Technical specification for High Pressure Micro DSC

Scope:

A high-pressure DSC for analysing and quantifying phase transformations from a multi-component, multi-phase systems containing water, organics, gases, solid ice and polymers.

Compulsory requirements:

Temperature Range: -40 ^{o}C to 110 ^{o}C (+/- 0.1 ^{o}C)

Programmable temperature scanning rate: 0.001 to 2 ^{o}C

Sensor resolution: In the range 0.02 to 0.05 micro watts

Maximum working pressure: Anywhere between 200 to 500 bar

Cell volume (one pair): anywhere between 500 micro litres to 1000 microlitres

Cell Material: Hastelloy.

Software: complete software package for data acquisition, and interpretation including HELP functions.

Hardware: All necessary hardware to use the DSC, including PC/Laptops, power supply, data cable etc. would be in the scope of the vendor.

Calibration: The system should feature calibration by Joule Effect, allowing freedom from measurement conditions like crucible type, cell volume and heating rates etc.
System should be factory calibrated and delivered fully calibrated and in ready to use condition

Power supply: 230 V, 50-60 Hz, Indian socket

Please quote with warranty details and extra two years of AMC.

Technical specification should match the requirements mentioned below:

1. High pressure and highly sensitive 3D sensor technology-based System for measurement of specific heat and heat of reactions. 3D sensor technology is necessary which would not get affected by heating rate, sample volume and contact of the sample with cell etc. Peltier based heating for highest performance and accuracy is required.
2. For cooling requirements please separately quote for chiller / cryostat
3. Desired precision is listed below

Calorimetric Precision +/-0.7%
Best Resolution 0.002μW
RMS noise 0.08μW
Dynamic Range +/- 20 and +/- 200 μW user selectable

Optional capabilities:

Optional requirements which should be quoted separately:

1. Choice of cells to suit different reaction types like Mixing of liquids, Solids and batch reactions.
2. Operation with high accuracy control panel
3. Two separate performance certificates from the two clients.
4. On-site training & installation should be quoted.