

RollVIA™ Plasma System

Roll-to-Roll PCB Treatment

Features and Benefits

- High to low volume roll-to-roll vacuum plasma
- Available in three (3) configurations to meet a wide variety of customer production requirements
- Proven web handling technology
- Patented plasma systems produce superior process uniformity
- Flexible PCB applications include surface activation, cleaning and desmear
- Small footprint system with integrated pump package

Superior Plasma Uniformity for Roll-to-Roll PCB Treatment

Nordson MARCH's RollVIA System is specifically configured to meet the demands of today's most advanced roll-to-roll production PCB manufacturing operations. Plasma treatment uniformity is a key operational feature in surface activation, desmear and etchback applications for flexible circuit board manufacturing technologies.

The integrated roll-to-roll material handling system ensures precise control of roll speed, tension, and edge guidance for substrates as thin as 25 microns. Optical based edge guide detection allows for reliable control during rewind operations. Substrate loading is simple with easy access to the load and unload sections via four doors.

Unlike any existing competitive products, the RollVIA system platform is completely self-contained. The vacuum system, plasma chamber, control electronics, and 40 kHz power supply are housed in a single enclosure. Full front and rear access allows for convenient service to all interior components. The pump is positioned on rollers for easy removal.



Application Specific Technology

The RollVIA system incorporates the best of Nordson MARCH's market leading-edge plasma technology combined with novel application specific technology development based on our greater than 25 years of experience. Through extensive research and development, the RollVIA system presents unique vacuum and gas flow technology, new electrode designs, and superior temperature management. The careful balance of these critical design elements and process recipe parameters delivers a system that creates the most uniform treatment for key applications like desmear and landing pad cleaning.

The RollVIA system's superior performance capabilities are complemented by very attractive low-cost-of-ownership aspects. The system features a very compact and service-friendly design. The vertical loading concept allows for equal treatment on both sides of the substrate maximizing product quality and throughput. The fast vacuum pump down and greatly enhanced process cycle times further add to the throughput and productivity of the system.



Additional Features

Equipped with a touch-screen PC Operator Interface, the RollVIA system provides a wide breadth of control capability and data collection. Unlimited recipes can be stored for easy switching of plasma processes from batch to batch. Password protection ensures that no unauthorized entries can be made.

