

# AIR & GAS treatment plants



Environmental compliance of your production process.



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36040 Torri di Quartesolo-Vicenza, Italy



# TAILOR-MADE SOLUTIONS FOR INDUSTRIAL AIR CLEANING

Engineering. Product. Service.



we believe in our  
“ZEROemission”



## ATP environment highlights



### Service

We provide a full complex of services from initial design and engineering to start-up, ongoing after-sales support.



### Technologies

Wet scrubbing technologies for a wide range of pollutants.



### Worldwide

Italian-based company providing industrial air purification systems for clients across the globe.



### Innovation

We're incorporating **Industry 4.0** technologies into our industrial air treatment solutions:

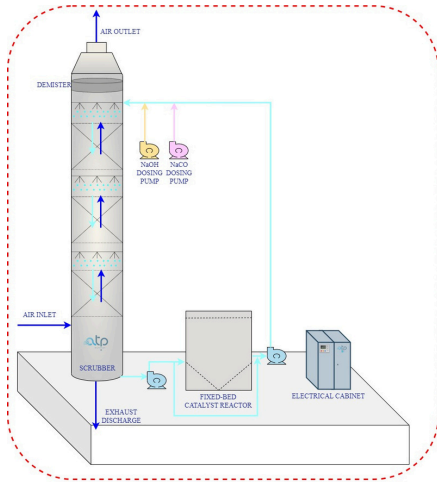
- Automated Control Systems,
- Predictive Maintenance,
- Data-Driven Customization.



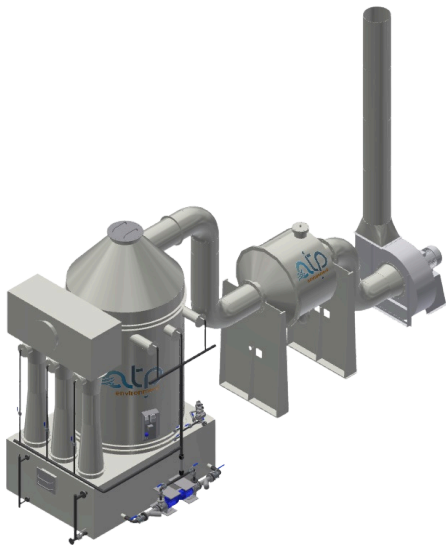
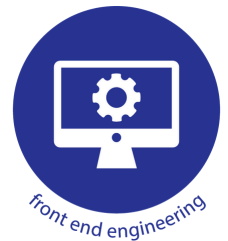
### Safety

Safety is our core value.

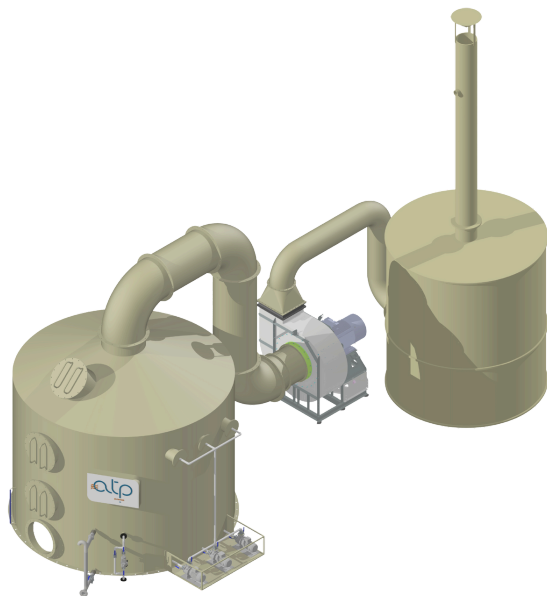




- Economic assessments (CAPEX, OPEX)
- Preliminary layout
- Preliminary Process Flow Diagram (PFD)
- Process description
- Preliminary P&ID
- Project scheduling
- Utility requirements



