

# X52 Differential Scanning Calorimeter



DSC is designed to determine the inner heat transition relating to temperature and heat flow, it is widely used in the field of polymer development, performance testing & quality control. DSC research and development includes the following field: glass transition temperature (T<sub>g</sub>), melting point, cold crystallization, crystallization, phase transition, oxidation induction time (OIT), Specific heat capacity (Sapphire Wafer - optional) .

### Standards:

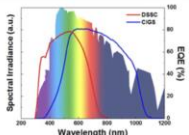
ISO/TR10837:1991, ASTM D3895-1998, ASTM E 967, ASTM E 968, ASTM E 793, ASTM D 3895, ASTM D 3417, ASTM D 3418, ISO 11357-6

### Main Features:

1. The industrial-grade 7-inch touch screen displays rich information.
2. Brand-new metal furnace body structure, with better baseline and higher accuracy. The heating adopts indirect conduction method, which has high uniformity and stability, reduces pulse radiation, and is better than traditional heating mode.
3. USB communication interface, strong versatility, reliable and uninterrupted communication, supports self-recovery connection function.
4. Automatically switch the two-channel atmosphere flow, fast switching speed and short stabilization time. At the same time, a protective gas input is added.
5. The software is simple and easy to operate.

### Technical parameters:

Temperature range	RT~ 550 °C
Heating rate	0.1 ~ 100°C/min
Temperature resolution	0.001°C
Temperature fluctuations	±0.001°C
Temperature repeatability	±0.1°C
Constant temperature time	Program setting ≤24h

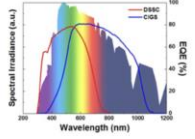


DSC range	0~±600mW
DSC noise	0.01μW
DSC resolution	0.01μW
DSC accuracy	0.01mW
Atmosphere control gas	Nitrogen, Oxygen (instrument switch automatically)
Gas flow rate	0-300mL/min
Gas pressure	0.2MPa
Control Mode	Rising temperature, constant temperature(full automatic)
Curve scanning	Rising scan
Gas flow control	Built-in digital flow meter & Software control, automatic
Display	24 bit 7 inches LCD touch screen display
Data interface	standard USB connector
Parameter standard	With standard material, with calibration function, the user may correct temperature and heat enthalpy
Software	operating software
Thermocouples	Total 3 sets of thermocouples for: 1). Test sample temperature 2). test furnace temperature, 3). Test internal ambient temperature
Cooling device	Air cool
Power	AC220V/50Hz

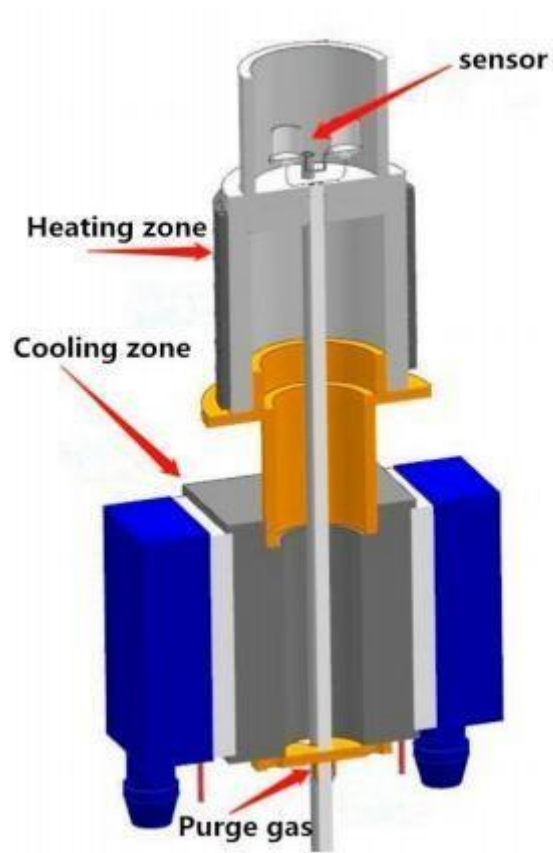
### Packing List

Host instrument	1PC
CD	1PC
Data Line	1PC
Power Line	1PC
Aluminum crucibles	100PCS
Ceramic crucibles	100PCS
pure tin grains	1bag
Fuse 4A	5PCS