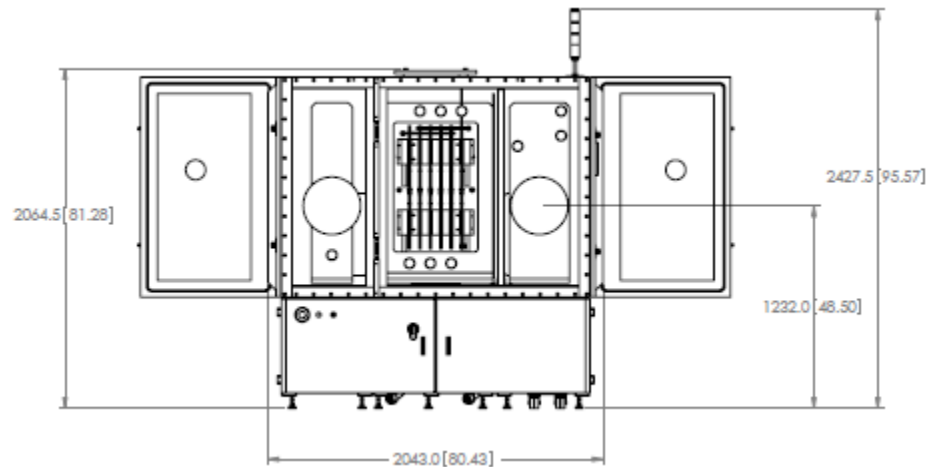
Specifications: RolVIA Plasma System

| | | |
|-----------------------------|--|---|
| Enclosure Dimensions | W x D x H – Footprint | 2030W x 2032D x 2428H mm |
| | Net Weight | 2707kg |
| | Effective Footprint – Clearances | 3600W x 4500D mm with Door Open |
| Chamber | Inside Dimensions | 1750W x 800D x 1200H mm |
| Electrodes | Roll Load / Unload Height | 1032 mm |
| | Surface Area / Each | 0.265 mtr ² |
| RF Power | Standard Wattage | 5,000 Watts |
| | Frequency | 40 kHz |
| Gas Control | Standard Sizes, Others Available on Request | Standard – 5slm, 2slm, 2slm Option – 2slm, 0.5slm |
| | Maximum Number of MFCs | 5 |
| Control System | Interface | PLC with PC-Based Touch Screen Interface |
| Vacuum Pump | Standard Dry Pump w/Blower | 65 cfm / 1300 cfm |
| | Minimum Vacuum Level | < 50 mTorr |
| | Vacuum Leakage | < 30 mTorr /minute |
| | Water Flow | 5 slm |
| | N2 Flow | 17 slm |
| Facilities | Power Supply | 208 VAC, 50 A, 3 Phase + Ground; 50/60 Hz |
| | Process Gas Fitting Size & Type | 6.35mm (1/4 in.) Swagelok |
| | Process Gas Purity | CF4 = 99.97%; O2 = 99.996%; N2 = 99.99%; Ar = 99.999%; |
| | Process Gas Pressure | 15-20 psig |
| | Purge Gas Fitting Size & Type | 6.35mm (1/4 in.) Swagelok |
| | Purge Gas Purity | N2 = 99.99% |
| | Purge Gas Pressure | 15-20 psig |
| | Pneumatic Valves Fitting Size & Type | 6.35mm (1/4 in.) Swagelok |
| | Pneumatic Gas Purity | Clean and Dry Air (CDA) |
| | Pneumatic Gas Pressure | 80-100 psig |
| | Exhaust | NW 40 @ Utility Panel |
| | Material Handling | Substrate Size |
| Edge Guidance | | +/- 15 mm |
| Tension Control | | 20 – 100 N |
| Core Size | | 3” and Optional 6” I.D. Core |
| Ancillary Equipment | Nitrogen Generator (option) | 80-100 psig 5.3 scfm CDA 6.35mm (1/4 in.) fitting |
| | Chiller (option) | 70,000 BTU, 208 VAC, 3 Phase 35-50 Amp, 50/60 Hz |
| | Scrubber (option) | 120 VAC, 38.1mm (1.5 in.) hose input, 50.8mm (2 in.) output |
| Shipping | Crate Dimensions | Machine = 2337 x 2286 x 2311 mm Pump = 1118 x 1118 x 787 mm Blower = 1600 x 1219 x 940 mm Misc. = 1219 x 1219 x 762 mm |
| | Gross Weight | 3007kg |
| | Number of Packages | 4 |
| | Packing Conforms to ISPM 15 | Yes |

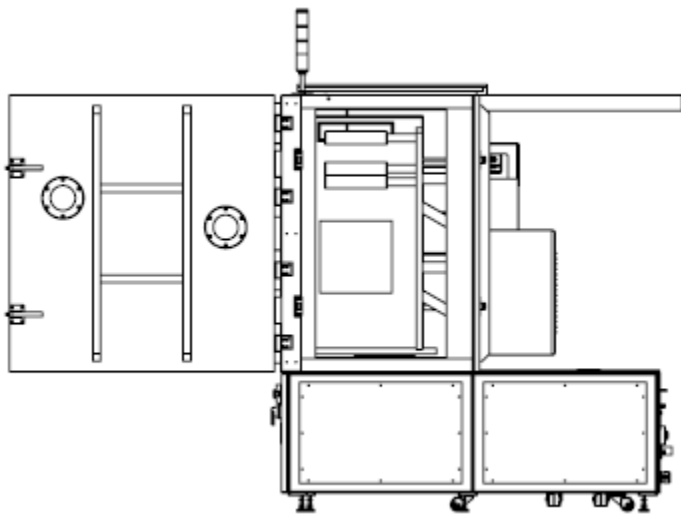
RollVIA Plasma System Model Comparison Chart

| Specification | LS Model | MS Model | HS Model |
|---------------------|-----------|-----------|-----------|
| Web Width (mm) | 250 | 250 | 250 |
| Web Length (meters) | 100 | 150 | 200 |
| Speed | 0.1 – 1.0 | 0.2 – 2.0 | 0.3 – 3.0 |
| Plasma Cells | 3 | 5 | 7 |
| Dwell Area (meters) | 2.25 | 3.75 | 5.25 |
| Roll Diameter (mm) | 350 | 350 | 350 |
| Tension Control | Optional | Optional | Standard |

RollVIA Plasma System Footprint Drawings



RollVIA – Front View with Both Loading Doors Open



RollVIA – Side View with Front Loading Door Open

RollVIA Plasma System Maximum Throughput Chart

| Smear (microns) | LS Model | MS Model | HS Model |
|-----------------|----------|----------|----------|
| 0.5 | 1.0 | 2.0 | 3.0 |
| 1 | 0.67 | 1.1 | 1.5 |
| 1.5 | 0.45 | 0.75 | 1.0 |
| 2.0 | 0.33 | 0.56 | 0.78 |
| 2.5 | 0.27 | 0.45 | 0.63 |
| 3.0 | 0.22 | 0.37 | 0.52 |
| 3.5 | 0.19 | 0.32 | 0.45 |
| 4.0 | 0.17 | 0.28 | 0.39 |
| 4.5 | 0.15 | 0.25 | 0.35 |
| 5.0 | 0.13 | 0.22 | 0.31 |

(Meters per Minute)



**For more information,
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RollVIA Rev. A

