

Glen R3 and R3A Plasma Cleaning Systems



R3A System

Yield Engineering Systems (YES) recently acquired Glen Technologies and the plasma systems of both companies are now produced at the Glen site in Fremont California. (Just 15 minutes from the YES site in San Jose). The personnel of both companies remain in place to provide superior support both in-house and on location in customer facilities.

The R-Series Plasma Cleaners are parallel plate, capacitive downstream systems. They offer quick interchange of plasma modes to provide the following features:

- **Total plasma uniformity across planar sample shelves.**
- **Electron-free mode allows plasma cleaning with no electrostatic damage to sensitive samples.**
- **Constant operating parameters, independent of how fully the system is loaded.**
- **Good load capacity**

R3 System

The R3 has become the mainstay of plasma cleaning in hundreds of facilities worldwide, providing safe and reliable service in a myriad of applications.

It is controlled by a full-function 1966 step sequential micro-processor which allows input of up to 90 separate one or two gas programs. Subsequent recall and operation of a specific program simply requires dialling in the appropriate settings and pressing the "ON" button. A keylock prevents unauthorized entry into the programs.

R3A System

The R3A system includes a PLC in place of the R3's Sequential Microprocessor. An outcome of this is that the R3A system has plain English, real time, readout of system operating parameters and also plain English readout of remedial action in the event of an abort. Other upgrades include a larger and more flexible workspace, a single enclosure to house the power supply and system controls and a large viewport for process observation. The R3A is also keylocked to prevent unauthorized modifications of the preset program.



R3 System



Glen Technologies, Inc.
A Division of Yield Engineering Systems

Glen R3 and R3A Plasma Cleaning Systems

Plasma Uniformity

The concept of "downstream" plasma was developed to provide complete plasma uniformity across flat, parallel plate, shelf/electrode combinations. A sample placed at the edge of a shelf receives the same degree of cleaning as a sample positioned at the center of the shelf and the center of a sample receives the same degree of cleaning as the sample edge.

Varying Sample Sizes

Electrodes and sample shelves may be configured to allow sample heights of up to 3.5 inches (8.9 cm) to be processed.

Plasma Modes

All Glen Plasma Systems provide quick interchange between plasma modes.

- Electron-free for cleaning sensitive electronic devices (such as C-MOS chips) prior to wire bonding.
- Active for etching and surface modification prior to bonding.
- RIE for the most aggressive surface modification applications.

Multi-Gas/Multi-Program Capability

Both the R3 and the R3A systems will accept, as standard, two different plasma gases either for use in a two sequence plasma cycle (GAS 1 followed by GAS 2) or in individual single gas sequences. The R3A gas delivery system provides vertical laminar flow of plasma gas throughout the system chamber. Both systems are plumbed to accept a "backfill" gas (typically nitrogen).

The R3 system will store up to 90 separate programs for either single or dual gas programs. The R3A has a

quick input facility for a full range of single or dual sequence options.

Safety Management

All RF, vacuum and gas control functions are double safety interlocked. If any of the control parameters go out of limit, an audible abort signal and flashing light will announce an abort mode and the system will automatically shut down in a sealed condition. The R3A system will show, in plain English, the reason for the shut down and suggested remedial action.

Specifications

GLEN R3		GLEN R3A			
System Dimensions:		Power Supply	Chamber	Control Console	
Width:	24 inches (61 cm)	17 inches (43 cm)	22 inches (56 cm)	22 inches (56 cm)	
Depth:	22 inches (56 cm)	19 inches (48 cm)	22 inches (56 cm)	22 inches (56 cm)	
Height:	21 inches (53 cm)	7 inches (18 cm)	21 inches (53 cm)	21 inches (53 cm)	
Weight:					
Shipping (includes crate)	315 lbs (143 kg)		375 lbs (170 kg)		
Stand alone (no crate)	165 lbs (75 kg)		250 lbs (112 kg)		
Facilities:					
System	115V, 15A, 60 Hz, 1 Phase	OR	220V, 8A, 50 Hz, 1 Phase		
Vacuum Pump (7 cfm Fomblinized)	115V, 5A, 60 Hz, 1 Phase	OR	220V, 2.5A, 50 Hz, 1 Phase		
Exhaust:		House Exhaust			
Features					
Sample Capacity:		2 shelves 12.75 x 12.75 inches (32.4 sq. cm) for 325 sq. inches (2100 sq. cm) sample space			2 shelves 14 x 14 inches (35.5 sq. cm) for 390 sq. inches (2520 sq. cm) sample space
System Configuration:		Capacitive downstream, parallel plate. for active or electron-free plasma			
Power Supply:		500 Watts, 50 kHz			500 Watts, 40 kHz
System Control:		Sequential microprocessor			PLC Direct Logic 205 Programmable Logic Controller



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