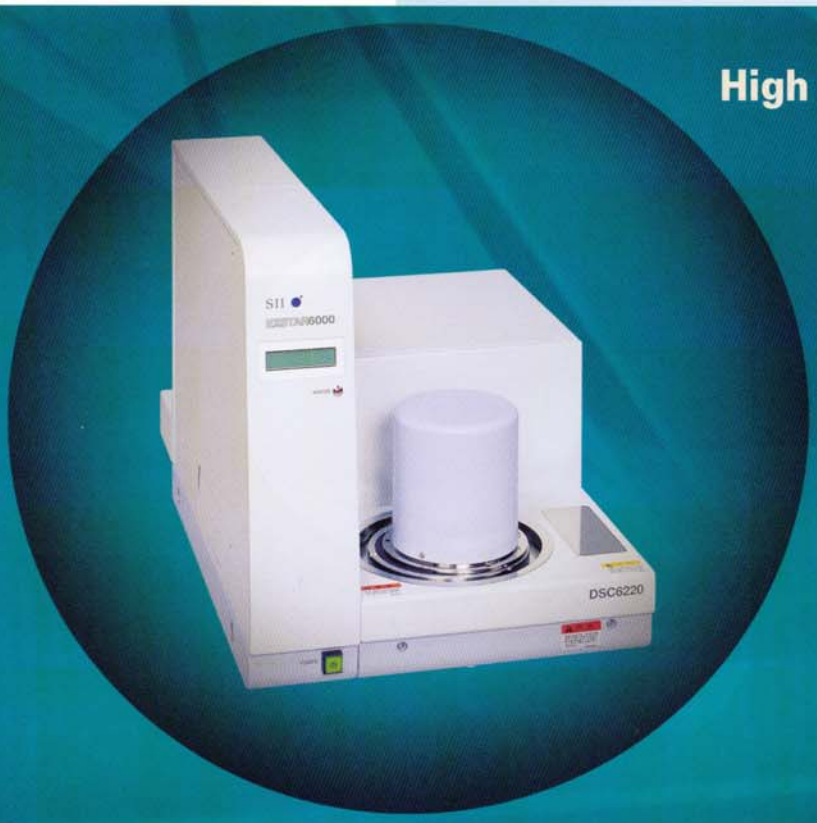
Differential Scanning Calorimeter

# DSC






## High Performance Heat Flux DSC

### EXSTAR6000 Series DSC

Differential Scanning Calorimeter (DSC) is the most fundamental technology among the thermal analysis techniques. SII NanoTechnology Inc. is the pioneer to manufacture heat flux type DSC for more than 25 years. EXSTAR6000 series DSC are designed to have high performance in sensitivity, resolution and base line stability and have become one series of the most popular DSC products.

EXSTAR6000 series DSC offer several benefits because their unique designs. The standard type DSC6220 provides extraordinary resolution and sensitivity and flat reproducible baseline. The exclusive oval structure creates the shortest heat path and keeps the ideal temperature balance between the sample and reference. High reliability auto-sampler, flow gas controller, photo calorimeter and several types of cooling system, make EXSTAR6000 series DSC as the best equipped DSC to meet the leading-edge R&D and routinely QA/QC demands.

DSC6100S

DSC6300S

### DSC6000

Able to change the sensor unit based on applications to achieve the best analysis result.

### DSC6100S

The DSC6100 is designed to have super high resolution and sensitivity with flat reproducible base line to meet high sensitivity and resolution application requirements. Ideal for food industry, biotechnology research works and low density solution analysis applications.

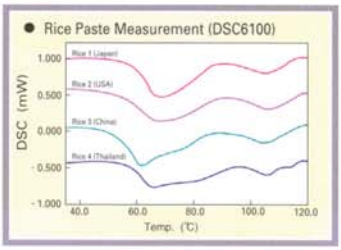
### DSC6220S

The DSC6220S offers several inherent benefits due to its unique design. The performances of high sensitivity and excellent baseline stability are typical for DSC6220. The exclusive oval structure sensor creates the shortest heat path and makes the DSC6220S the best DSC to satisfy the leading edge R & D and routinely QA/QC demands.

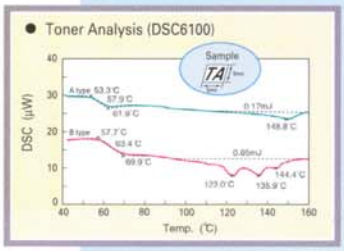
### DSC6300S

Designed with high sensitivity sensor and excellent gas replacement structure, the DSC6300 works with wide temperature range from ambient to 1500℃. It is the best equipped high temperature DSC to analyze metal and ceramic samples.

