

LABSYS evo

TGA, DTA, DSC
and Simultaneous
TGA-DTA, TGA-DSC
by Setaram



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LABSYS evo



LABSYS evo is a user friendly, robust and highly powerful high temperature TGA and STA platform for operation up to 1600 °C.

HIGHLIGHTS include:

- Simplicity of use thanks to the ergonomic design, 'plug and play' rods for DTA, DSC and 3D Cp, and market leading Calisto software.
- New top loading balance designed specifically for TGA applications featuring unmatched stability, reproducibility and accuracy.
- Wide temperature range up to 1600 °C, including interchangeable sensors for the most precise measurements.
- High precision 3D DSC and Cp rod: the unique 3D (Calvet type) multiple thermocouples design enables large mass to be measured and to perform a Cp within 2%, throughout the whole temperature range (ambient - 1600 °C).

BALANCE & FURNACE

At the heart of the LABSYS evo is an advanced coiled metal furnace and a top loading thermostated balance that uses the technique of a beam articulated around a torsion band. The crossing furnace is ideally designed to be efficiently coupled to a gas analyzer. The different rods (DTA, DSC, TGA, 3D Cp) are changed within seconds using our unique "plug & play" connector.

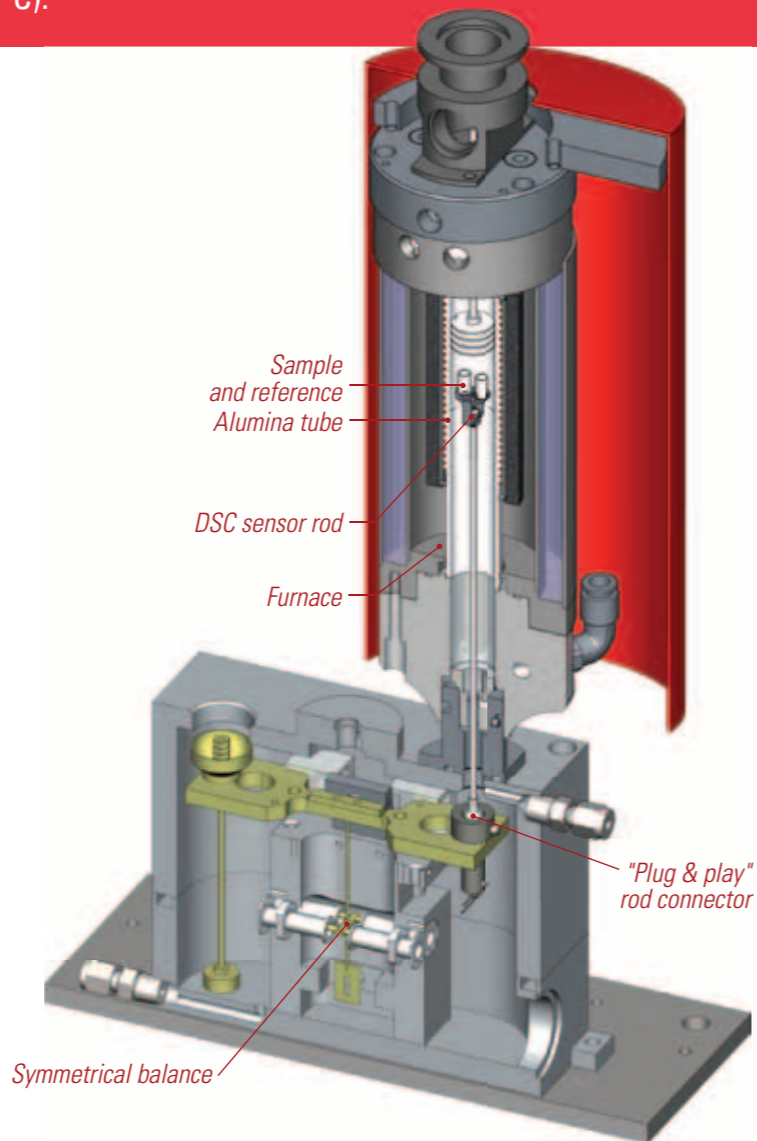
When only DTA, DSC or Cp measurements are required the balance beam is locked during the test for high precision.

Gas control panel

LABSYS evo offers the possibility of gas sweeping (inert or reactive).

An automated gas control panel is also available as an option, with the following performance specifications:

- Select from 3 different carrier gases (flow rate: 4 to 200 ml/min)
- Mixing these carrier gases with another "auxiliary or reactive" gaseous fluid (flow rate: 0.3 to 16 ml/min).



See LABSYS evo application notes

SENSOR RODS

Different sensor rods are available for DSC/DTA, TGA, simultaneous TGA-DSC/DTA measurements:

DTA rods: Platinel (ambient to 1 200 °C) or platinum-rhodium (ambient to 1 600 °C available with 20, 100 or 160 µl crucibles made of aluminum, alumina or platinum)

DSC rods: chromel-constantan (ambient to 800 °C) or platinum-rhodium (ambient to 1 600 °C – plate type DSC, available with 75, 100 or 110 µl crucibles made of aluminum, alumina or platinum)

TGA rod: ambient to 1 600 °C, available with 400 or 500 µl made of alumina, platinum.



