

Thermogravimetric Analyzers

# TGA-50 Series



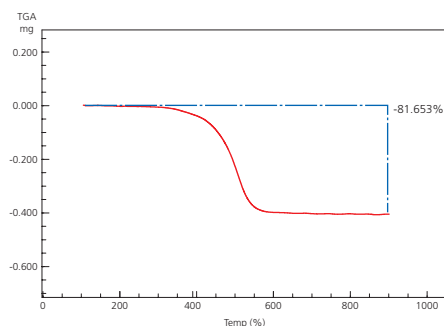
## The standard for high-sensitivity suspension-type thermobalance

The TGA-50 Series light-weight balance mechanism and taut band fulcrum are highly vibration tolerant and provide stable, high-sensitivity thermogravimetric measurement. One of the benefits of suspension-type balances is that measurement is not limited by the shape of samples or sample cells.

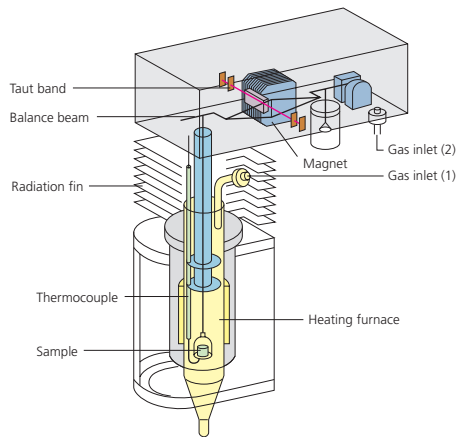
A wide variety of cells such as high-capacity cells and mesh cells, which enable gas distribution within a sample, are available to satisfy the needs for various applications.

### High sensitivity and high vibration tolerance

In thermogravimetric measurement using the TGA-50 Series, minute variations in mass can be detected. In addition, a taut band fulcrum that makes up the balance mechanism is highly vibration tolerant, so measurement with excellent repeatability is achieved.



Measurement of a Trace Amount (approx. 0.5 mg) of a CNT Sample

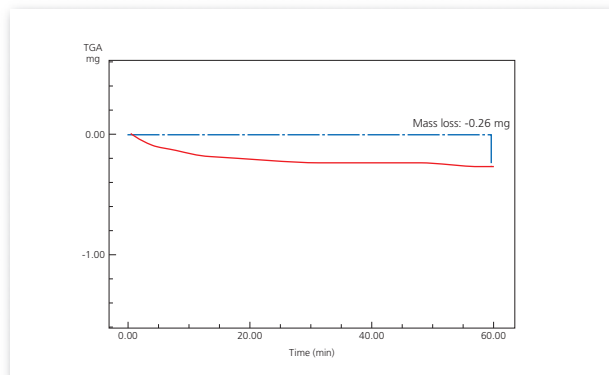
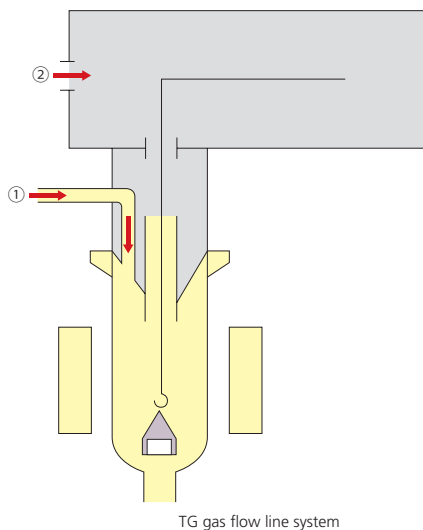


#### Principle and Structure of the TGA-50

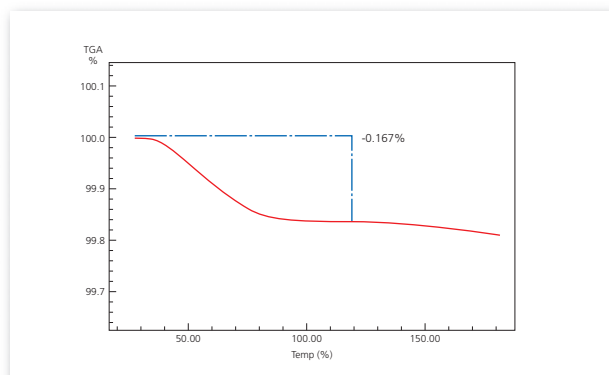
Thermogravimetric measurement (TG) is a technique where the temperature of the sample is changed at a certain rate and the mass variation that occurs in relation to the temperature is measured. It is used to measure various processes such as evaporation, decomposition, gas adsorption/desorption, and dehydration. When the mass of the sample changes, the balance of the balance system changes. The change is detected optically and electric current flows to the feedback coil to keep the balance of the balance system in its original state. The current is proportional to the mass variation.

