

AA, ICP-OES, ICP-MS



MPS 320 Microwave Digestion System

Introduction

PerkinElmer's MPS 320™ is a complete microwave digestion system and includes all items needed to run the instrument with the exception of the following items to be provided by the laboratory: suitable working area, sample handling hood, exhaust venting and adequate power.

The MPS 320 system consists of the main oven, the control module, the digestion vessels, an exhaust hose and power cord. The vacuum pump accessory is required for auto-venting vessels. The external exhaust accessory is required for the 32-vessel auto-venting rotor.

PREPARATION CONSIDERATIONS

- Suitable Working Area
- Exhaust Vent
- Electrical Services
- Safety Considerations
- Important Accessories and Consumables
- Dimensions and Power Requirements

Suitable Working Area

It is important that the MPS 320 is placed in a suitable working area. The instrument will operate at a laboratory temperature between 15 and 35 °C (59-95 °F) with a maximum relative humidity of 85% (non-condensing). For optimum performance, the room temperature should remain near 20 °C. The instrument should be located away from direct sources of heat or cold.

The MPS 320 requires clearance of at least 15 cm (6 inches) on the left side and back to ensure adequate ventilation and 36 cm (14 inches) on the right of the system in order to open the lid.

The environment should be relatively dust-free and free of corrosive vapors. A fume hood is required for sample preparation prior to digestion and vessel venting at the completion of digestion. To simplify sample handling, it is preferable to place the MPS 320 near the fume hood. The instrument should not be placed within a fume hood as the corrosive environment will severely damage the electronics.

The MPS 320 system should be placed on a table or bench and may need to be moved for service and preventative maintenance. To facilitate this, a rolling bench designed for the MPS 320 is available from PerkinElmer (Part No. N0777900).

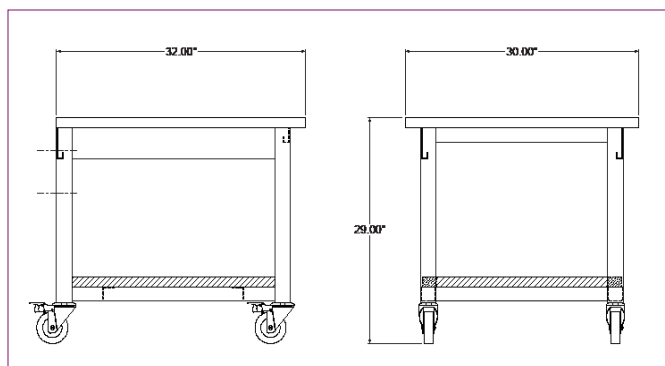


Figure 1. Bench for the MPS 320 microwave digestion system (Part No. N0777900).

Exhaust Vent

The MPS 320 requires a single exhaust vent for the oven. The venting system is required to remove any fumes and vapors from the oven body and provide airflow during the vessel cooling phase. Exhaust venting is important for a number of reasons:

- It will protect laboratory personnel from corrosive vapors that may be present during digestion or when there is a rupture disc or auto-venting release.
- It will help to protect the instrument from corrosive vapors from the samples.
- It provides cooling for the vessels at the end of the digestion cycle.

When adequate exhaust venting is attached, under normal operating conditions the MPS 320 system will not emit any hazardous vapor. In the event of an overpressure rupture disc or auto-venting release, the gas containment manifold will contain and guide the gasses to the exhaust system. An optional neutralization accessory (Part No. N3136057) can be attached to the vent line to neutralize acid in the event of a vessel rupturing or auto-venting.

WARNING: The use of the MPS 320 without adequate ventilation to outside air may constitute a health hazard and has the potential to damage the oven and the vessels.



Figure 2. MPS 320 exhaust hose.



Figure 3. Optional MPS 320 external exhaust system 230V 50/60Hz (Part No. N3131009). Includes one exhaust hose.

The laboratory supplied exhaust duct should provide a draw rate of approximately 2120 L/min (75 CFM) at the instrument. If the MR-85/32 vessel rotor is being used, then 75 CFM is the minimum exhaust flow rate. If this is not possible, an optional external blower is available (Part No. N3131009). The laboratory exhaust duct or external blower should be vented to the outdoors and must comply with local safety and environmental regulations and guidelines. A vacuum pump is required for auto-venting vessels. There are two configurations of the vacuum pump: 110 and 220 volts.

Electrical Services

NOTICE: The MPS 320 must be connected to an approved standard socket with protective ground (earth) conductor!