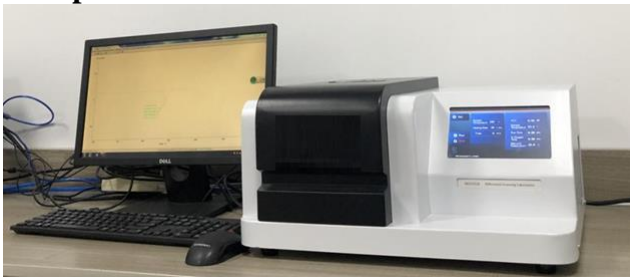


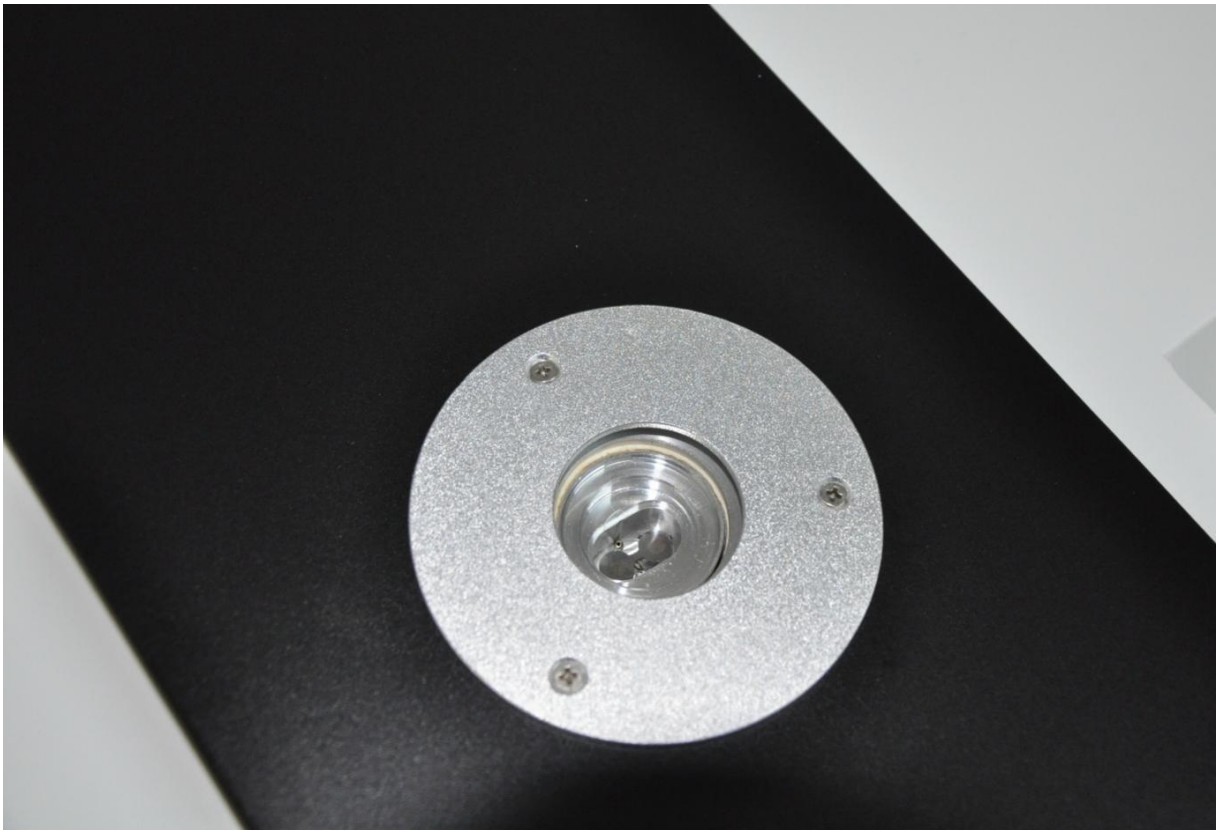
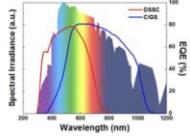


