



# MARCH StratoSPHERE

Superior Plasma Surface Treatment for Wafer-Level Packaging

The StratoSPHERE™ is a high-throughput plasma treatment system for processing up to 300 mm (12 in.) semiconductor wafers. The patented plasma chamber design provides exceptional etch uniformity, process repeatability, cycle-time performance, and minimal cost of ownership. Its three-axis symmetrical chamber ensures uniform treatment of all wafer areas, and tight control over process parameters ensures highly repeatable results.

## Wafer Cleaning

- Remove contamination before wafer bumping.
- Remove organic contamination.
- Remove fluorine and other halogen contamination.
- Remove metal and metal oxides.
- Improve spun-on film adhesion.
- Clean metallic bond pads.

## Wafer Etching

- Descum wafer of residual photoresist/BCB.
- Pattern dielectric layers for redistribution.
- Strip/etch photoresist.
- Enhance adhesion of wafer-applied materials.
- Remove excess wafer-applied mold/epoxy.
- Enhance adhesion of gold solder bumps.
- Destress wafer to reduce breakage.
- Improve spun-on film adhesion.
- Clean Aluminum bond pads.

## Key Applications and Benefits

- Software-controlled change-over minimizes the transition from 200 mm to 300 mm wafers.
- Production-ready wafer handling supports the backside of the wafer.
- Modular design allows single or dual-chamber system configuration.
- Load ports support 200 mm open cassettes or 300 mm FOUP.
- Unique end effector design can transfer a variety of wafer thicknesses and weights.
- Chamber kits isolate plasma distribution directly above the wafer, maximizing uniformity and throughput.

# StratoSPHERE

## Specifications

<b>Enclosure Dimensions</b>	W x D x H – Footprint	1405W x 2615D x 1742H mm (55W x 103D x 69H in)
	Net Weight: Process Module EFEM	480 kg (1058 lbs) 640 kg (1411 lbs)
	Effective Footprint – Clearances	Front – 153 mm (6 in), Back – 380 mm (15 in), Left/Right – 775 mm (30.5 in)
<b>Chamber</b>	Maximum Volume	5.5 liters (338 in <sup>3</sup> )
	Chuck Configurations	200 mm and 300 mm substrate sizes
<b>Electrodes</b>	Variable Electrode Configurations	Power-Ground, Ground-Power, Power-Power
	Working Area	305W x 305D mm (12W x 12D in.)
<b>RF Power</b>	Standard Wattage	600 W
	Frequency	13.56 MHz
<b>Gas Control</b>	Available Flow Volumes	50, 100, or 250 sccm
	Maximum Number of MFCs	3
<b>Control and Interface</b>	Software Control	EPC with PC-based touchscreen interface
	Remote Interface	SMEMA, SECS/GEM
<b>Vacuum Pump</b>	Standard Dry Pump	16 cfm
	Optional Purged Dry Pump	16 cfm
	N2 Purged Pump Flow	2 slm
<b>Facilities</b>	Power Supply	220 VAC, 15A, 50/60 Hz, 1-Phase, 12 AWG, 3-Wire
	Process Gas Fitting Size & Type	6.35 mm (0.25 in.) OD Swagelok Tube
	Process Gas Purity	Lab or Electronic Grade
	Process Gas Pressure	0.69 bar (10 psig) min. to 1.03 bar (15 psig) max., regulated
	Purge Gas Fitting Size & Type	6.35 mm (0.25 in.) OD Swagelok Tube
	Purge Gas Purity	Lab or Electronic Grade N2/CDA
	Purge Gas Pressure	2 bar (30 psig) min. to 6.9 bar (100 psig) max., regulated
	Pneumatic Valves Fitting Size & Type	6.35 mm (0.25 in.) OD Swagelok Tube
	Pneumatic Gas Purity	CDA, Oil Free, Dewpoint ≤7°C (45°F), Particulate Size <5 μm
	Pneumatic Gas Pressure	3.45 bar (50 psig) min. to 6.89 bar (100 psig) max., regulated
	Exhaust	25.4 mm (1 in.) OD Pipe Flange
	Vacuum Source	-40 kPa (-5.8 psi)
<b>Compliance</b>	SEMI	S2/S8 (EH&S/Ergonomics)
	International	CE Marked
<b>Ancillary Equipment</b>	Gas Generators	Nitrogen, Hydrogen (Requires Additional Non-Optional Hardware)
	Facilities	Chiller

# StratoSPHERE

## System Packages

Nordson Electronics Solutions builds the future of electronics reliability all across the globe. We're proud of the decades of service and solutions we've provided to enhance semiconductor reliability. No matter where you are, you've likely manufactured or purchased a product made reliable with our equipment. The StratoSPHERE offers industry-leading throughput and reliability for semiconductor manufacturing applications, designed to last and provide cutting-edge capabilities continuing a time-honored tradition.

Explore the StratoSPHERE system packages. Continue to see how we support the future.

For more information, contact us at [info-electronics@nordson.com](mailto:info-electronics@nordson.com).

<b>Essential</b>	Uniformity and repeatability.	A patented three-axis symmetrical plasma chamber delivers superior etch uniformity and process repeatability, achieving >95% wafer-to-wafer uniformity and >90% within-wafer uniformity.
<b>Productivity</b>	Advanced throughput and yield.	Accelerate throughput and yield with a unique plasma confinement technology that concentrates and focuses the plasma directly over the wafer to speed up the etching process and provide uniform plasma coverage.

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