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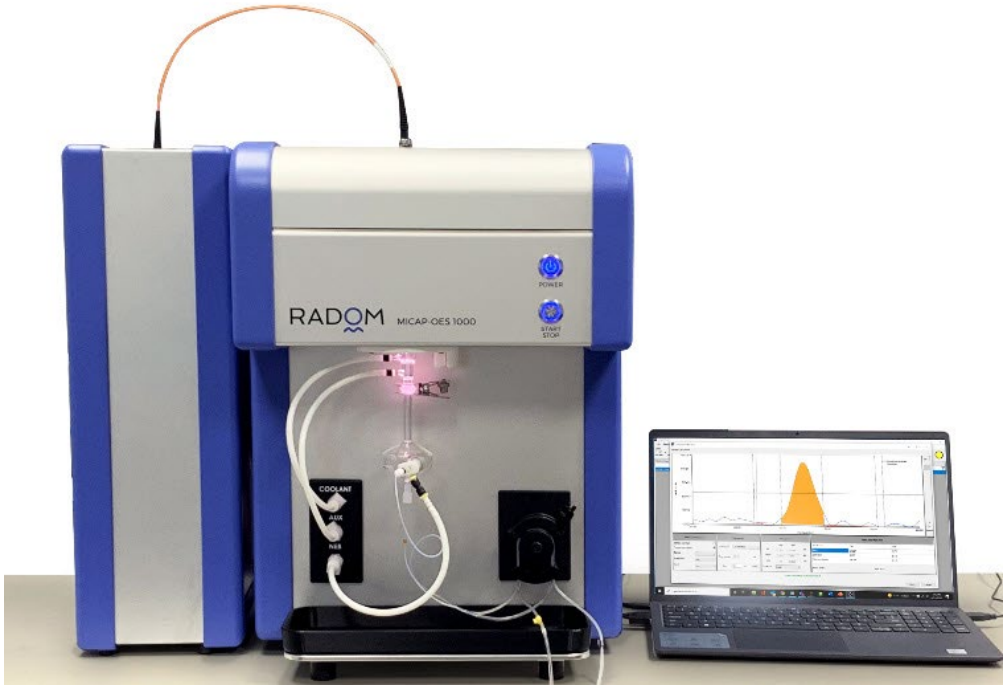


Box to Bench
MICAP-OES 1000
Preinstallation Guide

Preinstallation instructions prior to MICAP-OES 1000 delivery

RADOM Corporation MICAP-OES 1000 has reimagined not only plasma for atomic spectroscopy, but the installation — which can be completed by the end user. In order to achieve best results, the following steps must be completed prior to receiving RADOM MICAP-OES 1000 in your facility.

1 Order Validation Solutions:

MICAP-OES 1000 system validation is required at initial installation and may be performed to aid in troubleshooting sessions throughout the lifetime of the instrument. The system validation is accomplished by utilizing the supplied method and test solutions. MICAP-OES 1000 method is standardized utilizing the supplied Test Solutions, (two-point calibration curve) blank and 5 ppm standard. The 5-ppm standard is analyzed multiple times such that the accuracy (%recovery) and precision (%RSD) can be calculated and compared to the specification of ± 5% recovery and < 5% Relative Standard Deviation (%RSD).

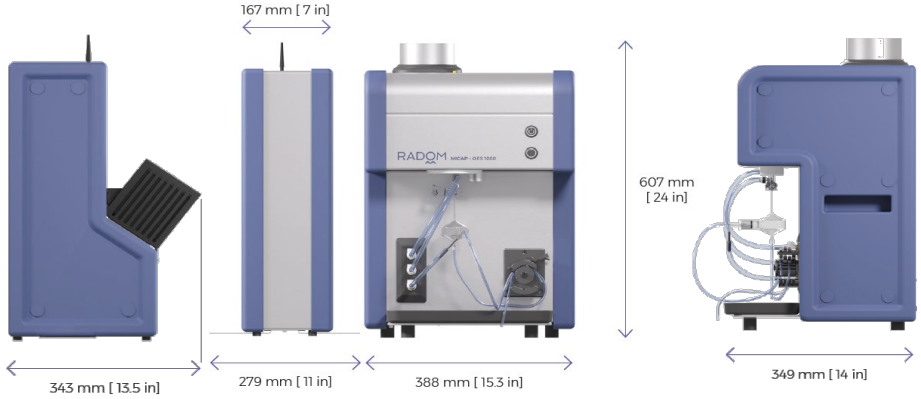
2 Bench Requirements:

The workbench surface must be leveled, lab grade and corrosion resistant.

