



VOC CONTROL

Rotor System



ISO9001&14001



OHSAS18001



S E M I S 2

ACTIVE
www.ATEI8.com

The spirits of "Innovation", "Integrity & Credit" and "Service" are our team members' focus on providing our customers professional services in environmental projects. We pursue the respect of natural environment, and execute effectively the energy economization & waste reduction operation, in order to reduce the pollution and impact to the environment.

SYSTEM DESCRIPTION

The Rotor Concentrator is a pollution control device designed to remove high gas volume & low concentration volatile organic compounds (VOCs) from air streams. The system includes two process steps:

- ❑ Concentration of the VOCs using a Hydrophobic Zeolite Rotor, and
- ❑ Post treatment of the concentrated VOCs by thermal or catalytic oxidation.

PRINCIPLES OF OPERATION

- ❑ Solvent laden air drawn through the Honeycomb rotor where VOCs are removed from the airstream.
- ❑ After passing through the rotor, the cleaned air is discharged into the atmosphere.
- ❑ The zeolite rotor turns continuously (1-6rph) transporting adsorbed VOCs into a regeneration zone.
- ❑ At regeneration zone the VOCs are removed by a small heated air stream.
- ❑ The regenerated zeolite is then rotated back into the process air stream.
- ❑ The concentrate is typically sent to a small oxidizer where the VOCs are converted to H₂O and CO₂.
- ❑ Heat exchangers are used to pre-heat the concentrate and provide the required heat needed to desorb the rotor and create additional fuel efficiency.

PATENT

- ❑ Structure to prevent gas leakage of rotor system, patent NO.M347222
- ❑ Temperature-controlled fuel supply device of Burner, patent NO.M350608
- ❑ Air-tight structure for inlet and outlet air stream, patent NO.M348203

ACTIVE ROTOR SYSTEM

❑ ROTOR

ACTIVE rotors have significant performance advantages over fixed bed systems due to capacity for much higher air flow velocity, truly continuous operation and stable, non-fluctuating outlet conditions. Rotors have lower pressure drop (less than 1.5 " w.c.), no adsorbent attrition and fewer moving parts than fixed or fluidized bed systems. The ACTIVE honeycomb zeolite rotor is an inorganic matrix of silica based materials that permanently retain the zeolite adsorbent. The honeycomb properties allow VOCs to be adsorbed in preference to water present in the air stream.

❑ PATENTED AIR SEAL

Rotor is outfitted with low friction contact seals to prevent air leakage between process segment i.e., process to desorption air. ACTIVE seals can operate up to 300°C temperature.

❑ ROTOR DRIVE

The rotor drive consists of V-belt or chain / motor(explosion proof, inverter duty, UL listed)/Manually adjusted speed control.

❑ PLENUM MODULE

Plenum modules are fabricated of continuously welded Aluminum, SS41, SUS304 or SUS316 sheets.

❑ FILTER MODULE

Filters frames are fabricated of structural aluminum or stainless designed to allow for easy installation and removal without need for ladder access.

❑ FAN

Additional features include AMCA C of our fans.

❑ HEAT EXCHANGER

Construction is a shell and tube design. The tubes are usually by 304/316/316L/SUS321 or more material. The internal walls are insulated 304/316 stainless steel.

❑ OXIDIZER

Three general system of rotor&oxidizer are used,

- ❑ Rotor/TO System : This configuration is commonly used to treat exhaust from semiconductor fabs.
(TO : Thermal Oxidizer)

- ❑ Rotor/RTO System : This system is application for LCD fab and automotive and aerospace finishing can be abated most cost-effectively.
(RTO : Regenerative Thermal Oxidizer)

- ❑ Rotor/CO System : An integrated catalytic oxidizer is used with high energy efficiency to destroy concentrated VOCs.
(CO : Catalytic Oxidizer)

❑ AUTOMATIC CONTROL

ACTIVE electrical engineers design automatic controls to meet virtually any customer requirement, including interface with production processes. The control panel includes the fan motor starter, control relay, burner controller, high temperature safety switch, flame safeguard control relays with remote reset, fuses and terminals, etc...

❑ DUCTWORK

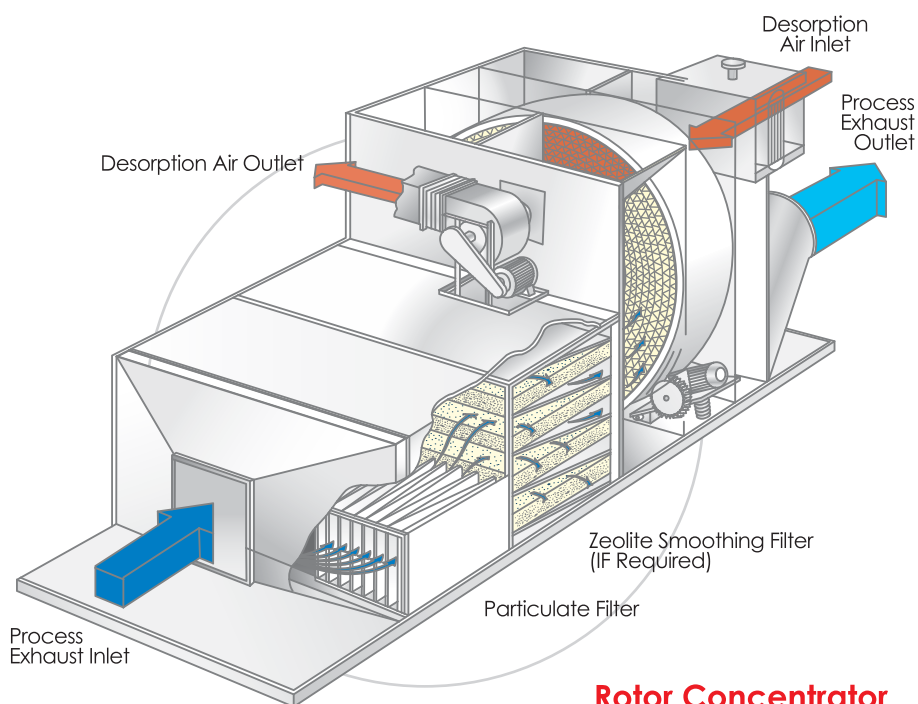
Round and fabricated of continuously welded SUS304 sheet, Insulated with rock wool blanket insulation and covered with embossed aluminum /stainless steel sheet.