**Furnace structure:**



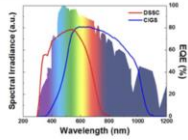
**Real picture for reference**



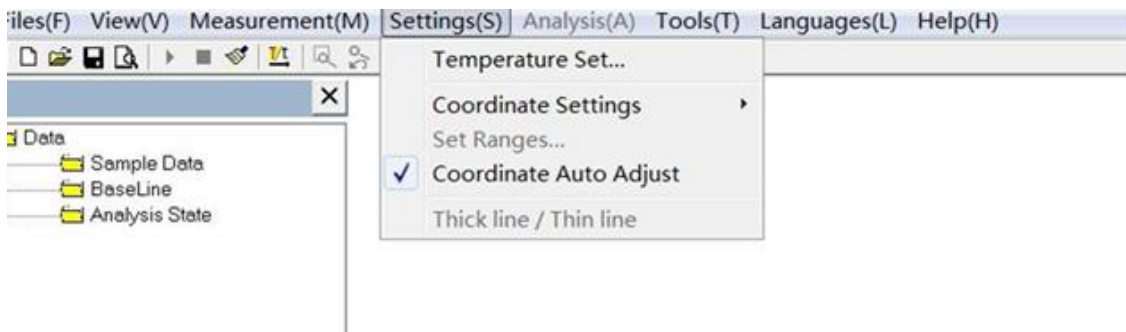
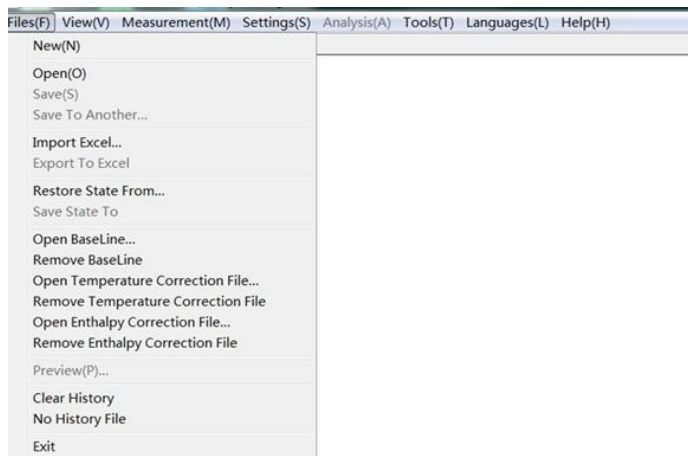


### Test interface of the DSC





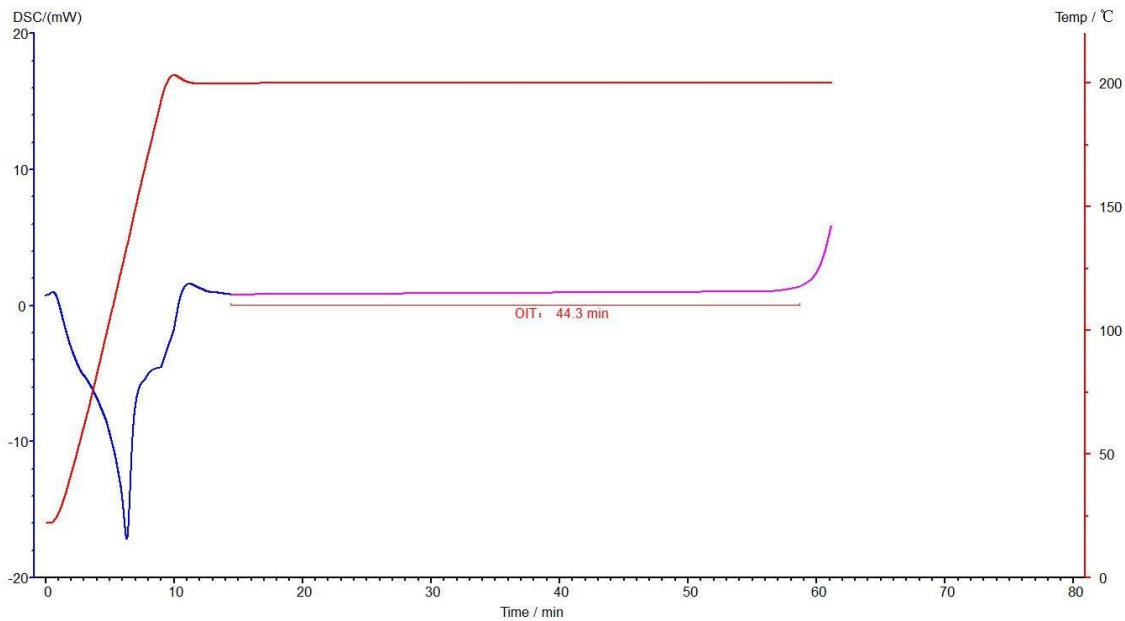
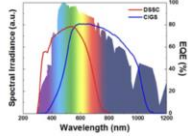
## Test interface of the software:



