

## TMA 4000: SITE READINESS INSTRUCTIONS

### Site Requirements

#### Bench Space

Instrument	Dimensions			
	Width	Depth	Height	Weight
TMA 4000	8.75 in/22.25 cm	19 in/48.26 cm	25 in/63.5 cm	45 lbs/20 kg
Computer (approx.)	7 in/17.5 cm	17 in/44.0 cm	15.8 in/40.2 cm	24 lbs/11.0 kg

A bench top having the minimum dimensions above will accommodate a TMA 4000 system with no accessories. The bench must be stable and free of vibrations which will result in increased noise in the TMA curve.

With accessories (Circulating water chiller, Printer, Plotter,) additional bench space will be required.

Note: With all cooling accessories the coolant transfer line attaches to right side of the furnace of the TMA 4000. Consideration must be given for location of the water circulator relative to the TMA 4000. Typically, the TMA is located at the right end of the bench.

#### Peripherals and Accessories

Accessories	Dimensions			
	Width	Depth	Height	Weight
Water Circulator	8.25 in/ 21 cm	15.75 in/40 cm	22.5 in/57.1 cm	70 lb./32 kg

#### Electrical Requirements

Power Consumption	
TMA 4000	330 Watts Maximum
Computer	Not Available
Circulator	1440 Watts Maximum

Power Specifications	
TMA 4000	120 VAC, 2.8 Amps or 220 VAC, 1.4A
Computer	Not Available
Circulator	120 VAC, 12 Amps or 240 VAC, 7 Amps

This equipment is designed to operate within 10% of the selected line voltage (Except 220 VAC +6%, -10%).

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.

Power Outlet Specifications	
TMA 4000	1 standard outlet
Additional Accessories	1 separate outlet each

## Gas Requirements

A purge gas is not a requirement to operate the TMA, however it is recommended. If the instrument is to be purged, all gasses and regulators MUST be supplied by customer and on site before scheduling an installation.

Supplied with the instrument are a 1/8" NPT Swagelok connector (instrument end), Teflon tubing and connectors and restrictors. Gas flow to the instrument is 0-50 cc/min and controlled by the restrictors provided.

Gas	Pressure	Flow	Purity (Minimum)
Sample Gas: such as argon, nitrogen, air, oxygen	≤ 20 psi (1.38 bar)	0-50 cc/min	99.95
Sample Gas: Helium, exceptionally dry	≤ 20 psi (1.38 bar)	0-50 cc/min	99.95

## Cooling

Required but not included with the analyzer system is a turbulent chamber kit (L8040201). The turbulent chamber attaches at the bottom of the furnace. It has an input and output for cooling liquid. Nominal flow rates of the cooling liquid are between 200-300 ml/min. Control of the flow and temperature are critical for best analytical performance.

### Cooling Accessory requirement specifications

Temperature control: ≤ 0.25 °C

## **Environmental Requirements**

The TMA is designed to function properly in an environment having the following specifications:

### **Laboratory Environment**

Full performance: 10°C to 35°C ambient

Safe: 5°C and 45°C ambient

Storage: -20°C to 60°C

Humidity (storage and operational): 20% RH to 80% RH non condensing

Altitude: -400 to 2,000 metres

Clean and dust-free

Indoor use only on level, vibration-free work surface, located away from doorways and other heavy traffic areas.

Circulator requires adequate air flow. A minimum of 6" is required between the unit and the surrounding area.

## **Safety Requirements**

**Gas Cylinders and Gas Delivery Lines** Lock down straps should be present on all gas cylinders.

**Ventilation** Do not operate the Themomechanical Analyzer in an enclosed environment without adequate ventilation.