Recommended Bench Size: Length X Width X Depth
80” (2032 mm) x 30” (762 mm) x 37” (940 mm)

	Width:	Depth:	Height:	Weight:
MICAP-OES 1000	388 mm (15.3 in)	349 mm (13.7 in)	607 mm (24 in)	19 kg (42 lb)
Spectrometer	280 mm (11 in)	343 mm (13.5 in)	551 mm (22 in)	12 kg (26 lb)
Autosampler	580 mm (22.8 in)	560 mm (22 in)[I]	620 mm (24.4 in)[II]	12 kg (26 lb)
PC	359 mm (14.1 in)	236 mm (9.3 in)	19 mm (0.7 in)	2 kg (4 lb)

I) - allow additional space for cables
II) - with sample probe



MICAP-OES 1000 Dimensions

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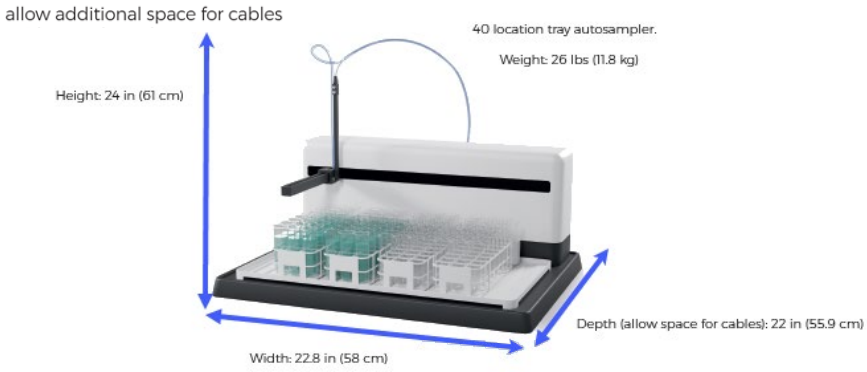
Preinstallation Instructions



3

Power Requirements - Avoid using power supplies from a source that may be subject to electrical interference (such as large electric motors, elevators, welders, and air conditioning units). In places where such interference is unavoidable, the use of an appropriately rated isolation transformer should be considered.

MICAP Sub- System	**Required Supply Voltage**	**Maximum Current Consumption**	**Maximum Power Consumption**	**Outlet Requirements**
Plasma Source	208 – 240 VAC 50 – 60 Hz	8.2 A at 208 VAC	1.7 kW	NEMA L6-20R
Spectrometer	100 – 240 VAC	1 A at 100 VAC	100 W	Standard US wall outlets
Auto-sampler	100 – 240 VAC 50 - 60 Hz	0.8 A at 100 VAC	80 W	
Laptop	100 – 240 VAC 50 - 60 Hz	0.7 A at 100 VAC	65 W	

Outlet for Plasma Source, NEMA L6-20R, female.
Part number: 7162K52 at www.mcmaster.com

Preinstallation Instructions

4 **Gas Requirements -** Incorrectly setting up the gas lines on the instrument may damage it or prevent plasma from igniting. Gas supply regulator pressure settings will need to be adjusted to ensure the pressure is in the optimal range of 60-70 psi (4.1 – 4.8 bar). Appropriate leak tests over each gas connection point will need to be performed to ensure safety on the gas connections.

Care should be taken to ensure no other devices which are connected to the gas supply lines are operating concurrently with the MICAP-OES 1000. This may cause a drop in gas pressures that would cause the unit to shut down due to low pressure interlock condition.

6mm quick disconnects at the back of MICAP-OES 1000 are used to connect to 6mm OD gas tubes (e.g., McMaster part number: 51555K122). If 1/4in OD tubing is used across the lab, 6mm quick disconnect can be replaced with 1/4in quick disconnect (McMaster part number: 7397N19).

	Nitrogen	Argon	Air
Purity	99.99%	99.995%	-
Water Vapor	-	-	<4 ppm
Regulator Type	CGA 580	CGA 580	CGA 590[I]
Permissible pressure range	50 – 70 psi	50 – 70 psi	50 – 70 psi
Recommended pressure	60 – 70 psi	60 – 70 psi	60 – 70 psi

CGA – Compressed Gas Association Standard
Argon is utilized during the ignition sequence only.

	Nitrogen	Air	Argon
Maximum Flow Rate	20 L/min	25 L/min	2L per ignition
Operating Flow Rate	16 L/min	25 L/min	*

* Argon is not in use during operation. It is only utilized during the ignition sequence.

Air must be dry and filtered. Equipment below is an example of an acceptable setup:

- Ingersoll-Rand 25CFM dryer:
  - https://a.co/d/31o8M7w
- Ingersoll-Rand 1-Micron Inline Filter:
  - https://a.co/d/esIQoP1
- Ingersoll-Rand Regulator:
  - https://a.co/d/27O3MDt

Preinstallation Instructions

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Exhaust Requirements - The MICAP-OES 1000 must be vented by an exhaust system to the outside of the building. Within the MICAP, the exhaust is used to evacuate plasma gasses as well as to cool the magnetron and other components. If MICAP-OES 1000 shares an exhaust system with other equipment in the facility, extreme care should be taken so that all exhausted gases flow to the outside of the facility and no back-pressure is present in the system that would cause combustion by-products to enter occupied spaces.

Minimum flow	2.8 m^3/min (90 CFM) loaded (instrument or installation aid attached)
Maximum flow	4.2 m^3/min (150 CFM) loaded (instrument or installation aid attached)
Flexi-duct maximum length	6.6 ft (2.2 M)
Ventilation ducting ID	4 in (100 mm)
Maximum ducting bend angle/radius	45°/10° (25 cm)

GETTING MORE HELP

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