

# Titan MPS Microwave Sample Preparation System



## Microwave Digestion

### Preparation Checklist

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

### Introduction

The PerkinElmer Titan MPS™ Microwave Sample Preparation System is a complete 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 Titan MPS system consists of the main oven, the digestion vessels, an exhaust hose and power cord.

### Suitable Working Area

It is important that the Titan MPS 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 Titan MPS requires clearance of at least 15 cm (6 inches) on the sides and back to ensure adequate ventilation and 20 inches above 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 Titan MPS near the fume hood. The instrument should not be placed within a fume hood as the corrosive environment will damage the electronics.

The Titan MPS is 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 Titan MPS is available from PerkinElmer (Part No. N0777900)

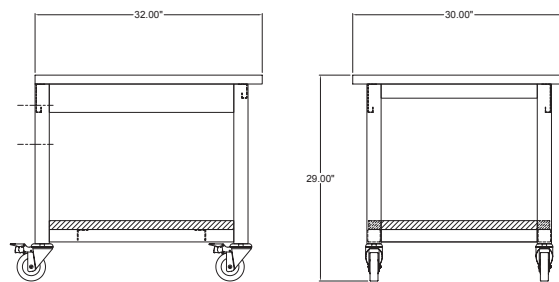


Figure 1. Bench for the Titan MPS (Part No. N0777900)

## Exhaust Vent

The Titan MPS 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 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 Titan MPS will not emit any hazardous vapor. In the event of an overpressure rupture disc release, the Gas Containment Manifold will contain and guide the gasses to the exhaust system.

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



Figure 2. Titan MPS Exhaust Hose



Figure 3. Optional Titan MPS External Exhaust System 120/230V 50/60Hz Part No. N3131009. Includes one exhaust hose.

The laboratory supplied exhaust duct must provide a draw rate of at least 2120 L/min (75 CFM) at the instrument. If this is not possible, an optional external blower is available (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.

## Electrical Services

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

The Titan MPS is supplied with a 2.5 m (8 ft) power cable. Under full instrument load, the Titan MPS™ 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 Titan MPS 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 Titan MPS 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 instrument draws a maximum of 12 amps at 230 V. The maximum power consumption is approximately 2700 volt-amperes.

The Titan MPS 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 Titan MPS 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 customer's own PerkinElmer authorized maintenance personnel.

## Titan Power Cords, Receptacles and Accessories

### Titan MPS Power Cord

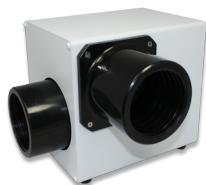
C-19 End (system), 2.5 M straight black, 230 VAC minimum. Agency Approved. RoHS Compliant.



Power Cords	Part No.
<b>North America (Included)</b>	<b>N3135010</b>
Europe (not included)	N3135000
Switzerland (not included)	N3135001
Italy (not included)	N3135002
India, South Africa (not included)	N3135003
United Kingdom (not included and requires receptacle 09290305 not included)	N3135004
Australia (not included)	N3135005
Israel (not included)	N3135006
China (not included)	N3135007
Brazil (not included)	N3135008
Denmark (not included and requires receptacle 09290305 not included)	N3135009
Accessories	
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
100 VAC 50/60 Hz (Japan)	
208 VAC 60 Hz (US/Canada)	
Receptacle Surface Mount Receptacle (for Denmark and United Kingdom)	09290305

### Dimensions of the Titan MPS and Accessories

Product	Width	Height	Depth	Power	Weight
Titan MPS	69 cm (27 in)	54 cm (21 in)	71 cm (28 in)	2700 watts	53 kg (117 lb)
External Exhaust Blower	26 cm (10 in)	23 cm (9 in)	28 cm (11 in)	300 watts	4.5 kg (10 lb)



### Power and Exhaust Requirements

<b>Power</b>	215-250 V (under full instrument load)	50/60 Hz
<b>Exhaust</b>	75 CFM min (draw at the instrument)	

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*Always keep spares on hand!*

For a complete listing of Titan MPS consumables, please visit [www.perkinelmer.com/icpoessupplies](http://www.perkinelmer.com/icpoessupplies)

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