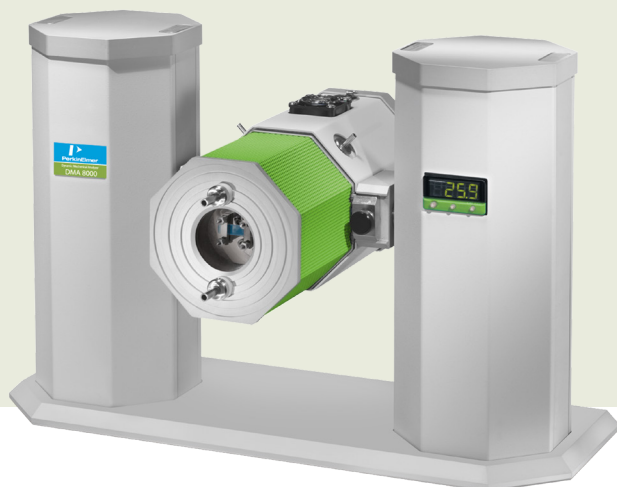


## Thermal Analysis



### Preparation Checklist

- Site Requirements
- Peripherals and Accessories
- Electrical Requirements
- Gas Requirements
- Environmental Requirements
- Safety Requirements
- PC Configuration
- Installation Overview
- Miscellaneous

## DMA 8000: Site Readiness Instructions

### Order Overview

Please review this order. Record any discrepancies between the PerkinElmer order and your Purchase Order, along with any agreements or commitments made by your PerkinElmer Sales Representative that are NOT listed on the order. Let your Customer Care Representative know about these discrepancies and/or commitments with your Site Readiness Confirmation.

### Site Requirements:

#### Bench Space

Instrument	Dimensions			
	Width	Depth	Height	Weight
DMA 8000	54 cm (21 in)	32 cm (12 in)	41 cm (16 in)	~15 kg (33 lbs)
Computer	42.5 cm 17.0 in	49 cm (19.0 in)	49 cm (19.0 in)	21.0 kg (48 lbs)

A bench top of approximately 60 cm (21 in) W x 32 cm (12 in) D will accommodate a DMA Analyzer with no accessories. With accessories (Bath Accessory, Humidity Generator or LN2 dewar) additional bench space will be required.

#### NOTE:

- The one (1) liter dewar, can be placed on either side of the analyzer. It must be filled less than ½ hour before performing the installation check of PMMA.
- The Humidity Generator must be placed to the left of the DMA. Deionized or distilled water is required.
- The Bath Accessory fits under the DMA and extends out from the front of the analyzer approximately 8-10 inches (20-26 cm). The Bath Accessory must be located on a flat surface.

## Peripherals and Accessories:

Accessories	Dimensions			
	Width	Depth	Height	Weight
1 liter dewar	10 cm (4 in) (Diameter)		31 cm (12 in)	0.9 kg (2lbs)
50 liter dewar	60 cm (24 in) (Diameter)		71 cm (28 in)	7 kg (15.4lbs)
Bath Accessory	17cm (6.5 in)	42 cm (16.5 in)	13 cm (5 in)	4.5 kg (10lbs)
Humidity Generator	37 cm (14.5 in)	17 cm (7 in)	35 cm (14 in)	14 kg (31lbs)

## Electrical Requirements:

Power Consumption	
DMA 8000	300 VA Maximum
Computer	500 Watts Maximum
Bath Accessory	200 Watts Maximum
Humidity Generator	150 Watts Maximum

Power Specifications	
DMA 8000	100/120 VAC, 2.0 Amps or 230 VAC, 2.0 Amp
Computer	100/115 VAC, 4.6 Amps or 230 VAC, 2.3 Amp
Bath Accessory	40VDC 5A from DMA
Humidity Generator	100/120 VAC, 2.0 Amps or 230 VAC, 2.0 Amp

This equipment is designed to operate within  $\pm 10\%$  of the selected line voltage.

The supply must be smooth, clean and free of transient voltages over 40 volts.

Earth grounding: less than 1 ohm resistance between the grounds of any two components of the system.