- Process description
- Equipment datasheet
- Process Flow Diagram (PFD)
- P&ID
- Equipment list
- Line and fluid list
- Instruments list
- General arrangement drawings of the equipment
- Foundation loads
- Plant layout 2D/3D
- Utility requirements list
- System control logic (CSL)
- I/O list
- FAT plan and procedure



- Conceptual engineering
- FEED engineering
- Manufacturing of the equipment
- Executive documents
- Delivery
- Start-up of the plant on site
- After sales services

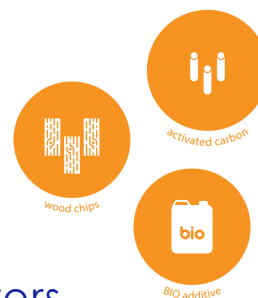


### On site assistance

- Installation spares
- Commissioning spares
- Operational spares (2-5-10 Y)
- Capital spares

### Consumables

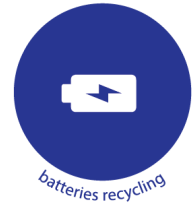
- Biological activator
- Carbon pellets
- Filtration material for biofilter
- Other filtration material for static filters



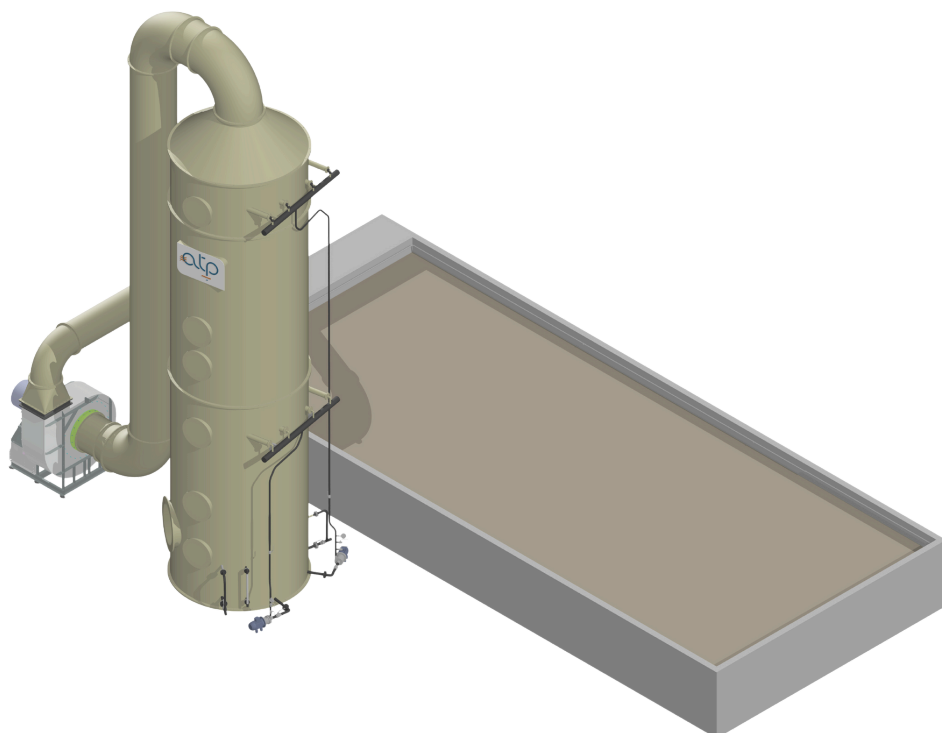
### Process control

- PLC remote connection
- On site visits

# Industries we operate worldwide



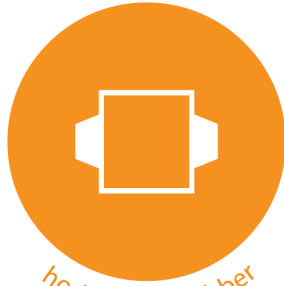
**Wet scrubbing solutions  
for different types of pollutants.**