## Graph analysis of some test cases

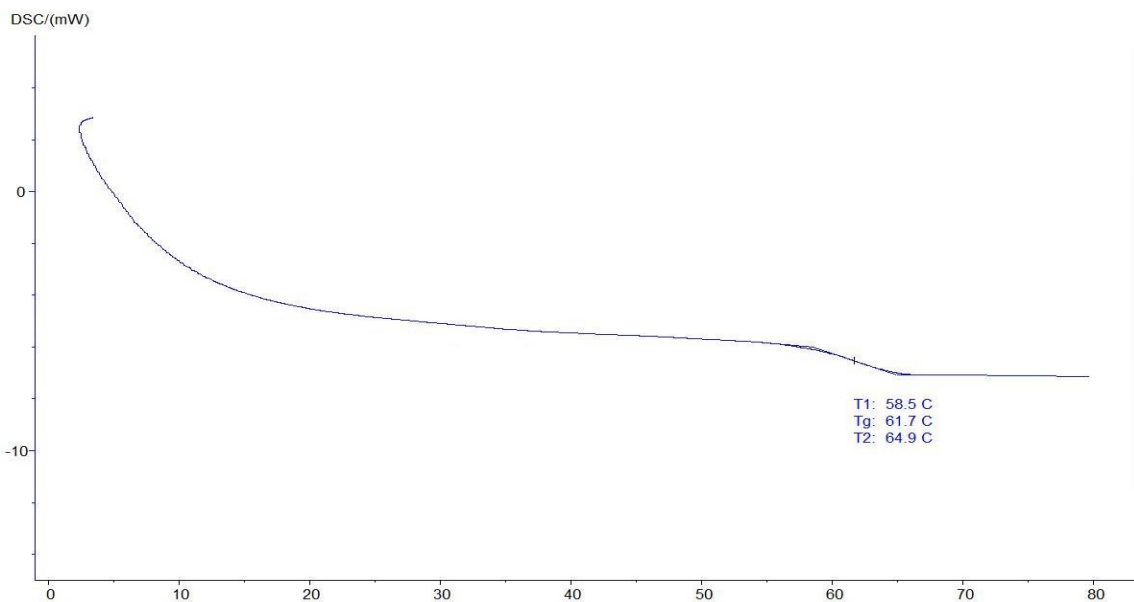
### 1. Oxidation period test of PE, PPR and other pipes:

Oxidation induction time (OIT) was measured by DSC (differential scanning calorimetry). The sample is usually heated to a specified temperature under a nitrogen atmosphere and held at a constant temperature, and then switched to an oxygen atmosphere. After a period of time, the material begins to oxidize and release heat. The released heat is detected by the sensor and analyzed by the software to obtain the oxidation induction time (OIT). The length of the oxidation induction time is a parameter of the resistance to oxidative decomposition of the reaction material, and it is very meaningful. Usually, buried plastic pipes must be Check this parameter.



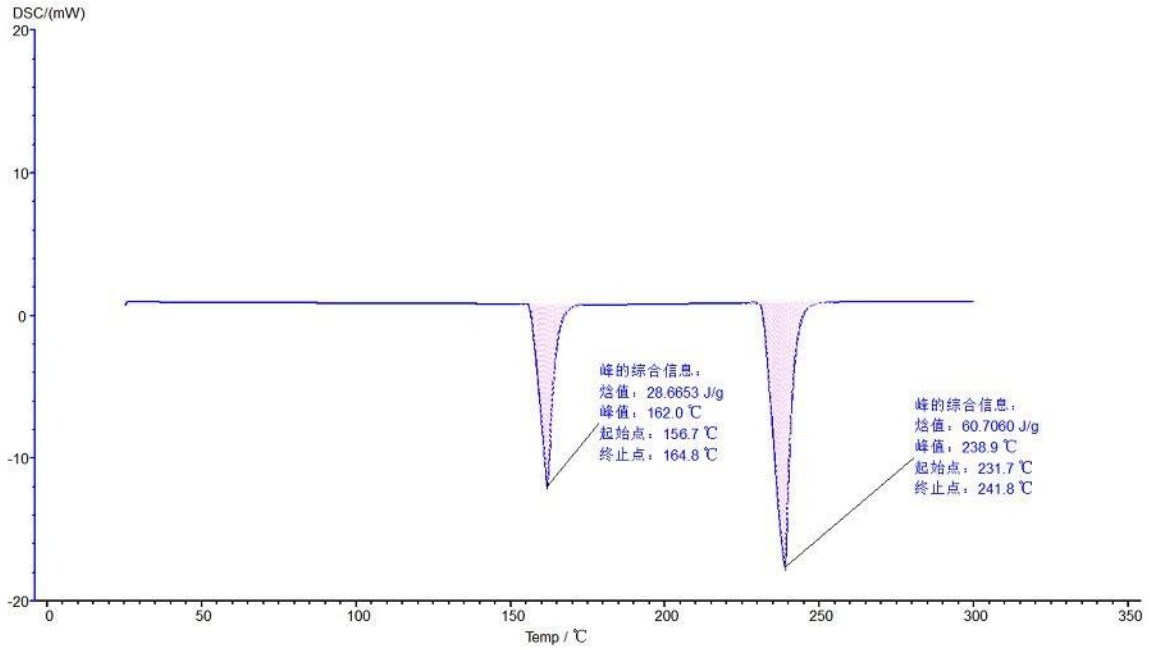
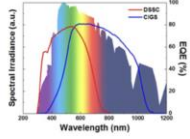
## 2. Verification test of resin and other materials:

For amorphous polymers, when the polymer changes from a high elastic state to a glass state by cooling, or from a glass state to a high elastic state by heating up, it is called glass transition, and the temperature at which the glass transition occurs is called glass transition temperature. For crystalline polymers, glass transition refers to the transition from a highly elastic state to a glassy state (or a glassy state to a highly elastic state) that occurs in the amorphous part of the polymer. Therefore, glass transition is a ubiquitous phenomenon in polymers. However, the glass transition phenomenon is not limited to macromolecules, and some small molecular compounds also have glass transitions.



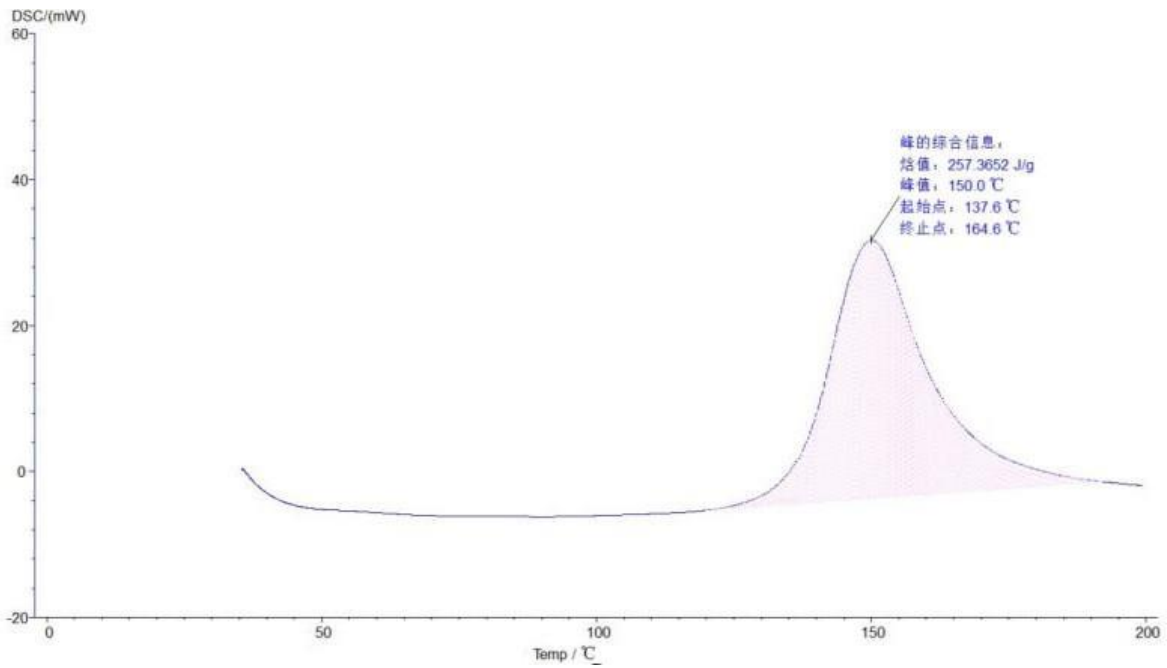
## 3. Material melting point and enthalpy test (thermal stability test)

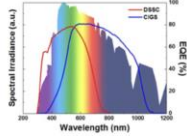
The melting point is the temperature at which a solid transforms its physical state from a solid state or melts into a liquid state. A mixture of multiple components produces a multimodal peak.



