



HARRICK  
PLASMA

**Harrick Plasma** is a leading supplier of plasma equipment to the research community.

We have been providing quality, compact, benchtop plasma cleaners specifically designed for laboratory and R&D use for over 30 years.



# BENEFITS OF PLASMA

## ADVANTAGES OF PLASMA

Plasma can be used to control surface properties through nanoscale cleaning and modifying surface chemistry without altering bulk material properties. The plasma is at near-ambient temperature, minimizing the risk of damage to heat-sensitive materials.

## VERSATILITY OF PLASMA

Plasma treatment may be applied to a variety of materials as well as complex surface geometries, including glass and silicon substrates, polymer fibers and fibrous scaffolds, metal films, and porous membranes.

## VALIDATED EXPERIENCE

Our plasma products have been cited in over 4,000 peer-reviewed technical articles and over 200 patents in a broad range of research areas.

## PLASMA SURFACE TREATMENT USES

### Plasma Cleaning

- Remove nanoscale organic contamination
- Enhance adhesion to other surfaces

### Plasma Activation

- Render surfaces hydrophilic or hydrophobic
- Alter surface wetting properties

### Plasma Modification

- Introduce functional groups on surfaces

### Plasma Sterilization

- Remove microbial contaminants
- Remove biomolecules (peptides and pyrogens)

### Plasma Polymerization

- Deposit polymer with functional end groups
- Graft polymers onto plasma-activated surfaces

## RESEARCH AREAS

Materials Science

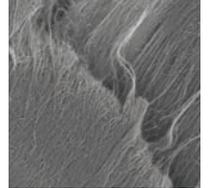
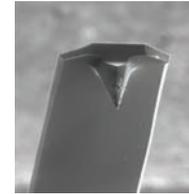
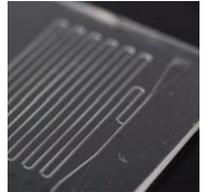
Microfluidic Devices

Biomaterials

Biomedical Engineering

Microscopy

Optics



# PLASMA CLEANER FEATURES

Compact, benchtop units • Inductively coupled plasma • Valve assembly to control gas flow  
Hinged door with viewing window • Active fan cooling • Quick setup and easy to use



## BASIC PLASMA CLEANER

**PDC-32G (115V) | PDC-32G-2 (230V)**

A compact, inexpensive benchtop plasma instrument with a redesigned hinged door and viewing window, active fan cooling and improved metering valve, suitable for nanoscale surface cleaning and activation of small samples.

3" Dia. x 6.5" L Chamber  
18 W Maximum RF Power  
13 Lbs., 9" H x 10" W x 8" D



## EXPANDED PLASMA CLEANER

**PDC-001 (115V) | PDC-002 (230V)**

Our Expanded Plasma Cleaner is a larger benchtop plasma instrument with four times the capacity of the Basic Plasma Cleaner, extensively used for nanoscale surface cleaning and surface activation.

6" Dia. x 6.5" L Chamber  
30 W Maximum RF Power  
37 Lbs., 11" H x 18" W x 9" D



## HIGH POWER EXPANDED PLASMA CLEANER

**PDC-001-HP (115V) | PDC-002-HP (230V)**

With twice the cleaning rate as the Expanded Plasma Cleaner, the High Power Expanded Plasma Cleaner is a versatile instrument, suitable for etching organic thin films (10-100 nm) as well as surface activation and modification.

6" Dia. x 6.5" L Chamber  
45 W Maximum RF Power  
37 Lbs., 11" H x 18" W x 9" D



# REQUIREMENTS & ACCESSORIES

## MINIMAL REQUIREMENTS

- Gas-compatible vacuum pump with 23 L/min minimum pump speed and  $\leq 200$  mTorr ultimate total pressure

## OPTIONAL ACCESSORIES

- Quartz Chambers
- Quartz and Pyrex Sample Trays
- PlasmaFlo Gas Flow Mixer
- Vacuum Gauge and Digital Meter

## QUARTZ CHAMBERS

**PDC-00Q | PDC-32Q**

- Recommended for use with reactive and fluorinated gas (e.g. CF<sub>4</sub>) and for applications sensitive to trace impurities in Pyrex



## SAMPLE TRAYS

**QUARTZ: PDC-00T | PDC-32T**

**PYREX: PDC-00T-P | PDC-32T-P**

- Facilitates loading and unloading of small samples for batch processing

## OIL-BASED VACUUM PUMPS

**PDC-VP/VP-2 | PDC-VPE/VPE-2**

- Use hydrocarbon pump oil
- Compatible with air and inert gases (Ar, N<sub>2</sub>), but NOT with O<sub>2</sub> gas

## OXYGEN SERVICE PUMPS

**PDC-OPD/OPD-2 | PDC-OPE/OPE-2 | PDC-OPF/OPF-2**

- Required to avoid hazardous combination of O<sub>2</sub> with hydrocarbon oil in oil-based pumps
- Compatible with O<sub>2</sub>, air, and inert gases (Ar, N<sub>2</sub>)
- Fomblin-based pump (PDC-OPF/OPF-2) uses Fomblin fluid instead of hydrocarbon oil
- Dry oxygen service pumps (PDC-OPD/OPD-2, PDC-OPE/OPE-2) use no oil or fluid
  - No risk of oil contamination into chamber
  - Beneficial even if not using O<sub>2</sub> but require a clean system for plasma processing

All vacuum pumps include necessary accessories (vacuum hose, pump inlet adapter, clamps and seals) to connect plasma cleaner to pump inlet



## VACUUM GAUGE & DIGITAL METER

**PDC-VCG/VCG-2**

- Vacuum gauge and digital meter as a stand-alone accessory
- Digital meter displays pressure range of 1 mTorr to 760 Torr
- Monitoring vacuum pressure is beneficial for process repeatability and consistency

## PLASMAFLO

**PDC-FMG/FMG-2**

- More precise, quantitative control of gas flowrate and monitoring of vacuum pressure to ensure process consistency
- Two gas inputs into flowmeters for gas mixing or independent control of two gases
- Add a second gas source without needing to manually swap gas lines
- Digital meter displays pressure range of 1 mTorr to 760 Torr

