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CDS 6000 Series Pyroprobe

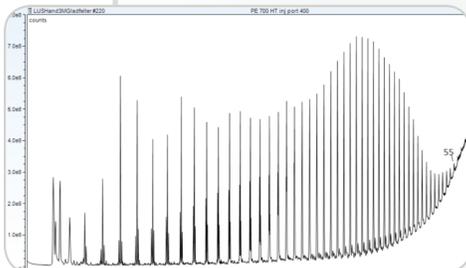
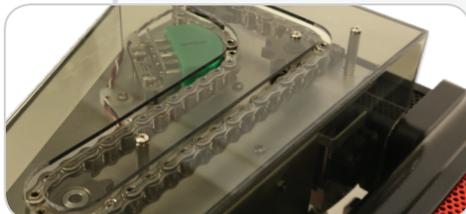
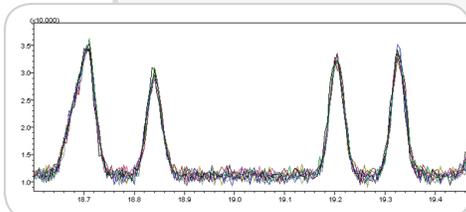
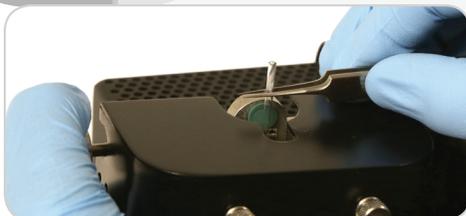
- **Thermal GC Injection** Systems for Pyrolysis, Thermal Desorption, Dynamic Headspace, and Evolved Gas

Introduction

CDS Analytical is celebrating its 50th anniversary. CDS Analytical was founded by Dr. Eugene Levy in Nottingham, PA in 1969, and moved to its state-of-the-art Oxford, PA facility in 1981. Over the past 50 years, CDS Analytical has been expanding its core business from Analytical Pyrolysis to a full range of GC Sample Introduction methods, including Thermal Desorption, Purge & Trap, and Dynamic Headspace.

As of today, CDS Analytical gathers world-class engineers and analytical chemists working together to continue the “Made in USA” legend. We provide the best tool to our customers in Analytical Chemistry by packaging our continuous innovations in hardware, software, technology and applications into a complete solution.

The 6000 Series Pyroprobe is the 6th generation pyrolyzer proudly designed and manufactured by CDS Analytical. It is a revolutionary product with many unparalleled features to add value to your GC/MS system.



Easy Sample Loading

The 6000 Series Pyroprobe is equipped with a novel Drop-In-Sample Chamber (DISC) as a standard configuration. When coupled with the DISC sample tube, the sample preparation process no longer requires quartz wool and the sample loading is as easy as dropping a straw into a drink.

Unparalleled Reproducibility

Reproducibility with a thermal technique depends greatly on temperature accuracy. The DISC solution brings several important improvements over previous generations: (1) temperature accuracy at ± 0.1 °C, (2) calibrated sample temperature calibrated through optical pyrometry, (3) guaranteed sample placement. This translates to 1.5% RSD for 5 run pyrolysis Polystyrene at 500°C.

Hybrid-Driven Autosampler

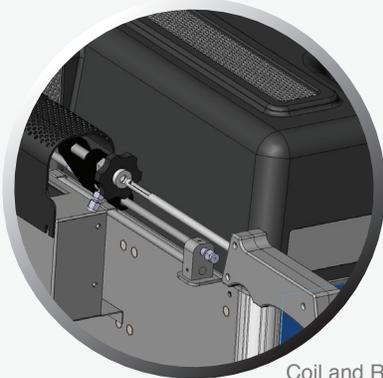
The redesigned conveyor-fed autosampler module focuses on one thing - reliability. The novel hybrid driven system adopts gravity, the most reliable force in the world, to dispense and eject the DISC sample tube.

