

**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY****MATERIALS MANAGEMENT DIVISION****Powai, Mumbai - 400076****PR : 1000020869****Rfx : 6100000801****Technical Specifications :**

Units	Requirements
General	<ol style="list-style-type: none">1) Standalone system with vertical configuration for reduced foot-print.2) Wheels for easy movement.
Process Chamber	<ol style="list-style-type: none">1) Cold wall chamber with lamp on top.2) Capability to process up to 100 mm diameter wafers.3) Ultra-clean and contamination free environment.4) See-through quartz window to the lamp.5) Easy to clean.
Temperature Range	<ol style="list-style-type: none">1) Temperature ranging from room temperature to 1450 °C.2) 1450 °C for maximum step duration of > 25 s.3) 1200 °C for maximum step duration of > 25 mins.
Ramp Rate	<ol style="list-style-type: none">1) Temperature ramp rate up to 200 °C.
Temperature Control	<ol style="list-style-type: none">1) Digital PID controller with PC control.2) Accurate temperature control during ramp and stable state.3) Process temperature accuracy up to ± 1 °C.
Power Control	<ol style="list-style-type: none">1) Power blocks for the lamps to control the lamps for better process reproducibility.2) Accurate temperature control and stable power to the lamps.
Temperature Measurement	<ol style="list-style-type: none">1) 2 pyrometers viewports one at the centre and one at the edge for better temperature control.
Gas Lines and Control	<ol style="list-style-type: none">1) 5 gas lines with digital mass flow controller ranging up to 2000 sccm.2) Gases: O₂, N₂, Ar, NH₃, forming gas (3% H₂ diluted in N₂)
Vacuum Capability	<ol style="list-style-type: none">1) Dry base pump to avoid any oil contamination.2) Turbo pump with capability up to 5×10^{-6} Torr.
Safety	<ol style="list-style-type: none">1) Safety interlocks and alarms for the following: (a) Dangerous gas mixing, (b) Overheating, (c) Vacuum pump failure, (d) Lamp filament failure, (e) Temperature control failure, (f) Pyrometer failure, (g) Thermocouple failure, (h) Water flow failure.
	<ol style="list-style-type: none">1) PC with windows 10 professional and ethernet port.

Computer and Software	2) User-friendly control software with recipe creation, data logging during the process, parameters display, pyrometer calibration and manual control capabilities.
Certification	1) SEMI S2 or equivalent certification.