**Grounding circuit continuity is vital for safe operation of equipment. Never operate equipment with grounding conductor disconnected**

All outlets must share a common earth ground.

Power Outlets	
DMA 8000	100/120 VAC, 2.0 Amps or 230 VAC, 2.0 Amp
Computer	100/115 VAC, 4.6 Amps or 230 VAC, 2.3 Amp
Bath Accessory	40VDC 5A from DMA
Humidity Generator	100/120 VAC, 2.0 Amps or 230 VAC, 2.0 Amp

## Gas Requirements:

The DMA does not require a purge gas to perform the installation. If gases are required for a specific application the gases and regulators MUST be supplied by customer. (Caution: High flow rates  $>100$  cc/min can result in noisy thin film or fiber data).

## Environmental Requirements:

Laboratory Environment
<b>Recommended operating conditions:</b>
<ul style="list-style-type: none"> <li>Indoors, non-explosive environment.</li> <li>The location must be free of smoke, dust, corrosive fumes, direct sunlight and excessive vibration.</li> <li>Temperature: <math>+10</math> °C to <math>+35</math> °C (<math>+50</math>°F to <math>+95</math>°F).</li> <li>Relative humidity: 20% to 80%, without condensation.</li> <li>Altitude: in the range 0 m to 2,000 m (sea level to 6,562 feet).</li> </ul>
<b>Safe operating conditions:</b>
<ul style="list-style-type: none"> <li>Indoors, non-explosive environment.</li> <li>Temperature: <math>+5</math> °C to <math>+40</math> °C (<math>+41</math> °F to <math>+104</math> °F).</li> <li>Relative humidity: 20% to 80%, without condensation.</li> <li>Altitude: in the range 0 m to 2,000 m (sea level to 6,562 feet).</li> </ul>
<b>Storage conditions:</b>
<ul style="list-style-type: none"> <li>Ambient temperature: <math>-20</math> °C to <math>+60</math> °C (<math>-4</math> °F to <math>+140</math> °F).</li> <li>Relative humidity: 20% to 80%, without condensation.</li> <li>Altitude: in the range 0 m to 12,000 m (sea level to 39,370 feet).</li> </ul>

## Clean and Dust-free

Indoor use only on level, securely mounted bench and vibration-free work surface. A suitable bench should not visibly move when the user presses on it. The bench must be located where it does not present a hazard to people passing through the work area.

## Safety Requirements:

### Electrical Considerations

High voltages are associated with the power supplies. Never run the analyzer without the covers in place.

### Gas Cylinders and Gas Delivery Lines

Lock down straps should be present on all gas cylinders.

### Ventilation

Do not operate the DMA8000 in an enclosed environment without adequate ventilation.

The LN2 dewar system used with the DMA emits a small amount of nitrogen during normal operations. If your laboratory is not properly ventilated, the level of oxygen in the laboratory may fall below the normal range. Please follow the applicable laboratory ventilation standards to ensure that an appropriate oxygen level is maintained.

### Other Considerations

The furnace (environmental chambers) are capable of obtaining temperatures in excess of 400 °C, and use of LN2 is also possible, both can result in burns.

### PC Configuration:

Due to numerous differences in PC hardware, PerkinElmer cannot guarantee that our software will run on a customer-supplied computer.

PerkinElmer installation of a customer-supplied computer is available for an additional fee.

PerkinElmer is not responsible for problems caused by unspecified system components, software, and/or accessories. A maximum of 1 hour is allowed for installation of a computer and software of a non-PerkinElmer supplied computer. The additional time it takes to verify this type of problem is billable at the current service rate. It is advisable the customer's IT support be available as needed.

**Software:** As per requirement.

### Installation Overview:

On receipt of the equipment, the customer is to inspect the packaging for physical damage. If damage is present the shipping container should be opened to verify no physical damage to the instrument has occurred and the customer must notify the shipper immediately.