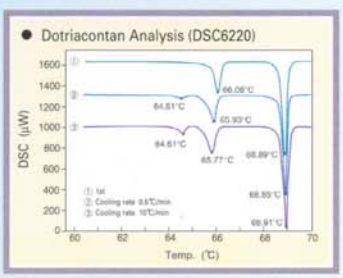
● Rice Paste Measurement (DSC6100)



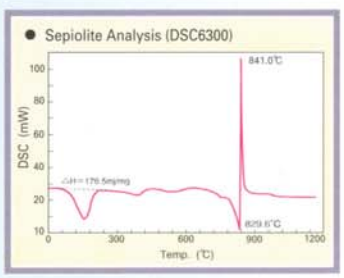

● Toner Analysis (DSC6100)




● Dotriacontan Analysis (DSC6220)




● Sepiolite Analysis (DSC6300)



## Auto Sampler

The optional auto-sampler for DSC6220 provides the automation and throughput to your laboratory. To achieve high reproducible results, the highly reliable 50-position robotic auto-sampler has the highest liability mechanical finger that provides user friendly, easy position alignment and high accuracy of sample pan placement.

## Electrically Driven Sample Sealer

The designed of the electrically sample sealer is based on SIINT original pressure detecting technology and provides easy-of-use and high reproducible crimped sample.

## Cooling System

Optional multiple cooling systems provide a wide temperature range of operation (-170 to 725 ℃) to improve the measurement accuracy and operational performance:

**❶ Automatic Gas Cooling ($LN_2$) System**

- For controlled cooling from - 150 to 725 ℃

**❷ Electronics Cooling System**

- For controlled cooling from -75 ℃ to 380 ℃ (Depend on different measurement modules)

**❸ Forced Air Cooling**

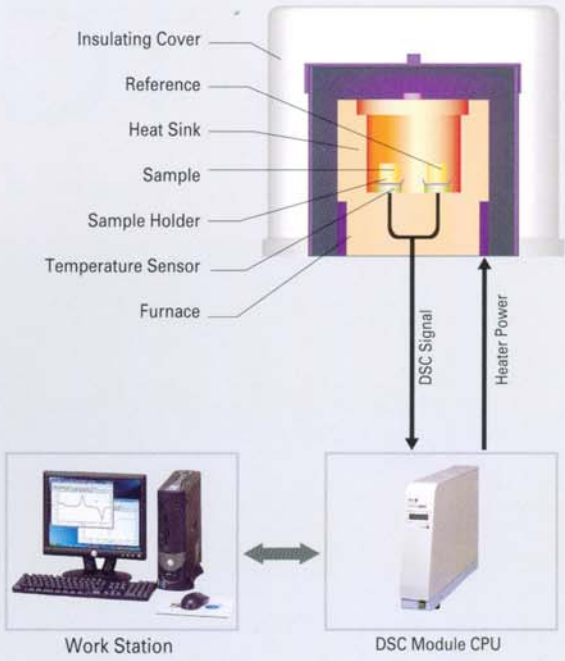
- Optimal for cooling from a high temperature to ambient

**❹ Cooling Can**

- Low Cost, for rapid cooling and easy use


A cooling jacket is available as an attachment to make cooling unit connections easily. With a highly effective refrigerant around the furnace, the jacket features easy placement and removal of samples.

### ● Diagram




### Theory of Operation

Heat flux DSC detects the difference in heat flow which is supplied to the sample and reference uniformly. The sample and reference are heated or cooled by heat flow from the heat sink through the temperature sensors. The heat sink is a much larger total heat capacity compared with the sample and reference. The heat flow difference between the sample and reference is proportional to temperature difference between the sample and reference holders. This heat flow difference is quantitative and output as a y-axis signal for the DSC scan.

❶ – ❼ **Sealed Type**
❽ – ❾ **Hermetic Sealed Type**
❿ – ⓱ **Open Type**


### Specification

| Model | DSC6100 | DSC6220 | DSC6300 | ASD-2+DSC6220 |
|---|---|---|---|---|
| DSC Type | Heat Flux DSC | | | |
| Temperature Range | -170 ~ 500℃ | -170 ~ 725℃ | Ambient ~ 1500 ℃ | -150 ~ 725℃ |
| RMS Noise | 0.1μW | 0.2μW | 10μW | 0.2μW |
| Sensitivity | 0.2μW | 0.4μW | 20μW | 0.4μW |
| Scan Rate | 0.01~20℃/min | 0.01~100℃/min | 0.01~100℃/min | 0.01~100℃/min |
| 50-Position Autosampler | Not Available | Optional | Not Available | Standard |
| Purge Gas Controller | Optional | Optional | Optional | Optional |
| Sample Pan Capacity | Open: 100μL | Open: 100μL | Open: 50μL | ASD-2 : 15μL |
| | Hermetic Sealed: 70μL | Hermetic Sealed: 15μL | | Hermetic Sealed: 15μL |
| | | Sealed: 15μL | | Sealed: 15μL |
| Auto $LN_2$ Cooling System | -150 ~ 500℃ | -150 ~ 725℃ | Not Available | -150 ~ 725℃ |
| Electronics Cooling System | C Type: -75 ~ 210℃ | C Type: -75 ~ 300℃ | Not Available | C Type: -75 ~ 300℃ |
| | D Type: -30 ~ 250℃ | D Type: -30 ~ 380℃ | | D Type: -30 ~ 380℃ |
| Cooling Can | -170 ~ 500℃ | -170 ~ 725℃ | Not Available | -170 ~ 725℃ |