UV-Ozone Stripper/Cleaner

**FEATURES**

- Accommodates a variety of substrate shapes and sizes up to 8 inches in diameter
- Compact, uses minimum benchtop space
- Heated sample stage increases cleaning/stripping rates
- Broad process temperature range
- "Soft", completely dry process will not cause electrical damage to circuits
- Operates at atmospheric pressure – no vacuum system required
- Automatic nitrogen purging system purges cleaning chamber after every run
- Drawer interlock system guarantees system is inoperable when drawer is open
- Built-in ozone catalyst unit for reducing ozone concentration in the exhaust to a safe level
- Sealed chamber during process prevents device contamination from atmospheric air.

**APPLICATIONS**

- Removing organic contamination
- Pre-cleaning wafers prior to deposition (e.g. GaAs prior to MBE, sapphire prior to HgCdTe)
- Descumming photoresist and polyimide
- Modifying surfaces for better adhesion
- Final cleaning before wafer bonding
- UV curing
- Growth of thin stable oxide films (Ge, Si)
- Cleaning of AFM tips

SAMCO’s UV-2™ is a compact, high performance bench-top, UV-Ozone cleaning system. The UV-2 is modular in design and can be configured specifically, upon order, for a number of cleaning, stripping or UV-curing applications. The system is drawer loaded and uses patented technology to uniformly distribute ozone and UV light over the surface of wafers or other substrates. The system employs a programmable logic controller and safety interlocks to protect the operator from hazardous exposure to process ozone and UV light.

This easy to operate system uses a unique combination of ultraviolet radiation, ozone, and heat to gently, yet effectively, remove organic materials from a variety of substrates, including: silicon, gallium arsenide, sapphire, metals, ceramics, quartz and glass. The system will not damage delicate electronic devices as there is no plasma or electric discharge inside the process chamber. The versatile UV-2 is well-suited for a variety of applications such as substrate cleaning, photoresist descumming, improving wettability, and UV curing. By operating at atmospheric pressure, the UV-2 eliminates the need for a cumbersome, high-maintenance, vacuum system.
SPECIFICATIONS

SUBSTRATE SIZE  ■ Up to 200 mm diameter
MAXIMUM SAMPLE THICKNESS  ■ 8 mm, between sample stage and UV lamp
UV LIGHT SOURCE  ■ High-output, low pressure mercury grid lamp (primary wavelengths: 254nm and 185nm)
OZONE GENERATOR  ■ Silent discharge type; 30-160 g/m³
UV-LAMP STATUS  ■ A safe visible indication of UV lamp function included on the front panel
SUBSTRATE HEATER  ■ Ambient to 300°C, with external forced-air cooling enabling faster cool down
TIMER  ■ Digital, 0-99 min: 59 sec.
FLOW METER  ■ For oxygen, 0-5 liters/min. with built-in metering valve
PROCESS CONTROL  ■ Programmable logic controller with LCD display allows setup of process parameters such as heater temperature and process time.
OZONE KILLER  ■ Metal oxide type ozone destruction catalyst to remove residual ozone in the process gas exhaust stream. Concentration of ozone at the exhaust is less than 0.1 PPM
SAFETY FEATURES  ■ Ventilation interlock, nitrogen flow interlock, drawer interlock, automatic purge cycle, ozone catalyst, heater overtemperature protection circuit

UTILITIES Power Required:
■ 115 VAC, 60 Hz, 1.73 KVA (step down or boost transformers available)
Oxygen:
■ Extra dry grade, 0.1 MPa (20 psig), 0.5 SLM
Nitrogen Purge Gas:
■ Extra dry grade, 0.05 MPa (20 psig), >10 SLM
Exhaust:
■ Safe exhaust for process gas effluent
■ Chassis ventilation, Min. 100 CFM

DIMENSIONS (DXWXH)  ■ 24” x 22.5” x 16.75”
■ 610mm x 572mm x 426mm
■ Weight: 135lb. (61 kg)

OPTIONS  ■ UV lamp replacement kit
■ Oxygen and nitrogen filters
■ UV-lamp meter
■ Ventilation fan kit

PROCESS DESCRIPTION
Dry, particulate-free oxygen is fed into a silent-discharge ozone generator. This internally generated ozone then flows into the cleaning chamber which contains a UV lamp and a heated sample stage. Since pure oxygen is used, no contaminants from outside contaminate the devices being processed.

Ozone decomposes into oxygen molecules and atomic oxygen when exposed to long wavelength (200-300 nm) UV radiation. Simultaneously, organic materials such as photoresist, solvent residues, human skin oil and pump oil are excited or dissociated by the long wavelength UV radiation. The atomic oxygen is highly reactive and oxidizes the excited organic molecules to form simpler, harmless products such as carbon dioxide, water or nitrogen. This process cleans or removes organic contaminants from the substrate.

Specifications subject to change without notice.

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