

November 24, 2012

Sub: Purchase of LASER Micro-pattern Generator

We wish to purchase a compact table top LASER Micro-pattern Generator with specifications and capability as described below. Kindly send the quotation in sealed envelope to the undersigned by 8th December.

Thanks and regards,

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Desired specification and capability of the LASER micro-pattern generator:

It must be capable of:

- Delineating line dimensions down to 5 μ m with a tolerance better than $\pm 10\%$ or $\pm 1\mu$ m (whichever less) on Photo Resist and should work in vector scan mode.
- Handling ceramic and piezoelectric substrates/wafers of sizes up to 5" X 5" square and 4" dia. circular.
- Doing binary as well as gray scale lithography.
- Should be capable of doing alignment for overlaying different layers with alignment accuracy better than $\pm 1\mu$ m.

Specifications:

S. N.	Parameter	Specification	Remarks
1	Exposure Source:		
	a. Type	LASER	Diode type.
	b. Wavelength	375nm	Lower wavelength LASER source/type may be quoted as an optional item in lieu of 405 nm LASER along with its capabilities.
	c. Power	18mW or higher	Exact power levels to be specified.
d. Typical Life	> 5000 hours	Exact active/passive mode life time may be specified in detail	
2	Optical System: Suitable modulation system to:		

	a.	Control the beam intensity	-	Exact details to be provided. The optical system should be such that it requires no routine calibrations.
	b.	Intensity variation	Within $\pm 0.5\%$.	Exact values to be specified.
	b.	Support gray scale lithography	Support for at-least 100 intensity levels.	Exact details to be provided along with the relevant application document in support of the offered system capability
	c.	Enabling fast scan of beam in one direction to enable writing using vector/raster scan.	-	Technical Details about the LASER beam deflections methodology may be specified in details.
3	Camera System: To view the loaded substrate/wafer and perform			
	a.	Manual position measurement	For taking rough measurements. Resolution: better than $1\mu\text{m}$.	
	b.	Alignment with respect to pre-defined markers	Automatic provision should exist for the correction of offset and angular variations. Alignment accuracy: better than $\pm 1\mu\text{m}$.	Complete description for the automatic registration and alignment should be given.
4	Auto Focus System			
	a.	Working distance	$>50\mu$	Exact values to be specified by the vendor.
	b.	Dynamic Auto focus correction	for variations up to 80μ	Exact mechanism to be brought out clearly in detail.
5	X-Y Stage System			
	a.	Environmental enclosure	The area where the substrates/wafers will be loaded and written on to should be covered so as to maintain the cleanliness and protect it from light.	
	b.	Writing area	up to 4" X 4"	Any limitations must be brought out clearly.
	c.	Sample size	Substrates: up to 5" X 5", regular shapes and piece parts of irregular shapes. Wafers: up to 4" diameter, regular shapes and piece parts of irregular shapes. Thickness of substrates/wafers:	Any limitations on sample size within the required specifications if any may be brought our clearly.

		0.25 mm to 3 mm.	
	d.	Substrate/Wafers materials	Ceramic, piezoelectric etc. Any limitations in terms of substrate materials must be brought out clearly.
	e.	Vacuum holding of substrate/wafers	There should be arrangement for vacuum holding of substrates/wafers during lithography. Necessary vacuum pumps along with the required vacuum levels may be quoted as an option if this is not a part of the system.
	f.	Positioning resolution	Better than 25nm. Exact values to be specified along with the details on the arrangements made to ensure this.
6 Data Processing			
	a.	Shapes	All types of patterns having shapes with any angles and circles to be supported, there should be no limitations in terms of shapes. Any limitation of shapes in lithography must be clearly brought out.
	b.	Formats supported	DXF, GDS-II, CIF, Gerber etc.
	c.	Viewing and measurement	It must be possible to view, pan, zoom, measure the layouts and do spot size correction (biasing) in above formats.
	d.	Data Processing Work Station	The data processing software must be installed in a Windows/Linux based PC of latest configuration. The supplied PC must have a licensed version of OS and data processing software. Configuration of the work station to be provided at the time of quotation.
7 System Control			
	a.	System software control	Fully automised system controller for unattended exposures. The system should have computer controlled automatic/manual facility for intensity adjustment, auto-focus, stage control, automatic registration & alignment and other things required for exposure. Full capabilities to be brought out clearly in detail.

	b.	System Controller	The system control software must be pre-loaded in a Windows/Linux based latest configuration PC.	Industrial use system Controller to be provided with licensed version of OS. Latest configuration of the controller to be provided at the time of quotation.
8	Operation		Suitable for continuous use.	
10	Vibration Isolation		Suitable provision should be there to ensure vibration isolation to the system so that it meets all the quoted functional specifications.	Detailed information may be provided to accomplish the vibration requirement in order to meet the required specifications of the offered system
11	a.	Power	230V AC, 50Hz Single phase	Requirements to be specified clearly.
	b.	UPS	To provide a backup of at-least 30 minutes to the system with all its utilities.	May be quoted as option along with its make, model, rating etc.
12	Utilities		Any other utility/utilities essential for the operation of the system to be quoted as option.	
13	Documentation			
	a.	The supplier to provide 2 sets of installation manual, user manual, operation and troubleshooting manuals along with their soft copies.		Supplier to provide a pre-installation guide at the time of quotation.
	b.	The supplier should also provide details about the safety measures adopted to avoid harm to working personnel by LASER. The supplier should certify that the system is EMI/EMC compliant to some international standard.		This information should be provided along with the quotation. The supplier must also name the standards followed.
14	Installation, satisfactory demonstration of performance and imparting necessary training to our users/students		It will be the responsibility of the supplier to install and demonstrate its quoted performance according to a mutually agreed acceptance test plan and impart necessary training to SAC engineers.	Supplier to submit their detailed standard acceptance plan at the time of quotation.
15	a.	Warranty	3 years standard warranty at site for the complete supply. All parts including the laser should be covered by the warranty. Vendor should clearly mention type of services i.e preventive/breakdown Maintenance/calibration covered	2 years extended warranty to be quoted as option.

			under warranty with its interval and cost criteria.	
	b.	Post warranty service support	Annual Maintenance Contract (AMC) - Comprehensive/Labour only (unlimited/fixed/breakdown visits)	The supplier must quote for different modes of AMC. The supplier must have an India based office with a response time of less than 72 hours, in case of any breakdown during the warranty / AMC.
	c.	Spares / Consumables / Services support	The supplier must guarantee support for a period of at-least 10 years.	Supplier may bring out the spares/consumable/service support policy clearly.
17		Customer database	The supplier must give a list of its customer base for the quoted system along with their complete contact details such as name, postal address, email address, phone, FAX etc.	No developmental or prototype models must be quoted.
18		Compliance	Mandatory to comply all the specifications. The supplier to prepare a comparison table giving compliance/non-compliance against each point in the RFP, giving corresponding values / details. This is important for proper evaluation of their offers.	This must be duly supported by technical leaflets, brochures and other related literature wherever applicable in support of the offered system. Supplier may also give any other additional information, which they feel is important along with application notes, if any. If required, to assess the capabilities of the system, SAC may ask the supplier to fabricate a SAC specified sample before taking approval for its dispatch. The supplier has to comply with this point.