



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
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(RFx No.6100000692)

<b>Technical Specification sheet for Differential scanning Calorimeter</b>	
<b>Instrument Design</b>	Heat flux or Power Compensation
<b>Furnace Temperature Range</b>	-85 to 700°C
<b>Temperature Accuracy</b>	±0.2°C or better
<b>Temperature Precision</b>	±0.02°C or better
<b>Temperature Repeatability</b>	±0.05°C or better
<b>Heating Rate</b>	0.01 to 200°C/Min
<b>Cooling Rate</b>	0.02 to 50°C/Min
<b>DSC Measurement Range</b>	±175 mW or More
<b>Heat Flow Resolution</b>	0.02 μW or better
<b>Heat Flow Sensitivity</b>	0.02 μW or better
<b>Enthalpy Precision</b>	±0.06% or better
<b>Enthalpy Repeatability</b>	±0.3%
<b>Baseline Linearity (-50°-300°C)</b>	<10 μW
<b>Baseline Repeatability (-50°-300°C)</b>	<20 μW
<b>Baseline Accuracy (-50°-300°C)</b>	±30 μW
<b>Gas Atmosphere</b>	Atmosphere can be static or dynamic, including nitrogen, argon, helium, carbon dioxide, air, oxygen or other inert or active gases over full temperature range
<b>Indium Peak</b>	(height to width) ratio 15 or above
<b>Modulated DSC</b>	Modulated DSC must be capable to: <ul style="list-style-type: none"> <li>• apply sinusoidal temperature wave to sample.</li> <li>• separate reversing heat flow and non reversing heat flow</li> <li>• The temperature modulation should be strictly periodic to ensure continuous steady-state control and exact experiment reproducibility, random temperature perturbations are not acceptable.</li> <li>• perform quasi-isothermal experiments, i.e. holding isothermal with a small temperature modulation</li> </ul>
<b>Upgradability</b>	The instrument should have the capability to be upgraded with future requirements

<b>Calibration Kit</b>	System should be provided with calibration kit for temperature and enthalpy
<b>Sample Sealing</b>	Universal Sample sealing press should be provided to crimp all types of pans like solids and liquids
<b>Software</b>	Shall have provision to evaluate Glass transition temperature, Decomposition exotherm, Melting, Hazard assessment/sensitivity, Phase transition, CP value (Heat Capacity), Purity, Crystallization, Onset value, Enthalpy value, Modulated DSC
<b>Accessories</b>	Aluminum pans should be provided along with the crimping tool
<b>Warranty</b>	Instrument warranty should be covered for 1 year and additionally 2 years of AMC

<b>Technical Specification sheet for Thermogravimetric analyser</b>	
<b>Sample Weight Capacity</b>	1 g or better
<b>Dynamic Weighing Range</b>	1000 mg or better
<b>Weighing Precision</b>	± 0.01%
<b>Sensitivity</b>	0.1 µg
<b>Balance Design</b>	Vertical Hangdown wire or horizontal
<b>Temperature Range</b>	ambient to 1000 °C or better
<b>Temperature Accuracy</b>	±1°C
<b>Dynamic Temperature Precision</b>	±1°C
<b>Isothermal Temperature Precision</b>	±0.2°C
<b>Linear Heating Rates</b>	0.1 to 100°C/min or better
<b>Furnace Cooling</b>	1000°C to 50°C in < 25 min or better
<b>Dynamic Baseline Drift (50 to 1,000 °C)</b>	<25 µg, with platinum pans
<b>Signal Resolution</b>	0.002µg
<b>Gas Atmosphere</b>	Atmosphere can be static or dynamic, including nitrogen, argon, helium, carbon dioxide, air, oxygen or other inert or active gases over full temperature range
<b>Gas Flow Rate</b>	Up to 200 mL/min or better
<b>Upgradability</b>	The instrument should have the capability to be upgraded with future requirements
<b>Software</b>	Should be able to analyse Weight change, Residue content, Weight loss at a specified time or temperature, Peak height and area, Onset and endset analyses, Step transition analysis
<b>Accessories</b>	100µl platinum pans minimum 3, Suitable PC, Ups should be supplied of 5 KVA with 1 hr back up to take the load of both the instruments
<b>Warranty</b>	Instrument warranty should be covered for 1 year and additionally 2 years of AMC