## Measurement can be performed in various gases and high-capacity cells can be used.

In the gas flow line of the TGA-50 Series, active gas can be introduced from ① shown in the figure on the right while protecting the balance unit by feeding inert gas or other material from ②. A compact balance mechanism and small heating furnace are employed for the minimum dead volume and higher air tightness and gas displacement efficiency. In addition, various types of measurements can be performed by using high-capacity cells specially designed for the suspension method.



Measurement of the Water Vapor Transmission Rate of a Film for Foods (using the TGA-51 and special cell)



Measurement of the Moisture Content of PET Fiber (using a quartz crucible)



## Specifications

Model	TGA-50	TGA-50H	TGA-51	TGA-51H
Measurement Temperature Range	Ambient to 1000 °C	Ambient to 1500 °C	Ambient to 1000 °C	Ambient to 1500 °C
Weight Measuring Range	±20 mg, ±200 mg		±20 mg, ±200 mg, ±2000 mg	
Weight Readability	0.1 µg max.			
Sample Mass	1 g including tare		10 g including tare	
Atmosphere Control	A single flowmeter for the air, inert gas flow, and atmosphere gas is built in.			
Dimensions and Weight	W173 × D550 × H500 mm, 23 kg		W173 × D600 × H540 mm, 25 kg	
Power Supply	AC 100 V, 120 V, 220 V, 240 V, 500 VA, 50/60 Hz	AC 100 V, 120 V, 220 V, 240 V, 1.2 kVA, 50/60 Hz	AC 100 V, 120 V, 220 V, 240 V, 1 kVA, 50/60 Hz	AC 100 V, 120 V, 220 V, 240 V, 1.5 kVA, 50/60 Hz

## Data Processor

### TA-60WS Thermal Analysis Workstation

The workstation can be connected to up to four thermal analyzers to help smoothly perform routine work including measurement, analysis, and report output with easy operation. (Multi-channel and multi-task functions) The workstation is equipped with the OLE function and ASCII conversion function so that it can be linked with a wide variety of commercially-available software programs.

- Compatible with Windows 7.



TA-60WS

## Options

### BLW-50 Cooling Blower

The blower cools the heating furnace in a short time after measurement. It automatically operates after measurement is finished and automatically stops after the heating furnace is cooled.

### FC-60A Atmosphere Control Unit

The TGA-50 Series has a single built-in gas flowmeter. Other than that, the flowrate of atmosphere gas in two flow lines can be regulated. It can be used for applications where atmosphere gas is switched by a built-in solenoid valve, linked with a temperature program.

- A remote cable (for the 50 Series, P/N: 346-68466-92) is necessary.



BLW-50



FC-60A

## Sample Cells

P/N	Description	P/N	Description
① 201-52943	Crimp Cell, A1 dia. 6 × 1.5 (50 pcs.)	⑧ 201-57268-90	Macro Cell, A1 dia. 6 × 5 (50 pcs.)
② 201-51976	Platinum Cell, dia. 6 × 2.5	⑨ 201-53843	Platinum Macro Cell, dia. 6 × 5
③ 201-56927	Platinum Cell Cap, dia. 6	⑩ 201-56782-90	Quartz Macro Cell (crucible), dia.11 × 13.5
④ 201-54321	Alumina Cell, dia. 6 × 2.5	⑪ 201-56825-90	Alumina Macro Cell (crucible), dia.10 × 14
⑤ 201-53102-84	Nickel Cell, dia. 6 × 2 (50 pcs.)	⑫ 201-59795-91	Film Water Vapor Transmission Rate Measurement Cell (for the TGA-51)
⑥ 201-58294-90	Copper Cell, dia. 6 × 1.5 (50 pcs.)	Other cell	
⑦ 201-54439	Quartz Cell, dia. 6 × 2.5	201-56569-01	Platinum Mesh Cell, dia. 11 × 12



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