The MPS 320 system is supplied with a 2.5 m (8 ft) power cable. Under full instrument load, the MPS 320 requires a 215-250 VAC, 50/60 Hz electrical line which should have a separate dedicated circuit breaker. Only single-phase power is needed. The electrical supply must be compliant with the local safety regulations and must have been approved by an authorized electrician prior to connecting the MPS 320 instrument. If local power does not meet the voltage requirements above, a transformer is available from PerkinElmer (Part No. N3135013) to correct this issue.

An approved wall outlet must be provided near the place of installation. Operation of the MPS 320 via extension cord is not permitted. The power circuit should be rated at 15 amps, though the instrument does not draw all of this capacity. The maximum power consumption is approximately 3450 volt-amperes.

The MPS 320 is delivered with a CE and UL certified 2.5 m (8 ft) detachable power cord. The instrument end is an IEC C-19 connector while the supply end (at the wall) is a NEMA 6-20 connector. Additional cables for regional wall outlets are available.

Safety Considerations

NOTICE: Personnel with pacemakers should not work near the instrument!

The MPS 320 generates a microwave field which is used to directly heat the samples. This microwave energy is potentially hazardous if allowed to escape. Safety devices and screening interlocks should not be bypassed or disconnected.

The power supply of the instrument is capable of generating potentially lethal voltages. No maintenance should be performed by anyone other than a PerkinElmer Service Specialist or the laboratory's own PerkinElmer authorized maintenance personnel.



Figure 4. 2.5 m power cord (Part No. N3135010) provided with MPS 320; C-19 (instrument end) to NEMA 6-20P (wall outlet plug).

Power Cords, Receptacles and Accessories

Power Cords for MPS 320	Part No.
North America (included)	N3135010
Europe (not included)	N3135000
Europe Switzerland (not included)	N3135001
Europe Italy (not included)	N3135002
Europe Denmark (not included and requires receptacle Part No. 09290305, not included)	N3135009
India, South Africa (not included)	N3135003
United Kingdom (not included and requires receptacle Part No. 09290305, not included)	N3135004
Australia (not included)	N3135005
Israel (not included)	N3135006
China (not included)	N3135007
Brazil (not included)	N3135008
Power Cords for External Exhaust & 220 Volt Vacuum Pump	Part No.
North America 208/240 VAC	N3134077
Europe CEE 7 Schunko – ships as standard	09991415
Europe Switzerland	09991413
Europe Italy	09991422
Europe Denmark	09991416
Old British Standard BS 546 India	09991423
British Standard BS 1363 UK	09991414
Australia ETSA S/86	09991417
Israel	09991424
China	00290348
Brazil	09290996
Accessories	Part No.
Receptacle (for use with the Buck Boost Transformer in U.S., Canada and Japan)	N3135011
In-Line Connector (for use with the Buck Boost Transformer in U.S., Canada and Japan)	N3135012
Buck Boost Transformer (0.5 KVA) (Japan and U.S./Canada)	N3135013
Receptacle (Surface Mount, for Denmark and United Kingdom)	09290305

Dimensions of the MPS 320 and Accessories

Product	Width	Height	Depth	Weight
MPS 320	76 cm (30 in), when lid open: 112 cm (44 in)	48 cm (19 in)	61 cm (24 in)	59 kg (130 lb)
External Exhaust Blower	26 cm (10 in)	23 cm (9 in)	28 cm (11 in)	4.5 kg (10 lb)
Controller	23 cm (9 in)	14 cm (6 in)	18 cm (7 in)	1.05 kg (2 lb)
Vacuum Pump	24 cm (9 in)	19 cm (7 in)	11 cm (4 in)	6.2 kg (14 lb)

Power Requirements

Product	Voltage	Frequency	Watt
MPS 320	207-253V	50/60 Hz	3450W
External Exhaust	207-253V	50/60 Hz	128W
Vacuum Pump 110V	100-120V	50/60 Hz	70W
Vacuum Pump 220V	200-240V	50/60 Hz	70W

Every day, you can count on PerkinElmer to provide you with solutions that deliver reliable performance, control operating costs and maximize operational time. Our complete portfolio of consumables, parts, supplies, training and service helps you meet both routine and demanding measurement challenges. We invest heavily in testing and validating our products to ensure you receive guaranteed compatibility and performance – on-time, for every instrument in your laboratory.

Always keep spares on hand!

For a complete listing of MPS 320 consumables, please visit www.perkinelmer.com/supplies