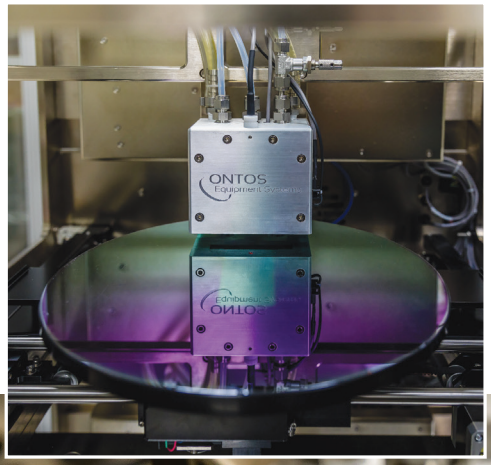
# ONTOS*IS*

## ATMOSPHERIC PLASMA SURFACE TREATMENT

- Removes native oxide from metallic and semiconductor surfaces
- Engineered surface termination inhibits re-oxidation
- Removes residual organic contamination films
- Ideal surface preparation for direct bonding
- Fast, non-toxic, dry, atmospheric process
- Low-energy surface chemistry – CMOS safe
- Integrated into custom equipment
- Integration engineering resources available
- Automation compatible




### Surface Decontamination

Native oxides and organic contamination on surfaces can disrupt subsequent processes such as solder bonding, wire bonding, thin film deposition, hybrid assembly, plating operations, wicking of underfill, and related processes.

### Fast, Simple Solution

The Ontos System utilizes a fast, atmospheric process to reduce oxides and organic contamination, providing advantages over traditional methods such as wet etching, fluxes, or vacuum plasma treatment. The tool can also provide engineered termination of the surface dangling bonds to temporarily inhibit re-oxidation while not interfering with subsequent processes. Surface is highly activated for direct bonding.

### Clean and Green

The Ontos-patented process and equipment utilize commonly available semiconductor-grade gasses and an atmospheric plasma source to provide local chemistry right at the surface of your part, with zero hazardous by-products, waste or particle adders.

**INDUSTRIES:**

- Semiconductor
- Automotive
- Aerospace
- Medical
- Optical

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**Chester, NH 03036, USA**
**www.ontosplasma.com**

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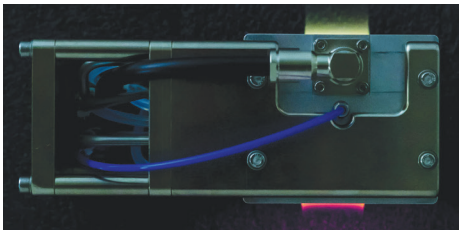


Example of integration Double Plasma Head (facing up and down)

## SYSTEM DESCRIPTION/SPECIFICATIONS:

- Uniquely-designed atmospheric plasma system with 10mm, 25mm or 40mm-wide standard process zone. The glow discharge-type plasma is entirely contained inside the source.
- The 13.56 MHz RF generator has a wide-range auto- tune matching network, system safety monitoring and computer control of forward and reflected power.
- Digital Mass Flow controllers provide precise digital control of gas flow to the plasma source.
- ESD-safe, interlocked enclosure; Exhaust for process gases (no scrubber required).
- Semi-automatic system controlled by Windows® Touchscreen Computer. Menu-driven interface with user-configurable recipe libraries.

## FACILITIES REQUIRED:

- **Power:** Single Phase, 110/240 VAC, 8/4A, 50/60Hz
- **Gases:** 4 channels of gas supply by 1/4" Teflon tubing; Swagelok compression fittings. (All gases are non-toxic, non-flammable.)
- Optional Oxygen plasma configuration available upon request.

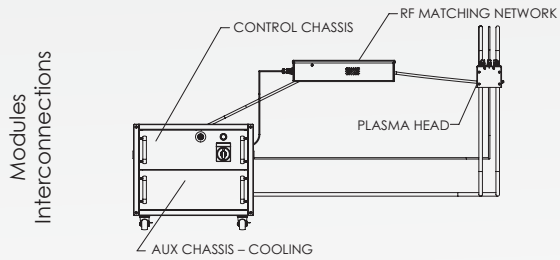
## PLATFORM REQUIREMENTS:

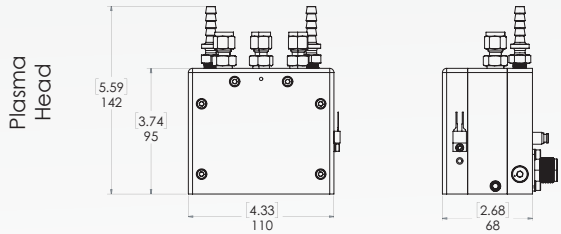
- X, Y and Z Substrate positioning
- **Scan Gap:** 1-5mm with ± 0.05mm parallelism
- **Scan Speed:** 1-5 mm/sec.

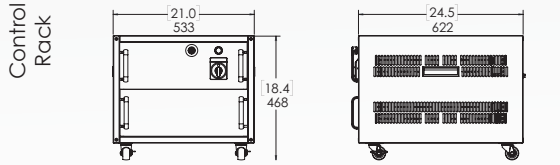
Data, design and specifications depend on individual process conditions and can vary according to equipment configurations. Illustrations, photos and specifications in this datasheet are not legally binding. Specifications are subject to change without prior notice.

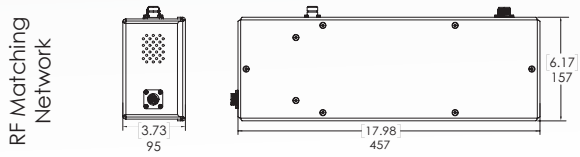
## APPLICATIONS:

- Reduction of oxides and contamination to promote adhesion and/or ohmic contact for flip-chip, thin-film deposition, wire bonding, adhesive bonding, soldering, hybridization. Shown effective on: Nickel, Copper, Tin, Indium, Gold, Silver, and alloys of these metals.
- Enables new metallurgies for room-temperature and low- temperature soldering.
- Particle-free surface activation for direct bonding, plating and wicking of underfill.
- Preparation of sensitive semiconductor surfaces to reduce metastable oxides and active contaminants prior to passivation.
- Removal of thin photoresist "scum" without oxygen (ideal for lift-off metallization, ohmic contact).

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