*NOTE: Unpacking will ONLY be performed by approved PerkinElmer personnel and contents inventoried.*

### Physical Installation (Instrument Only)

The physical installation will vary based on system configuration. Purge gas and coolant are not required to complete the installation. If these utilities are not present at the time of installation and the service engineer is required to make a return trip to connect purge gas and coolant, the return trip and time will be billable at the prevailing service rates.

### Physical Installation (Accessories)

As Required

### Installation Test Standards

Our Service Engineer will test the instrument in order to insure that its functionality meets PerkinElmer's requirements using reference materials supplied with the DMA 8000.

### Customer Orientation

A familiarization checklist will be followed at the time of the installation. The customer must be available at this time. *Familiarization content covers the basic operation in the single cantilever, dual cantilever and tension modes.* If advanced operational technique training for software or hardware is required contact your sales or service representative before the installation is scheduled.

### Miscellaneous:

#### Cooling System Requirements

In order to get the maximum instrument performance, it is recommended that a cooling system be used for DMA operations at or below ambient temperature.

#### For operation at or above ambient temperature:

The DMA can be configured with a circulating bath, or it can be run without any coolant.

If the coolant chamber of the DMA has been cooled with circulating water it must be completely purged of residual water before using LN2.

#### For subambient operations:

It is necessary to install an LN2 dewar accessory.

#### If IQ/OQ Validation is Required for this Instrument:

Please contact your Customer Care Representative. Please visit the PerkinElmer website to obtain the address of your nearest PerkinElmer office.

## Miscellaneous Accessories and Spares

Part Number	Description
N5374092	Dynamic Mechanical Analysis: A Practical Introduction by Menard -book
N5330268	High Temperature Furnace (-180 to 600 C) Note: this furnace does not have a quartz window. Note: Using this furnace requires editing the instrument configuration.
N5337024	DMA Photo Adapter Allows use of DSC UV system light guides with DMA 8000. Other UV sources using light guides with the same OD on the guides can also be used
N5365048	Replacement Omni-cure Light Pipe
N5365049	Replacement Omni-cure Bulb
N5330320	Pyrex cup for Fluids Bath (set of three)
N5330320	Pt 100 Replacement sensor
N5330220	DMA 8000 Measuring System Kit
N5330316	Sample Kit Replacements – Acrylic (set of 5)
N5330340	Sample Kit Replacements – PVC (set of 5)
N5330341	Sample Kit Replacements – HDPE (set of 5)
N5330342	Sample Kit Replacements – Polycarb (set of 5)
N5330343	Sample Kit Replacements – PET Film (set of 5)
N5330344	Sample Kit Replacements – G10 Epoxy (set of 5)
00090652	Sample Kit Replacement – Septum for compression (Set of 5)
N5337031	End cap for DMA 8000 Vent Cover Recommended for use with N5330401Humidity Chamber
N5330405	Desiccant for humidity chamber (1 kg)
N5330402	Humidity Generator Sensors - calibrated
N5330403	Humidity Generator heated line
N5330404	Humidity Generator Sensor lead

## Miscellaneous Accessories and Spares Continued...

Part Number	Description
N5330300	Bending clamps (titanium)
N5330301	Shear studs and plate
N5330302	Shear clamp outer assy (pair)
N5330303	Outer clamp supports (1 pair) stainless
N5330304	Outer clamp support (single side only)
N5330305	3 Point bending clamps (titanium)
N5330306	Extended bending clamp set
N5330307	Miniature 3 pt bending clamp
N5330308	Compression insert (titanium)
N5330310	Extended nut set (stainless steel)
N5330311	Full nut set (stainless steel)
N5330312	Tensile clamps (titanium)
N5330313	Tensile spacer set (stainless steel)
N5330314	Alignment fixture
N5330315	Calibration mass
N5330078	Tensile clamps (titanium)
N5330260	Cryo hose kit, non-standard
N5330259	Automatic cryo kit type b
N5330198	Tool kit-dma8000

## Calibration Supplies

Part Number	Description
N5330316	PMMA Test Samples (set of 5)
N5330317	Steel Test Sample
N5330318	Temperature Calibration Kit
N5330319	Traceable Calibration Kit, DMA Testing Kit Includes 6 known samples and instructions