❑ ACCESS DOOR

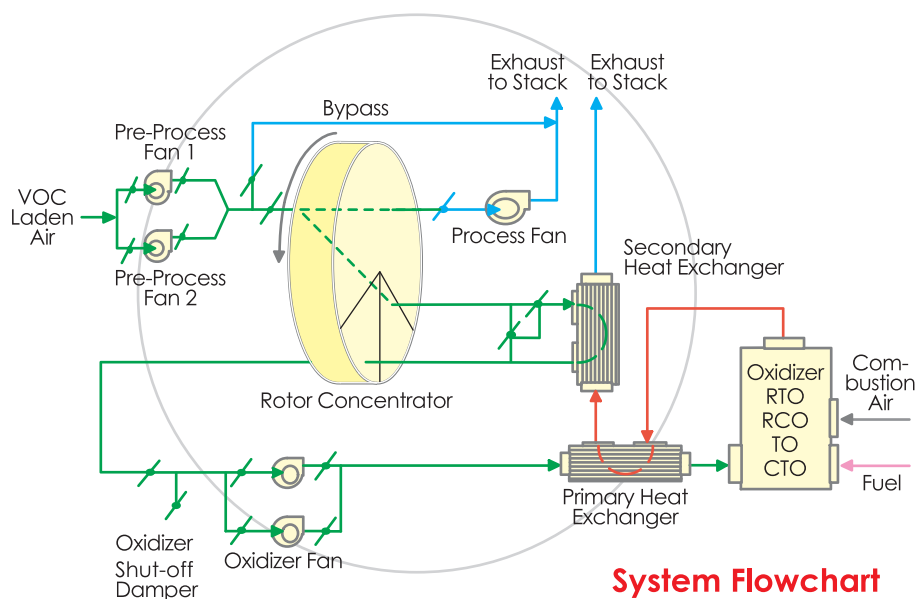
Open without tools, easy to use for maintenance.

❑ OXIDIZER SHUT-OFF DAMPER & UPS

Oxidizer system shut down in emergency caused by power failure, the shut-off damper will switch automatically and release the remaining heat out of system to avoid heat return to rotor. UPS for equipment is option , it helps oxidizer fans keep on regular operating to release heat into atmosphere rapidly.



Rotor Concentrator



System Flowchart

CHARACTERISTICS

- ❑ The first system supplier who introduced rotor system to semiconductor industry in Taiwan, we have highly experience with system integration for single/dual & series/parallel rotor system.
- ❑ Unique rotor system supplier with ISO9001&14001,OHSAS18001 and SEMI-S2 certification.
- ❑ Excellent R&D group have numbers of design patents about rotor and energy-saving.
- ❑ Skid-mounted design.
- ❑ Full temperature system testing in factory.
- ❑ Up to 20:1 high rotor concentrate ratio and 8:1 turn-down ratio for oxidizer airflow volume control.
- ❑ Excellent design team provide assessment services of safety(ex. L.E.L), function, system pressure balance, seismic restraints(0.5G), operating cost, etc.
- ❑ 3 safety mode including rotor high temperature protection with N2 purge , FM sprinkler spray and oxidizer shut-off damper.
- ❑ Standard 6 interlocks for oxidizer system safety, like oxidizer air pressure, oxidizer and combustion fan& flame status, fuel pressure, high system temperature.
- ❑ Rotor spray wash and 300°C desorption available for high boiler pollutants (patented air seal).
- ❑ Supply custom-design for different VOC exhaust industry.
- ❑ Automatic system monitoring, easy operation like one-button start. Man-machine interface touch panel could completely monitor important operating parameters
- ❑ Turnkey service for installation, start-up, regulation-compliance test ,operation and maintenance training.

OPTIONS

- ❑ Pre-process fan
- ❑ Dual rotor system(series or parallel)
- ❑ Materials of construction(aluminum or stainless)
- ❑ Pre-filter
- ❑ Customer process pressure control
- ❑ Remote monitoring
- ❑ Human-machine interface
- ❑ UPS for oxidizer fan and control
- ❑ Continuous emission monitor(THC FID)
- ❑ Vibration isolation(G2.5)
- ❑ Structural support
- ❑ Control room
- ❑ FM sprinkler
- ❑ Utility hook up



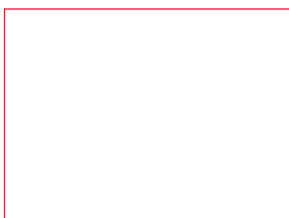
Rotor system



Rotor system



Plenum Module



INDUSTRIAL APPLICATIONS

Surface Coating
 Wood Finishing
 Semiconductor
 Electronics
 Printing
 Flexible Packaging
 Paint
 Chemical Processing
 Pharmaceutical
 Investment Casting
 Pulp & Paper
 PCB Manufacturing
 Optoelectronics Material and Element
 Automotive
 Aircraft
 Furniture
 Fiberglass Products
 Dry Cleaning

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