Superior Resolution

The 6000 Series Pyroprobe adopts computer-aided design, especially the Finite Element Analysis in the sample pathway development. The result is maximized instrument resolution. As a comparison, for pyrolyzing Polyethylene at 600 °C through GC with a single quad mass-spec as the detector, the 6000 Series Pyroprobe could reach C55 where our competition would stop typically at C43.

State-of-the-Art in Thermal Injection Systems

CDS pyrolyzers use a reliable and repeatable Platinum filament heating system. The proprietary energy storage system unleashes the high density electric energy to the low thermal mass filament with an amazing 20,000°C/second coil ramp up rate. This makes the sample reach the pyrolysis temperature nearly order-of-magnitude times faster than the furnace heating pyrolyzer. In each system, the sample temperature is calibrated with optical pyrometry with temperature accuracy at $\pm 0.1^\circ\text{C}$. The electronic system is capable of performing self-diagnosis, including the crucial leak-check function.



Coil and Ribbon Manual Insertion Probe Module



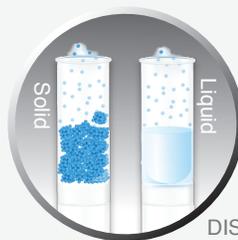
1/4" x 3.5" Thermal Desorption Tube Module



25 mL Test Tube Desorber Module



Tandem Reactor Module

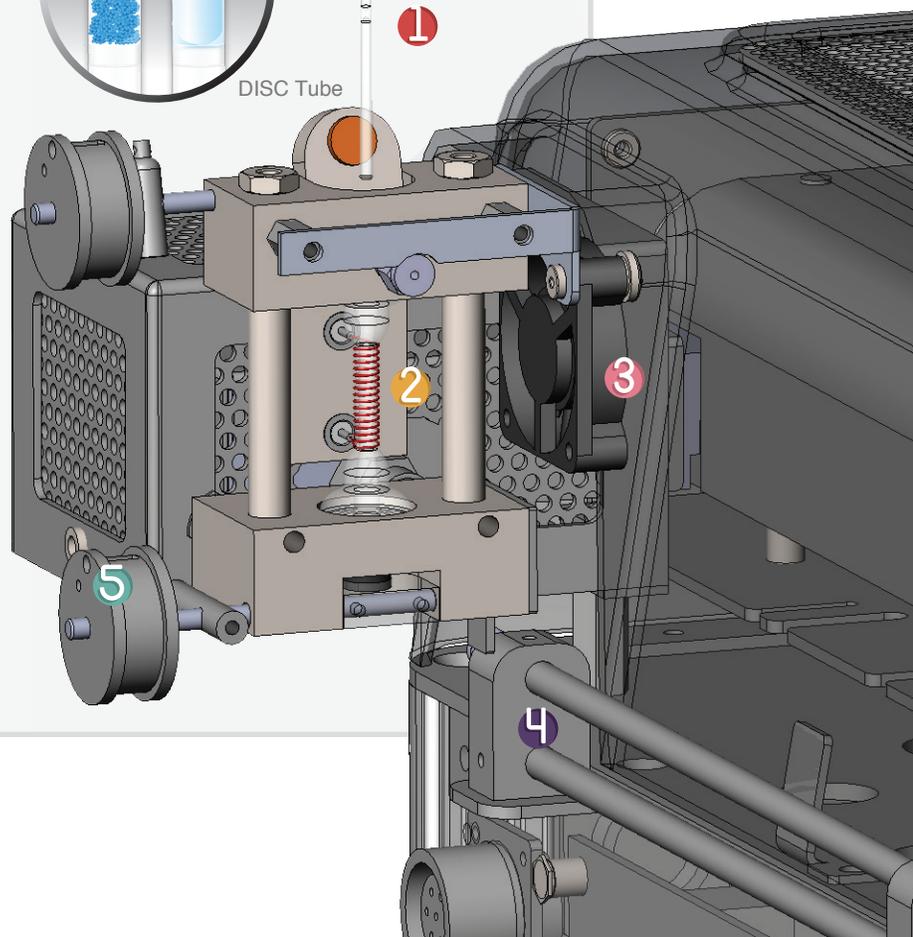


DISC Tube

Drop in Your Sample Here

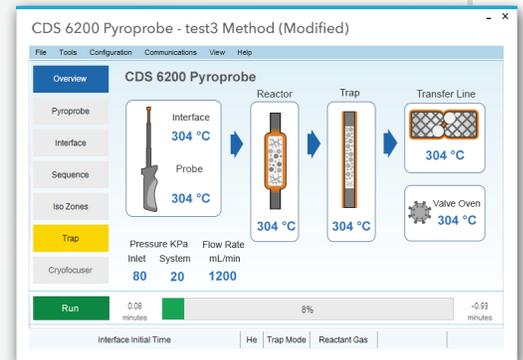


- 1 DISC Tube for both Solid and Liquid Sample (No quartz wool required)
- 2 Precision Bore Platinum Coil Calibrated with Sample Temperature Accuracy at $\pm 0.1^\circ\text{C}$
- 3 Programmable Cooling Fan for VVOC Studies
- 4 Multi-Function Accessory Rack for Various Modules
- 5 Hybrid-Driven Mechanism to Dispense and Eject Sample



The CDS 6150 Pyroprobe

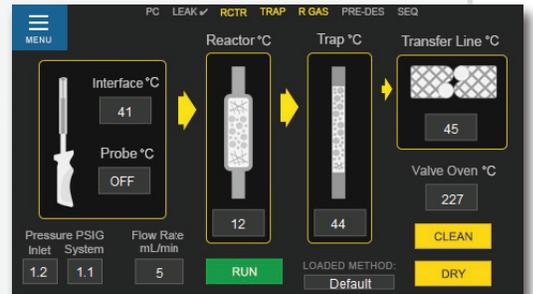
Our base model instrument for pyrolyzing in PY-GC mode only. The 6150 connects to any model GC by means of a heated transfer line for easy on/off installation.



Windows 10 Compatible Digital Control Interface (DCI)

Typical Applications:

- Evolved Gas Analysis (EGA) of Polymer with Additives
- Thermal Desorption of Phthalates
- Programmable Pyrolysis of Polymer with Additives



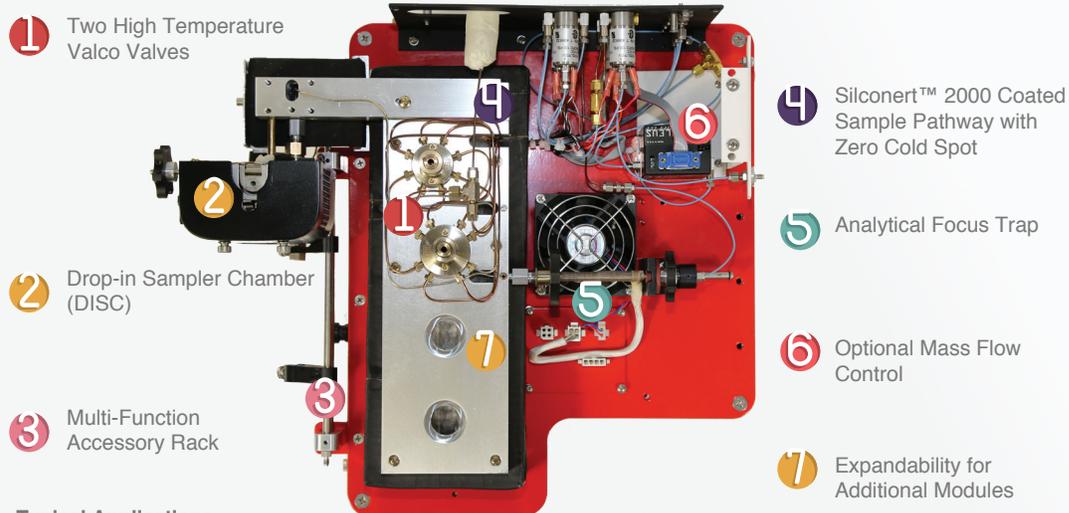
User-friendly Touch Screen Interface

Technical Specifications:

	CDS 6150
Max Temperature	1300°C
Programmable Temperature	Yes, Up to 10 Steps
Max Temperature Ramp Rate	20,000 °C/s
Temperature Accuracy	±0.1°C
RSD% (Polystyrene)	1.5%
Leak Check	Yes
GC Mount	Transfer Line
Sample Tube	Quartz

The CDS Pyroprobe 6200

Compared to the 6150, the 6200 Pyroprobe has a built-in focus trap which enables the instrument to collect analytes using reactant gas (like oxygen and air), or perform thermal desorption on standard 1/4"x3.5" sorbent tubes, or dynamic headspace on large volume sample with optional modules to enhance the sensitivity.



Typical Applications:

- Programmable Pyrolysis of Polymer with Additives
- Evolved Gas Analysis (EGA) of Polymer with Additives
- Thermal Desorption of Phthalates
- Reactive Pyrolysis in Air/O₂
- Tandem Pyrolysis through External Reactor
- Thermal Desorption for EPA TO-17
- Dynamic Headspace for VOC and SVOC

Technical Specifications:

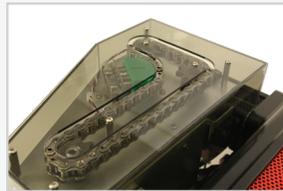
	CDS 6200
Max Temperature	1300°C
Programmable Temperature	10 Steps
Max Temperature Ramp Rate	20,000 °C/s
Temperature Accuracy	±0.1°C
RSD% (Polystyrene)	1.5%
GC Mount	Transfer Line
Leak Check	Yes
Focus Trap	Standard
CryoTrap	Optional (-198°C)
Cooling Gas	Not Required
Reactant Gas	Standard
Thermal Desorption Tube Adapter	Available
Dynamic Headspace Adapter	Available

The CDS 6000 Series Autosampler Module

The 6000 Series Autosampler module provides extremely reliable automated pyrolysis. Solids, viscous liquids, and powder samples are pyrolyzed in the Drop-In-Sample-Chamber (DISC) with a reliable automated sample loading mechanism (48 slots) fulfilled by this module. The autosampler module further opens up the programmable temperature capability from 10 temperature-step per sample to infinite temperature-step per sample. This autosampler module is compatible with both 6150 and 6200 Pyroprobe and adopts Dynamic Sequence Table function to allow user to add in emergency samples without interrupting scheduled samples.



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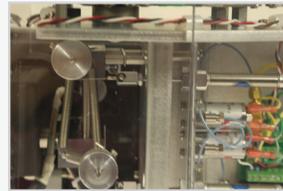
Heavy Duty 48 Position Conveyor

2



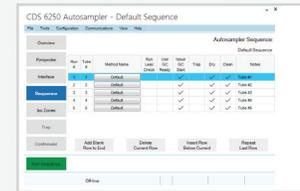
High Precision Step Motor

3



Hybrid Driven Mechanism

4



Dynamic Sequence Table

Technical Specifications:

	CDS 6000 Autosampler
Sample Positions	48
Programmable Temperature	Infinite Steps
Max Temperature	1300 °C
Temperature Accuracy	±0.1°C
RSD% (Polystyrene)	1.5%
Leak Check	Yes
Dynamic Sequence Table	Yes
Mount	On the Side of Pyrolyzer
Sample Loading/Unloading	Gravity



Thermal Desorption

Pyrolysis

Purge and Trap

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