## CORE TECHNOLOGIES



vertical scrubber



horizontal scrubber



venturi scrubber



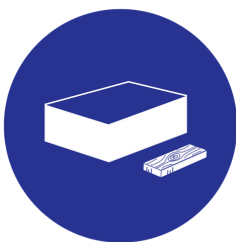
biotrickling



### LINE CUSTOMIZATION

- Centrifugal fan
- Interconnection piping
- Skid
- Stack
- Electrical panel
- On board machine cabling
- Reagent storage tanks
- Components for heat recovery and energy efficiency
- Components for process thermal regulation

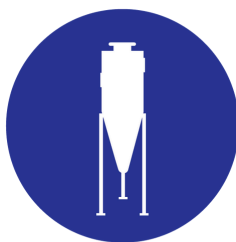
## DRY FILTRATION TECHNOLOGIES



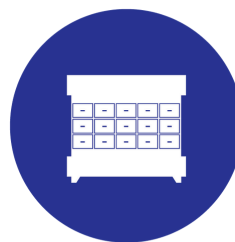
bio filters



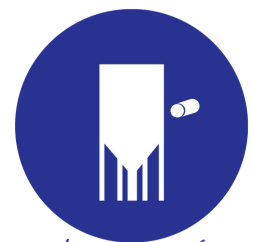
carbon/static filters



cyclones



absolute filters



baghouse filters

## CONSTRUCTION STANDARTS





# Vertical Scrubber



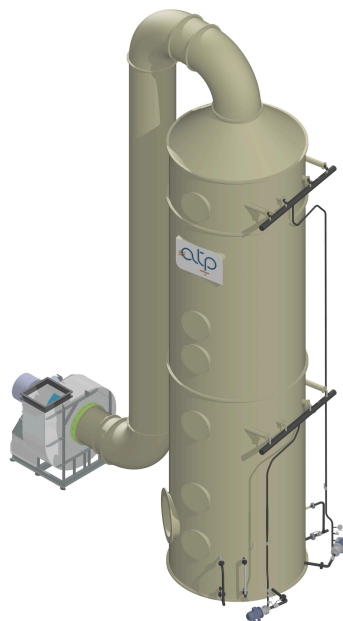
**VERTICAL SCRUBBER**



**VERTICAL SCRUBBER x2**

- ✓ Vertical compact design
- ✓ Process versatility
- ✓ High efficiency
- ✓ Ease of maintenance

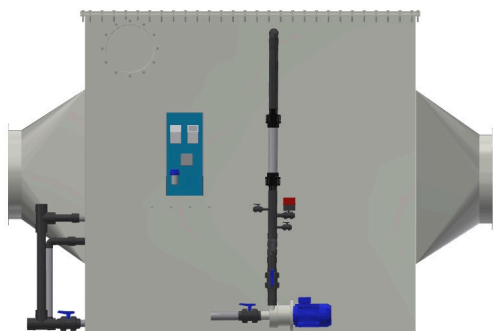
- ✓ Low maintenance costs
- ✓ Engineered system
- ✓ Effective odor control
- ✓ Wide range of targeted pollutants



