

**SPECIALIZED EQUIPMENT SPECIFICATIONS**  
 Fenn R&D Institute (FRDI)  
 Fenn College of Engineering, Cleveland State University

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Name:	Du Pont Instruments 912 Differential Scanning Calorimeter
Description/Use:	measures temperature and heat flow associated with material transitions that are caused by phase changes, melting, oxidation, etc
User fee:	Call, Email
Fee basis:	per sample
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**DETAILED DESCRIPTION:**

The 912 Differential Scanning Calorimeter (DSC) measures temperature and heat flow associated with material transitions that are caused by phase changes, melting, oxidation, other heat-related changes. Measurement is of a reference temperature and the differential temperature for each sample. Using these measurements, transition temperatures and flow data are then determined mathematically each sample by the programmer.



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**OPERATION:**

The system is not automated. The heating rate and starting/ending temperatures of the DSC are set by the operator. Trained assistants or technicians perform the experiments. Experimental protocol can be adjusted to requirements.

**SPECIFICATIONS:**

**912 Cell Base Module**

Dimensions:	L 30 cm; H 14 cm; W 45 cm
Weight:	18 lb
Power:	±5.6 V DC; ±15 V DC supplied by programmer; 115 V AC heater voltage
E Curve Linearity:	±2.5 % deviation (-100 to 500 °C)

**DSC**

Dimensions:	D 13 cm; H 19 cm
Weight:	5 lb
Calorimetric Precision:	±1 % ( $\Delta H$ imbalance < 4:1)
Baseline:	400 $\mu W$ (ambient to 500 °C)
Noise:	5 $\mu W$ (rms) (ambient, no sample)
Maximum Sensitivity:	10 $\mu W$
Maximum Dynamic Gas Purge:	200 mL/min
Temperature Range:	-170 to 650 °C (inert atm above 600 °C)
Sample Size:	0.5 to 100 mg (nominal)
Sample Volume:	10 mm <sup>3</sup> in hermetic pans

Differential Thermocouples: Chromel-constantan  
Sample Thermocouple: Chromel-alumel  
Control Thermocouple: Platinel® II  
Baseline Drift: (ambient-200 °C) = 20  $\mu$ W, (-100-100 °C) = 60  $\mu$ W  
(ambient-600 °C) = 400  $\mu$ W