

Dynamic Mechanical Analyzer

PerkinElmer DMA 8000



Specifications

Rotating Analysis Head	Vertically up (forward) and 45° in between these positions Vertically down Horizontal		
Temperature Range	Standard furnace	-190 °C to 400 °C	
	High temperature furnace	-190 °C to 600 °C	
	Immersion bath	-196 °C to 150 °C	
Scanning Rates	Heating rate 0 °C to 20 °C/min* (standard furnace) Cooling rate 0 °C to 40 °C/min* (standard furnace) <i>*at mid range (100 °C), may not be achieved at elevated temperatures</i>		
Liquid Nitrogen	-100 °C	5 minutes	0.3 LN ₂
Coolant Consumption	-150 °C	10 minutes	<1 LN ₂
	-190 °C	15 minutes	<1 LN ₂
Frequency	Range	0 to 600 Hz (depends on sample)	
	Max. number	up to 100 per experiment	
	Resolution	0.001 Hz	
Dynamic Displacement	0 to ±1000 µm		
Stiffness Range	2 x 10 ² to 1 x 10 ⁸ N/m resolution 2 N/m		
Modulus	Resolution	0.0001 Pa	
	Range	~10 ³ to 10 ¹⁶ Pa	
Tan Delta	Resolution	0.00001	
Force	Range	-10 N to +10 N (range of 20 N)	
	Minimum	0.002 N	
	Resolution	0.002 N	
Displacement/Strain	Resolution	1 nm	
	Range	±1000 µm	

Sample Size	Maximum 52.5 mm x 12.8 mm x 8.0 mm		
Geometry Options	Mode	Options	Range
	Single Cantilever Bending	18	1.0 – 17.5 mm
	Dual Cantilever Bending	18	2.0 – 35.0 mm
	3-Point Bending	6	20.0 – 45.0 mm
	Tension	unlimited	<10 mm
	Compression	unlimited	<10 mm
	Shear	10 mm diameter plate	
	Material Pockets	powders/non self-supporting samples	
TMA Mode	Measurement range	±1000 µm	
	Geometry	tension and compression	
	Sensitivity	10 nM	
	Force load min/max	0.002 N / ±10 N	
	Sample size	up to 10 mm	
Atmosphere	Static; controlled flow with air or inert gas; fluid (immersion); humidity		
OPTIONS	Fluid Bath		
	Temperature Range	-196 °C to 150 °C (dependent on immersion fluid used) Optional K-type thermocouple available for accurate fluid temperature control	
	Bath Material	Standard PTFE coated Aluminium and optional Pyrex® Glass	
	Humidity Generator	5% to 90% (25 °C)	
	Humidity Range	10% to 80% (80 °C)	
	Temperature Range	5 °C to 80 °C Care must be taken regarding dew points for low temperature studies	
Standard Environmental Conditions	Temperature – operating	+15 °C to +35 °C	
	Relative Humidity	20% to 80%, non-condensing	
Optical Windows	Standard configuration with 400 °C furnace: quartz. Optional lateral windows or apertures available		
Instrument Weight	15 kg (33 lbs)		
Instrument Dimensions	170 mm depth x 475 mm width x 340 mm height 6.7 in depth x 18.7 in width x 13.4 in height		
Connections	Electrical	120 VAC or 230 VAC ±10%, 50/60 Hz. ±1%, 600 VA (maximum)	
	Interface	1 USB input	
	Purge gas	4 mm purge gas inlet	
	Cryogenic fluids	6 mm inlet port	
Conformance	Low voltage directive 73/23/EEC	EN 55011 Class B	1992
	EMC directive 89/336/EEC	EN 61000-3-2	1997
		EN 61000-3-3	1998
		EN 61326	2000

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