### Curing test of glue and other materials

Refers to the process of changing substances from low molecules to high polymers, and the strength of the cured sample will be higher





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### Standards:

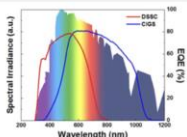
ISO/TR10837:1991, ASTM D3895-1998, ASTM E 967, ASTM E 968, ASTM E 793, ASTM D 3895, ASTM D 3417, ASTM D 3418, ISO 11357-6

### Main Features:

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3. USB communication interface, strong versatility, reliable and uninterrupted communication, supports self-recovery connection function.
4. Automatically switch the two-channel atmosphere flow, fast switching speed and short stabilization time. At the same time, a protective gas input is added.
5. The software is simple and easy to operate.

### Technical parameters:

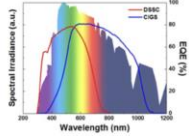
Temperature range	-150°C~ 600 °C
Heating rate	0.1~100°C/min
Cooling rate	1 ~ 20 °C / min (If cooling, For instant cool only, can not be Isothermal below room temperature, and if heating up, can control its rate)



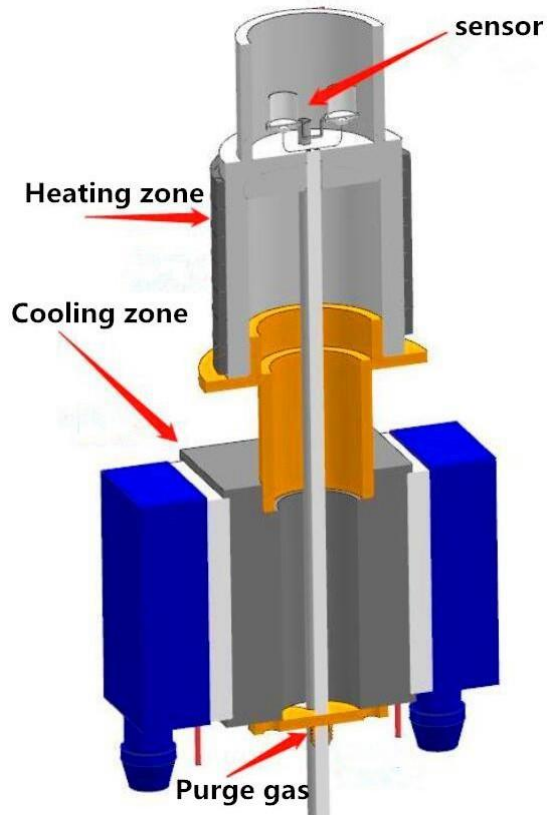
Temperature resolution	0.001°C
Temperature fluctuations	±0.01°C
Temperature repeatability	±0.1°C
Constant temperature time	Program setting ≤24h
DSC range	0~±600mW
DSC noise	0.01μW
DSC resolution	0.01μW
DSC accuracy	0.01mW
Atmosphere control gas	Nitrogen, Oxygen (instrument switch automatically)
Gas flow rate	0-300mL/min
Gas pressure	0.2MPa
Control Mode	Rising temperature, constant temperature(full automatic)
Curve scanning	Rising scan, cooling scan
Gas flow control	Built-in digital flow meter & Software control, automatic
Display	24 bit 7 inches LCD touch screen display
Data interface	standard USB connector
Parameter standard	With standard material, with calibration function, the user may correct temperature and heat enthalpy
Software	operating software
Thermocouples	Total 3 sets of thermocouples for: 1). Test sample temperature 2). test furnace temperature, 3). Test internal ambient temperature
Cooling device	Liquid nitrogen refrigeration
Power	AC220V/50Hz

### Packing List

Host instrument	1PC
CD	1PC
Data Line	1PC
Power Line	1PC
Aluminum crucibles	100PCS
Ceramic crucibles	100PCS
pure tin grains	1bag
Fuse 4A	5PCS

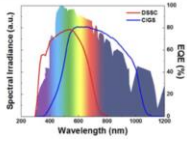


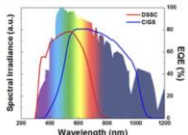
**Furnace structure:**



**Real picture for reference**







# X54 Differential Scanning Calorimeter



DSC is designed to determine the inner heat transition relating to temperature and heat flow, it is widely used in the field of polymer development, performance testing & quality control. DSC research and development includes the following field: glass transition temperature, melting point, cold crystallization, crystallization, phase transition, oxidation induction time (OIT).

