



# SENTINEL Scrubbers

**True Protection From Hazardous Gases**

## System Description

The Sentinel Series is a unique line of air pollution abatement devices specifically designed to treat semiconductor reactor effluent streams that contain highly corrosive, toxic or reactive gases. These point-of-use (POU) scrubbers are usually located as close to the process tool as possible, often in the sub-fab or cleanroom chase. These robust systems handle all water-soluble effluents from the process tool, including solids generating gases such as WF6, BCl3, and DCS.

## Advantages

- Lowest cost of ownership
- SEMI S2 certified
- Reliable and easy to maintain
- **Successfully treats F2**
- N2 Shielded Inlet prevents water backstreaming to vacuum pump, keeps inlet clear
- Multiple chamber design hydrolyzes gases, removes both gases and particulates
- Extremely long gas residence time
- Removal efficiencies >99% on SiF4, DCS, WF6, HF, HCl, NH3 to name a few...
- Small footprint
- Integral 50 gallon sump
- Venturis induce gas flow and remove fine particles
- Zero pressure drop
- Liquids can be run in closed loop or continuous fashion
- Solid clear PVC construction
- Standalone and complete system integration capabilities

## Typical Applications

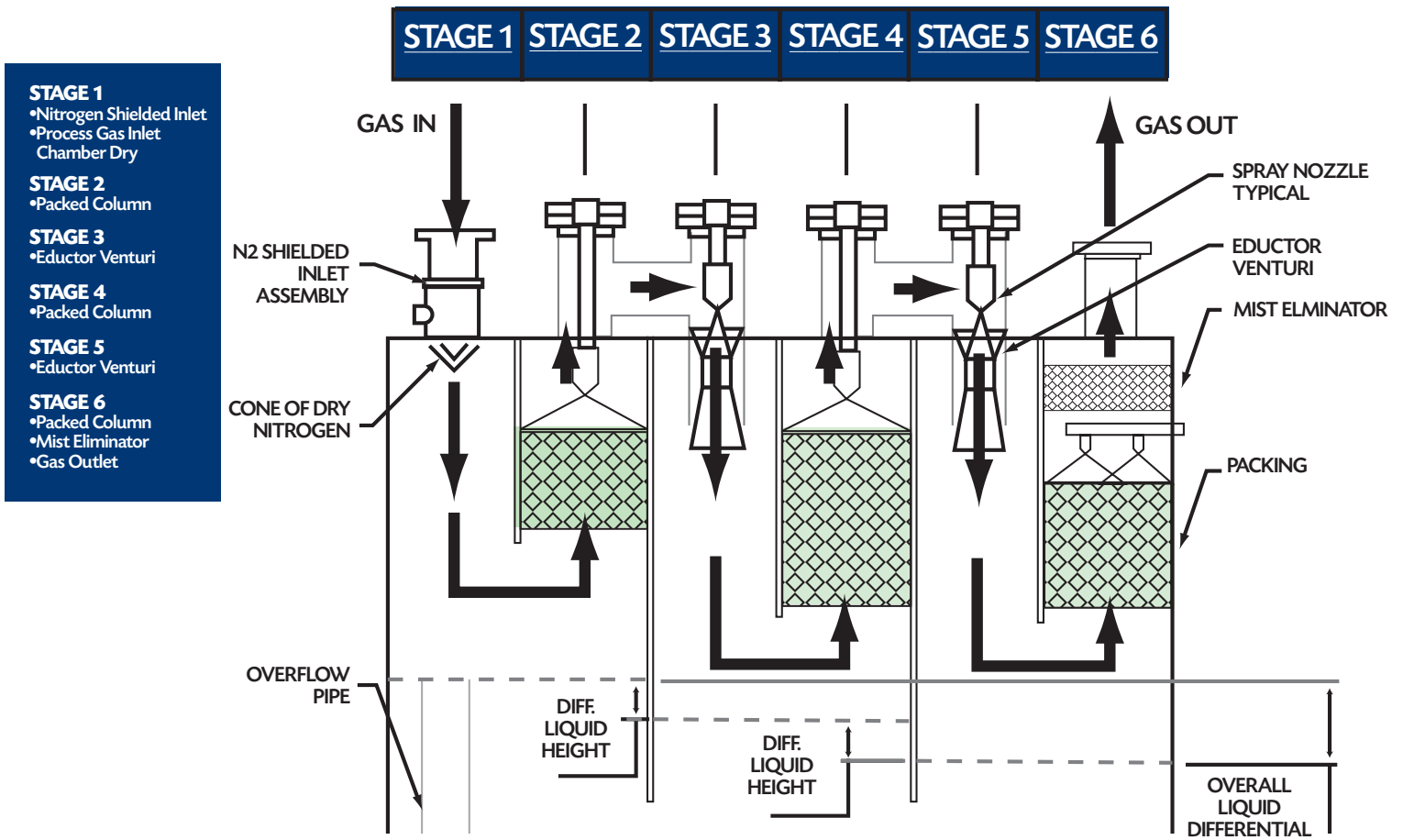
## Gases Treated

Etch	DCS, TCS,
CVD	BCl3, WF6,
Tungsten Dep.	SiF4, HF, HCl,
RIE	F2, NH3, TEOS
ILD	



N2 Shielded Inlet

# ENVIRO-MATRIX Sentinel Series Scrubbers



- STAGE 1**
  - Nitrogen Shielded Inlet
  - Process Gas Inlet Chamber Dry
- STAGE 2**
  - Packed Column
- STAGE 3**
  - Eductor Venturi
- STAGE 4**
  - Packed Column
- STAGE 5**
  - Eductor Venturi
- STAGE 6**
  - Packed Column
  - Mist Eliminator
  - Gas Outlet

## Typical Equipment Package

- Sentinel Scrubber with easy access ports on inlet section, all packed column sections, and the sump
- System spray pump with TEFC motor and mechanical seal
- Non-fouling nitrogen shielded inlet with N2 regulator
- Adjustable, fresh water flowmeter
- Heavy duty modular frame
- High efficiency mist eliminator
- NEMA 4X control panel with PLC
- Scrubber housing, heavy duty clear PVC. All wetted parts are corrosion resistant.

## Optional Equipment

- NEMA 4X control with EMO/Estop with PLC
- Splash guards/spill trays
- Remote diagnostics
- High level alarms
- Pressure monitors
- High temperature thermoplastics
- pH/ORP
- Chemical addition
- Custom designs

## Operating Parameters

Gas Capacity	Total Gas Flow: 300 lpm
Gas Residence Time	45 sec @ 300 lpm
Spray Rate	30 gpm @ 30 psig
Fresh Water Feed	1/8 - 1 gpm (variable with location and application)
Scrubber Sump Capacity	50 gallon

## Power Requirements

Spray Pump 2 HP

## Equipment Weights

Scrubber/Skid-Dry Approx. 350 lbs  
 Scrubber/Skid-Operating Approx. 775 lbs