

## Specifications for Differential Scanning Calorimeter (DSC)

S. No.	Feature	Specifications
1	General Description	State-of-the-art Differential Scanning Calorimeter, capable of measuring normal DSC and Specific heat capacity (Cp)
2	Sensor Type	Heat flux sensor / sensors capable of measuring the temperature range given in SI.No.3
3	Temperature range	-180°C to 700°C or higher (desirable)
4	Temperature accuracy	± 0.1°C or better
5	Temperature repeatability or precision	± 0.05°C or better
6	Enthalpy precision	± 0.1% or better
7	Enthalpy accuracy	< 1% or better
8	Heating/Cooling rate	0.001 to 200°C (K) per min or better
9	DSC measuring range	±750mW/2500 μV or better
10	Heat flow resolution	0.001 μW or better
11	Calorimetric sensitivity	3.0 μV/mW or better
12	Segment types	Static (Isothermal) and dynamic
13	Gas atmospheres	Inert, oxidising and reducing conditions
14	Mass flow controller	Capable of independent control of protective and purge gases
15	Standards for Cp measurements	Set of Sapphire standards to be provided
16	Cooling System and Accessories.	Liquid Nitrogen Dewar (50 L or higher) with supply system , sealing press/crimping tool, cleaning brush and tweezers. Provision for use of GN <sub>2</sub> and LN <sub>2</sub> is mandatory.
17	Sample pan and Sample Preparation Crimper	Aluminium pans and lids (1000 pcs; 25μl or better); Alumina pans and lids: 25 pcs; and sample preparation crimper.
18	Personal computer with printer	Desktop PC with the latest configuration compatible with instrument
19	Software	Capable of measuring and evaluating melting, crystallinity, Polymorphism, Phase transitions, Liquid-Crystal transitions, Solid-Liquid Ratio, Glass Transition and Specific Heat Capacity

20	Optional items	Heat flux sensor (additional) to cover temperature range from -180 deg. C to 700 deg. C; Alumina crucible (25 Nos.); Platinum crucible (5 Nos.); Autosampler for 50 or more samples; Add on software for measuring Thermokinetics, peak separation and purity
21	General terms and conditions	<ol style="list-style-type: none"> <li>1. Price for each item should be quoted separately CIP Chennai.</li> <li>2. Price for optional items should be indicated separately</li> <li>3. Standards for calibration (Temperature and Sensitivity), for the entire range should be provided</li> <li>4. Three years' warranty from the date of installation/ acceptance, covering all the units of the instrument</li> <li>5. Indicate the period of AMC after the expiry of the warranty period</li> <li>6. List of spares needed for each year along with cost and discounted rates should be provided. An undertaking that the vendor will supply all the spares of 5 years after the warranty period to be provided</li> <li>7. Complete technical details along with hard and soft copies of the manual should be provided</li> <li>8. Software upgrade should be incorporated by the vendor as and when the new versions are released at no additional cost.</li> <li>9. Onsite training for at least two persons in the operations and general maintenance should be given</li> <li>10. List of installations in India for the last two years to be provided.</li> </ol>