### Standards:

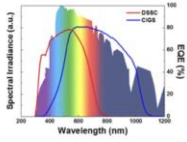
ISO/TR10837:1991, ASTM D3895-1998, ASTM E 967, ASTM E 968, ASTM E 793, ASTM D 3895, ASTM D 3417, ASTM D 3418, ISO 11357-6

### Main Features:

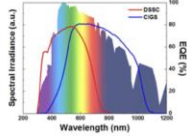
1. New designed oven structure ensures high resolution and good stability of base line
2. Air flow meter may control the air flow rate accurately; the test data can be recorded
3. It is bilateral control, may be controlled by both main frame and software.

### Technical parameters:

Temperature range	-40°C ~ 600 °C
Heating rate	0.1 ~ 100°C/min
Temperature resolution	0.001 °C
Temperature fluctuations	±0.001°C
Temperature repeatability	±0.01°C
Constant temperature time	Program setting ≤24h
DSC range	0~±600 mW
DSC noise	0.01μW
DSC resolution	0.01μW
DSC accuracy	0.01mW
Atmosphere control gas	Nitrogen, Oxygen (instrument switch automatically)
Gas flow rate	0-300mL/min
Gas pressure	0.2MPa
Control Mode	Rising temperature, cooling , constant temperature(full automatic)



Curve scanning	Rising scan, cooling scan
Gas flow control	Built-in digital flow meter & Software control, automatic
Display	24 bit 7 inches LCD touch screen display
Data interface	standard USB connector
Parameter standard	With standard material, with calibration function, the

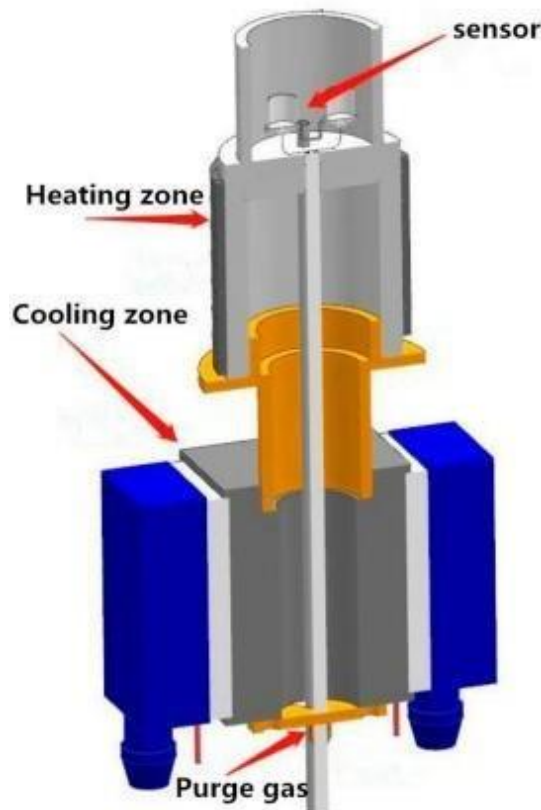


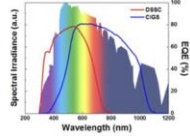
	user may correct temperature and heat enthalpy
Software	Professional control operating software
Thermocouples	Total 3 sets of thermocouples for: 1). Test sample temperature 2). test furnace temperature, 3). Test internal ambient temperature
Cooling device	Semiconductor refrigeration
Power	AC220V/50Hz

**Packing List**

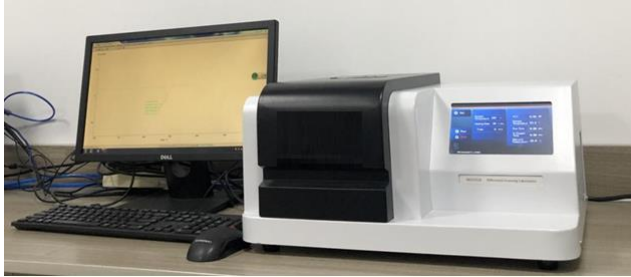
Host instrument	1
CD	1
Data Line	1
Power Line	1
Aluminum crucibles	300
Ceramic crucibles	300
pure tin grains	1bag
Fuse 4A	5

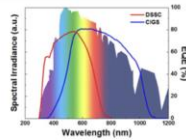
**Furnace structure:**





### Real picture for reference





# X55 Differential Scanning Calorimeter



DSC is designed to determine the inner heat transition relating to temperature and heat flow, it is widely used in the field of polymer development, performance testing & quality control. DSC research and development includes the following field: glass transition temperature (T<sub>g</sub>), melting point, cold crystallization, crystallization, phase transition, oxidation induction time (OIT).

