built levelling mechanism to ensure level installation e.g. levelling feet.
- Abnormal state display on screen with troubleshooting steps.
- Third party parts have to be from internationally recognized manufacturers adhering to corresponding international quality standards.
- Noise level should not exceed 60dB.
- Training for FlexE personnel has to be provided.
- Necessary accessories and spare parts have to be provided along with the machine.
- Operation manual, maintenance manual and safety instructions in English has to be provided with the machine.

The Pre-press system for frame size of 450mm x 450mm x20mm including the following:

1. A pneumatic screen stretcher
 - a. Capable of stretching stainless steel mesh as well as fabric mesh made of polyester or nylon.
 - b. Uniformity of tension has to be assured through accurate tension control.
2. An emulsion coater with fully automated operation.
 - a. Capable of coating on either or both sides of the mesh.
 - b. Capable of coating multiple layers wet on wet to achieve desired thickness of coating
 - c. Easy to operate and clean.
3. A screen drying unit
 - a. For drying of emulsion coating
 - b. For drying of screen after washing during screen preparation and printing cycles
 - c. Capable of providing uniform drying over the entire area of the screen.
4. A screen exposure unit
 - a. With a metal halide lamp for exposing screens using positives.
 - b. Has to come with a pin registration system to ensure easy registration of overprints.
 - c. With a capability to expose fine line thicknesses up to 0.1 mm with no distortion or overexposure of other larger sized structures.
5. A screen inspection table with a backlight
 - a. For inspection and touch up of prepared screens.
6. A washing unit
 - a. For automated washing of screens after exposure coating and after printing.
 - b. Easy operation and maintenance.
 - c. Programmable wash cycles.

General:

All units have to

- Be easy to operate and maintain.
- Noise level must not exceed 65dB.
- Come with dust proof covers.
- Be provided with necessary exhaust systems which can be directed outside the room.
- Drawings for all units have to be provided along with the technical bid.
- Be capable of operating in ambient room conditions.
- Come with mechanisms for user safety e.g. door open alarm, hot surface indicator, and bright light indicator.
- Come with emergency stop switch.
- Come with abnormal state display with tower indicator lamps.
- Third party parts have to be from internationally recognized manufacturers adhering to corresponding international quality standards.
- Training of FlexE personnel needs to be provided.

- Necessary accessories and spare parts need to be provided along with the machine.
- Operation manual, maintenance manual and safety instructions need to be provided with the machine.

Terms and Conditions:

1. Manufacturer must have more than ten year of experience in the design and manufacture of automatic screen printer and should have sold 400 numbers of screen printer.
2. Manufacture must have experience in making screen printers of a custom design for electronics printing application.
3. Manufacturer should have Rs. 10 crore or more turnover in the last two financial years.
4. Prepress and printing equipment have to be from the same manufacturer. If the supplier is not the manufacturer, they are required to submit an authorization certificate from the principal along with the bid.
5. Testing method for demonstration of machine on site after installation will be done by manufacturer using high quality screen and commercial screen printing inks and customer defined test pattern. Capability of accurate multilayer printing needs to be demonstrated.
6. Evaluation will be done on the basis of technical specifications as per our tender notice.
7. Financial bid will be open only for those, who meet given tender specification.
8. **Please do mention tender number clearly on envelop.**
9. Suppliers who have experience in manufacturing automatic screen printers and supplied in the national and international institutions will be preferred.
10. Quotation must indicate FOB or FOR IIT Kanpur prices.
11. Please send the name and contact details of the person to whom company had supplied a similar systems. Committee may ask for the feedback.
12. The supplier must have supplied systems to institutions of national and/or international repute.
13. Payment terms & condition is 70% against delivery, 20% after installation and 10% after successful running of equipment for 3 months & approval.
14. Warranty/Guarantee has to be clearly mentioned. The Warranty must start from the date of installation at IITK.
15. Installation, demonstration, and training-sessions at IIT Kanpur will have to be provided by the manufacturer or the vendor for the quoted system.
16. Quotation should carry proper certifications like proprietary certificate, authorization certificate from manufacturer, etc.
17. Validity of quotation should be at least for 60 days.
18. Maximum educational discounts should be applied.
19. Institute is exempted for partial custom duty (CD applicable to IIT Kanpur is 5.15%).
20. Institute is exempted from payment of Excise Duty under notification No. 10/97.
21. The delivery period should be specifically stated. Earlier delivery may be preferred.
22. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved

Kindly send the quotation in sealed envelope latest by 25/01/2016 to the following address;

To,
 Dr. Monica Katiyar
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 Kanpur – 208016, Uttar Pradesh, India