TMA-60/60H

[THERMOMECHANICAL ANALYZER]

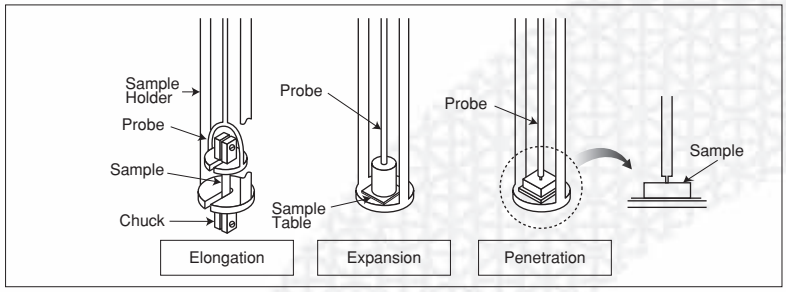
High precision measurement accomplished using simple operations. Even more functions.

The TMA-60/60H thermomechanical analyzer accommodates a wide variety of samples and is able to use various types of measurement methods* (expansion, elongation, or penetration) to thoroughly evaluate sample characteristics. Newly function, such as the automatic length measurement and safety features, were incorporated into development, resulting in high performance, high functionality and ease-of-use in many dimensions.

* Model TMA-60 is capable of the total expansion method and Model TMA-60H the differential expansion method.

Easy operation

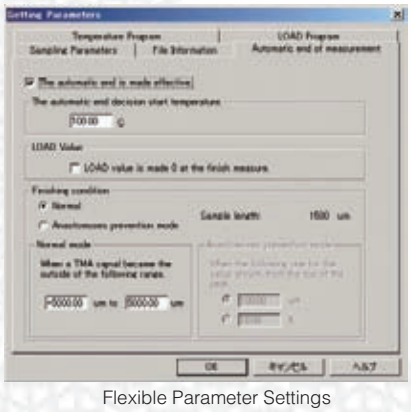
Changing between measurement mode is easy and maintainability is outstanding thanks to the use of a bayonet type sample holder that can be attached or removed in one step and plug-in type temperature sensors.



TMA measurement mode

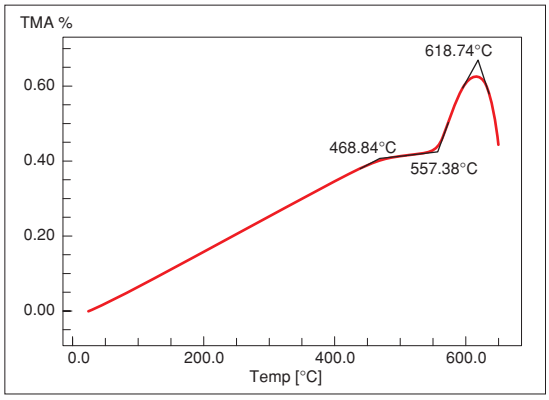
Probe Safety Function

TMA-60 is programmed with a safety mechanism to prevent sample from sticking to detection probe, such as when heating glass. When displacement exceeds a set range, such as due to a sample melting, the measurement is immediately stopped and the load is removed from the sample.



Flexible Parameter Settings

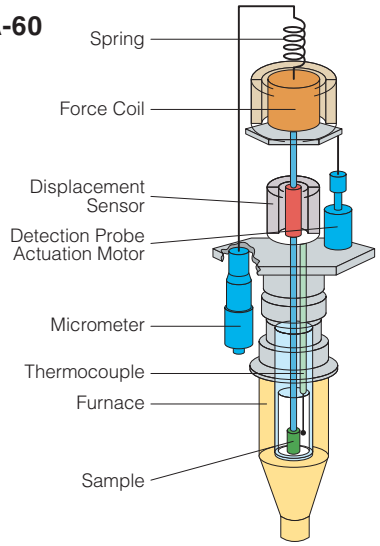
High precision and Wide dynamic range



Measurement precision was increased dramatically by using a specialized high precision digital displacement sensor. At the same time, a wide span of ±5 mm is possible (twice as much as previous), allowing high precision measurements of deformations ranging from tiny to large.

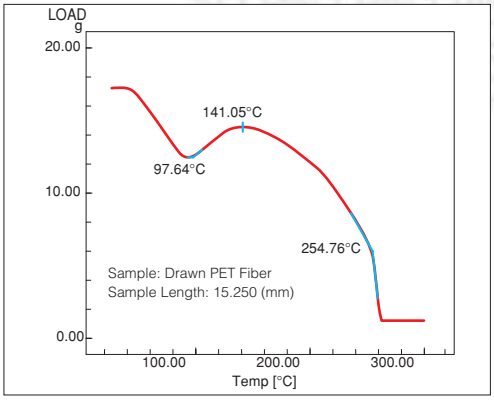
Theory and operation of the TMA-60

Thermo mechanical analysis is the measurement of a materials behavior, expansion and/or contraction, as a function of an applied load or temperature. A scan of dimensional changes related to time or load provides invaluable information about the samples mechanical properties. The advanced design of the TMA-60 provides a wide dynamic measuring range through superior integration of detection probe, displacement sensor and force coil.



A Wide Variety of Loading Programs

In addition to applying static loads to samples, constant rate loading, constant rate elongation or cyclic loading programs can be selected. Therefore, it is able to measure stress-strain curves or thermal stresses in film or fiber samples.



Heat shrink strain

TMA-60 / 60H Specifications		
	TMA-60	TMA-60H
Temperature range	Ambient to 1000°C (Expansion Mode) -150 to 600°C (using LTB-60)	Ambient to 1500°C
Measurement range	Displacement: ± 5 mm, Load: ± 5 N	
Sample load	0 - ± 5N (500gf)	
Sample size (Film Samples)	Ø8 mm x 20 mm or less (5 mm wide x 1 mm thick x 20 mm long or less)	Ø5 mm diameter or less 5 - 20 mm length
Prove/Support tube	Quartz	Alumina
Measurement mode	Expansion, Elongation, or Penetration	Differential expansion
Loading Mode	Constant rate Load up to 50 steps Constant rate Elongation up to 50 steps Shrink Stress Cyclic Load 0.01-1Hz Frequency	
Atmosphere	Air and inert gas	
Dimensions and weight	W: 367 x D: 624 x H: 880 (mm), 45kg	
Power supply	AC 100V, 120V, 230V 1000VA, 50/60Hz	AC 100V, 120V, 230V 1500VA, 50/60Hz