## Standards:

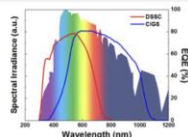
ISO/TR10837:1991, ASTM D3895-1998, ASTM E 967, ASTM E 968, ASTM E 793, ASTM D 3895, ASTM D 3417, ASTM D 3418, ISO 11357-6

## Main Features:

1. The industrial-grade 7-inch touch screen displays rich information.
2. Brand -new metal furnace body structure, with better baseline and higher accuracy. The heating adopts indirect conduction method, which has high uniformity and stability, reduces pulse radiation, and is better than traditional heating mode.
3. USB communication interface, strong versatility, reliable and uninterrupted communication, supports self-recovery connection function.
4. Automatically switch the two-channel atmosphere flow, fast switching speed and short stabilization time. At the same time, a protective gas input is added.
5. The software is simple and easy to operate.

## Technical parameters:

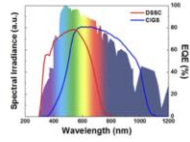
Temperature range	RT~ 800 °C
Heating rate	0.1~100°C/min
Temperature resolution	0.01°C
Temperature fluctuations	±0.01°C
Temperature repeatability	±0.1°C
Constant temperature time	Program setting ≤24h



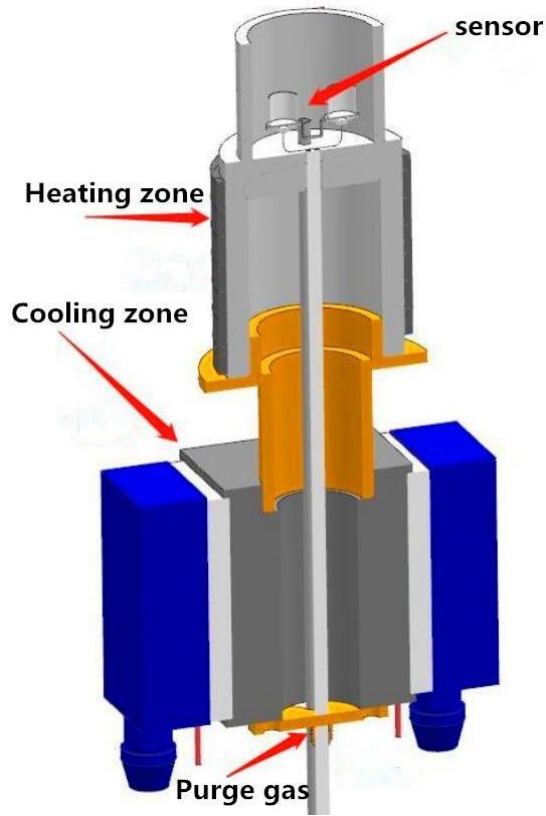
DSC range	0~±600mW
DSC noise	0.01μW
DSC resolution	0.01μW
DSC accuracy	0.01mW
Atmosphere control gas	Nitrogen, Oxygen (instrument switch automatically)
Gas flow rate	0-300mL/min
Gas pressure	0.2MPa
Control Mode	Rising temperature, constant temperature(full automatic)
Curve scanning	Rising scan
Gas flow control	Built-in digital flow meter & Software control, automatic
Display	24 bit 7 inches LCD touch screen display
Data interface	standard USB connector
Parameter standard	With standard material, with calibration function, the user may correct temperature and heat enthalpy
Software	operating software
Thermocouples	Total 3 sets of thermocouples for: 1). Test sample temperature 2). test furnace temperature, 3). Test internal ambient temperature
Cooling device	Air cool
Power	AC220V/50Hz

### Packing List

Host instrument	1PC
CD	1PC
Data Line	1PC
Power Line	1PC
Aluminum crucibles	100PCS
Ceramic crucibles	100PCS
pure tin grains	1bag
Fuse 4A	5PCS



**Furnace structure:**



**Real picture for reference**