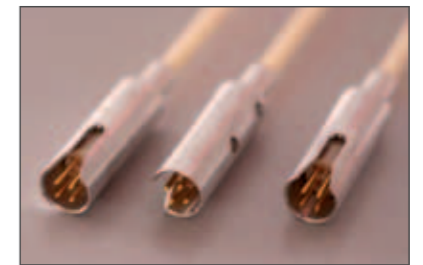
DSC plate rod



DTA rod



TGA rod



"plug & play" rod connectors

AUTO SAMPLER



The new autosampler is able to handle up to 30 samples and 6 reference crucibles and is a perfect complement for the LABSYS evo.

The DSC, DTA and TGA rods are all « plug & play » and the system automatically configures the 4-prong gripper for the different sensors and crucibles to give you the most userfriendly system available.

3D HIGH SENSITIVITY Cp SENSOR



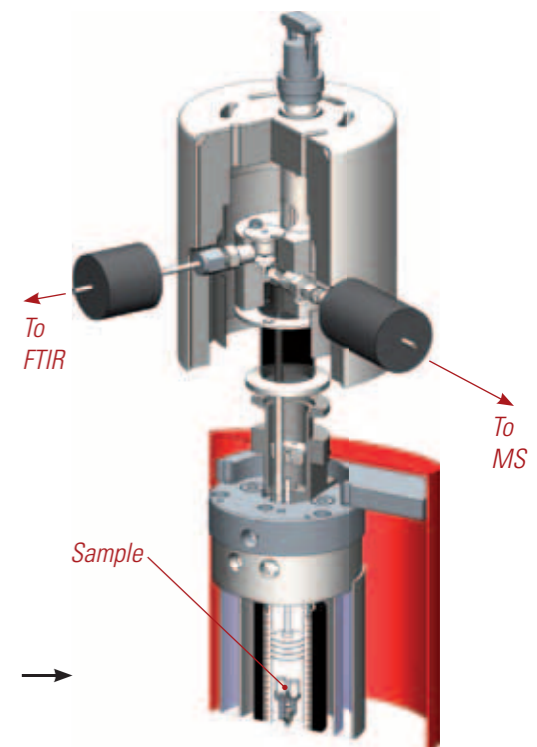
3D Cp Sensor

To increase the sensitivity of Cp measurement it is necessary to increase the mass, the sensitivity of the sensor and the speed of the furnace. Thanks to the large size of the crucible (380 µl to be compared to less than 100 µl for a regular DSC), the sensitivity of the sensor (up to 0.5 µV/mW) and the high heating and cooling rate of the furnace (100 °C/min) it is possible to have Cp measurements within 2 % precision, on the whole temperature range (ambient – 1 600 °C).

The 3D Cp (Calvet type sensor®) is composed of 10 thermocouples in series, that totally surround the sample.

EVOLVED GAS ANALYSIS

LABSYS evo offers a "plug & play" gas analyzer coupling device, enabling simultaneous MS and FTIR connections. The coupling device is heated up to 300 °C to avoid any gas condensation and is completely insulated for a safe handling.



APPLICATIONS

With its wide temperature range (ambient to 1600 °C) LABSYS evo has a wide range of applications for DSC/DTA, TGA, simultaneous TGA-DSC/DTA, Cp measurements. Various fields of application are possible including polymers and plastics, advanced materials, pharmaceutical compounds, inorganic substances, thermodynamics (specific heat capacity Cp precision within 2 %), energy, etc.

View the application notes in your field, available for download, by visiting www.setaram.com!

A huge database is in the [application library area](#) of our website. We have also included a powerful search engine that will enable you to find the most applicable data.

SPECIFICATIONS

Temperature range	Ambient to 1 600 °C
Isothermal temperature accuracy	+/- 1 °C
Programmable temperature scanning rate (heating and cooling)	0.01 to 100 °C.min ⁻¹
Furnace cooling	32 min (1 600 °C to 50 °C)
Maximum balance capacity	20 g
Weight range	+/- 1 000 mg; +/- 200 mg
Weighing precision	+/- 0.01 %
TG Resolution	0.2 µg; 0.02 µg
Auto Sampler	30 samples and 6 references 4-prong gripper
DSC rod - Resolution	0.4 µW / 10 µW dependent on sensor
3D Cp rod - Cp Accuracy	< 2 %
Vacuum	< 10 ⁻¹ mbar
Evolved gas	simultaneous MS, FTIR couplings (option)
Gases	<ul style="list-style-type: none">• Two inlets for gas scanning (inert or reactive) or• 3 carrier gases (option) (MFC from 4 to 200 ml/min) + 1 auxiliary or reactive gas (MFC from 0.3 to 16 ml/min)*
Weight	55 kg / 121 lbs
Dimensions (Height / Width / Depth)	56 closed, 76 opened / 53 / 58 cm (22.0 closed, 29.9 opened / 20.8 / 22.8 in)
Power requirements	230 V - 50/60 Hz

*MFC = Mass Flow Controller

Option : AKTS Thermokinetics software for comprehensive investigation of reaction or decomposition



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