AIRGARD

*Your Partner in Productivity*

# Airgard
# Epi / Poly Etch / CVD
## Gas Scrubbers


## APPLICATIONS

**Epi, CVD, Poly Etch, or any exhaust stream with water soluble contaminants.**

## ADVANTAGES

- **Highest efficiency**
- **Easiest maintenance**
- **Lowest downtime**
- **Highest reliability**
- **Lowest cost of ownership**
- **Small footprint**

Gas inlet clogging in Epi scrubbers has been a major problem for decades. Years of experience in Epi reactor operation, design and maintenance led Airgard engineers to develop the most efficient and reliable Epi scrubbers available. Combining our gas inlet device technology with a PLC based control box and our automated gas inlet plunger result in a scrubber that is maintenance free for up to 6 months at a time. This superior performance results in higher uptime, more production, superior process stability and increased safety.

The Airgard scrubber combines 2 spray chambers and a packed column to produce the highest efficiencies in the industry. Typical output emissions of HCl under the harshest Epi process conditions are well under 1ppm.

For Poly Etch, and other CVD processes, up to 4 chambers can be handled by one scrubber.

## MODELS

**Cyclone** - PLC based control box, automated plunger, Photohelic gauge to trigger plunger and faults, reactor interface contacts, fault displays and alarms.

**Vortex** - Manual gas inlet port change-out and manual controls.

## EQUIPMENT OPTIONS

### VORTEX ONLY

#### Manual Gas Inlet Plunger

The manually activated plunger removes any build-up from the gas inlet and allows the user to remove restrictions without having to shut down the reactor or open the exhaust line. Systems with the manual plunger option typically require less than one hour of hands-on cleaning maintenance every 4 to 6 months.

#### Interlock Package

Simple, low cost package with motor controls and time-delayed interlock functions, visual and audible alarms to bridge the gap between the Cyclone and the Vortex. The Interlock Package includes water level, fresh water flow, and pump water flow switches. Any fault condition will open the scrubber status contact after a brief time delay (to avoid transient faults). Terminal connections are available to add additional sensors.

#### Photohelic

The Photohelic gauge measures small pressure differences across the inlet and outlet of the scrubber. When a restriction in the gas inlet occurs, the pressure difference is detected by the Photohelic. The Photohelic gives a visual indication and has high and low pressure switches that can be monitored however the customer decides. It is up the customer to supply electrical connections.

The Photohelic option requires $N_2$ purging. Airgard supplies the $N_2$ rotameters and associated plumbing.

### ALL MODELS

#### Safety Cage

The safety cage is made of perforated stainless steel. The 4-sided enclosure rests on the scrubber base perimeter and does not increase the footprint of the unit. A sliding rear door allows the user to access the water flow controls.

#### Vented Enclosure

The vented enclosure attaches to the scrubber like the safety cage but is made from painted aluminum panels that have polycarbonate windows. This enclosure's top has a connection for house exhaust.

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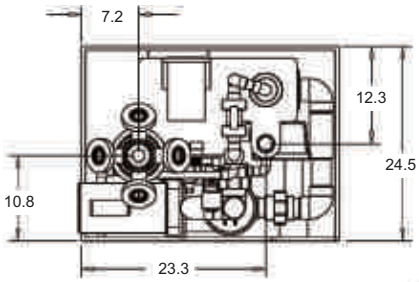
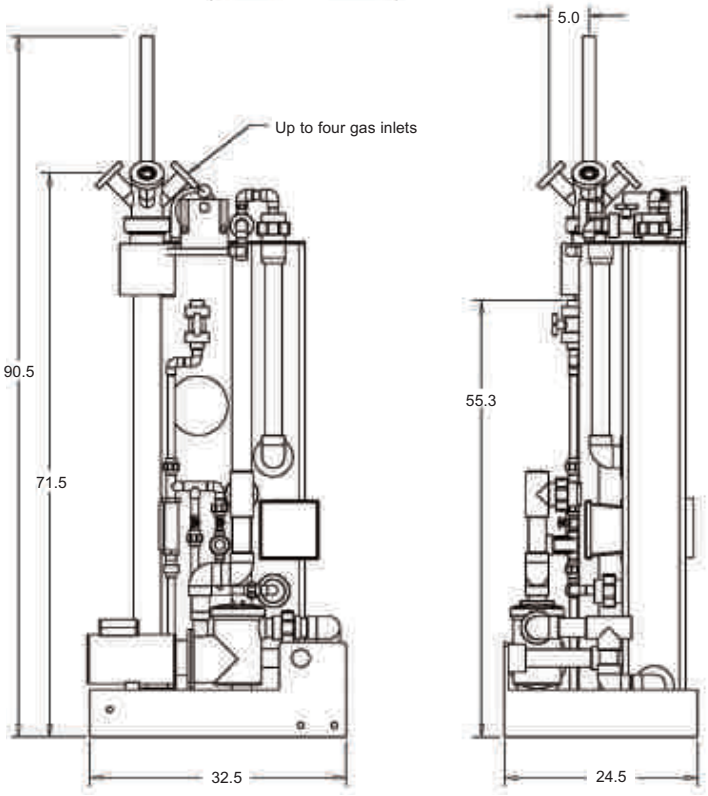



## TECHNICAL DATA

### Power Usage

- 1900 Watts

### Water Usage

- Scrub Mode: 0.5 to 3 GPM
  *(will vary with process conditions)*
- Standby Mode: 1 GPH

### Nitrogen Usage

- 15 SLM for plunger assembly

### Capacity

- Maximum flow rate of input gas is 1000SLM

## FACILITIES REQUIREMENTS

### Electrical

- 208-240VAC, 15A, 60Hz, single phase (STD)
- 50/60Hz, single or 3-phase, and voltages from 208-480VAC are available

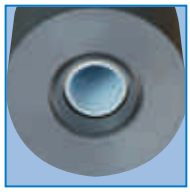
### Plumbing

- Exhaust gas input connections:
- 2" PVC Pipe *(Epi with plunger)*
- 3" PVC socket fitting *(Epi without plunger)*
- 4" ASA Flange-PVC *(up to 4 process gas inlets)*
- custom by request

- Scrubber gas output connection 2" FPT
- City water input connection $^1/_2$" FPT
- Effluent drain connection 2" FPT
- Scrubber drain connection $^1/_2$" FPT
- Tray drain connection $^1/_2$" FPT
- Nitrogen connection $^1/_4$" tube fitting

### Overall Dimensions

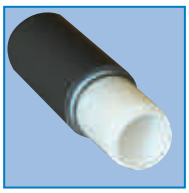
- Footprint: 24 $^1/_2$" X 32 $^1/_2$"
- Height: 90 $^1/_2$"
- Weight Dry: 220 lbs
- Weight Wet: 310 lbs


Plunger up


Plunger down


Epitaxial
*(single inlet)*


Poly Etch/CVD
*(up to 4 gas inlets)*


Gas Inlet Port

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