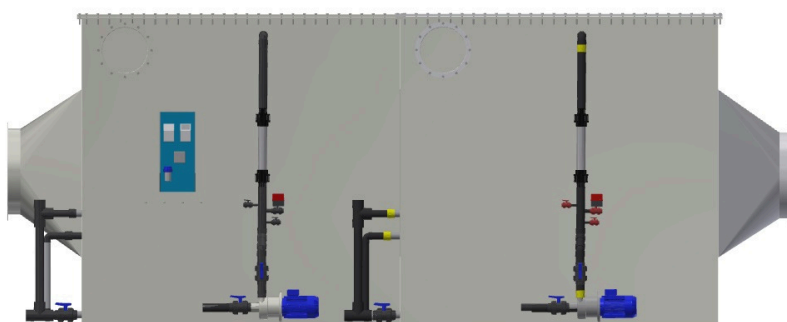
**BIO SCRUBBER**



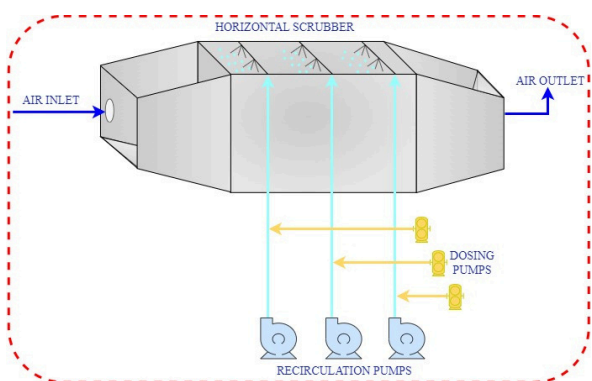
**DENOX SCRUBBER**



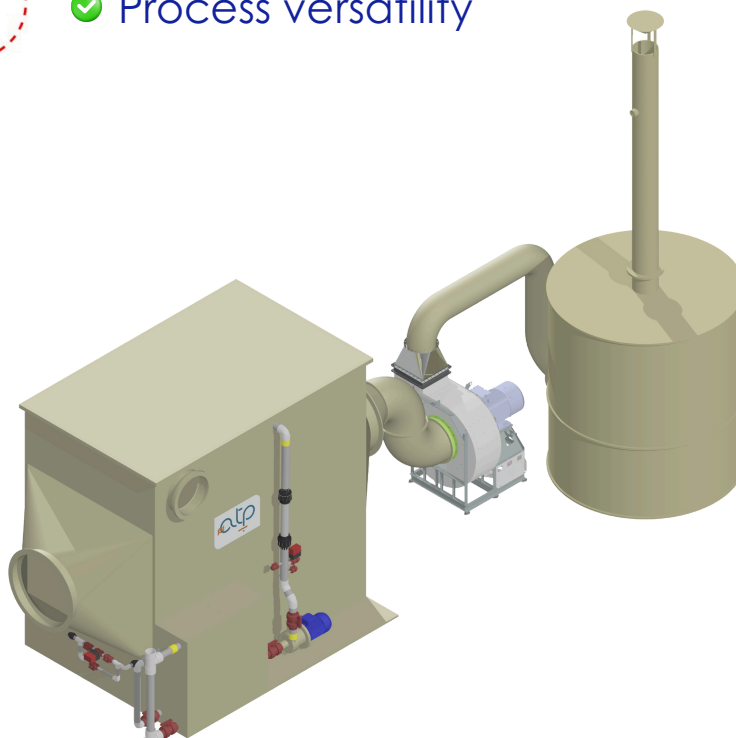
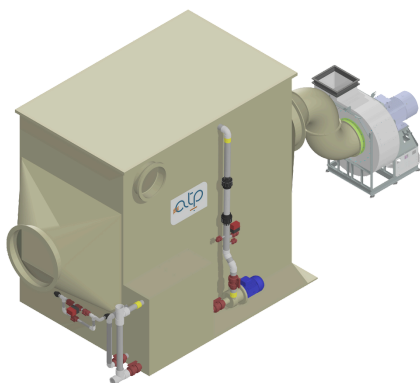
**SINGLE STAGE**



**DOUBLE STAGE**



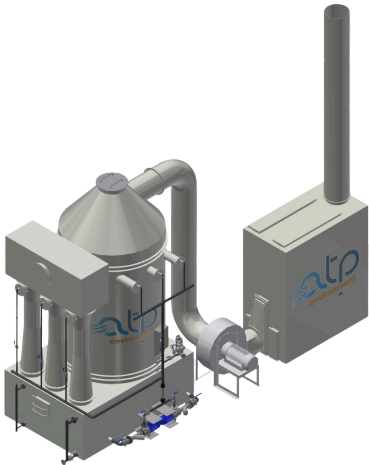
- ✓ Horizontal compact design
- ✓ Ease of maintenance
- ✓ Low maintenance costs
- ✓ Engineered system
- ✓ Many types of targeted pollutants
- ✓ Process versatility







# Venturi Scrubber



**VENTURI SCRUBBER**

The venturi tube is characterized by a converging section, the throat, and a diverging section which is connected to the scrubbing tower.

**Pollutants:** H<sub>2</sub>S, NH<sub>3</sub>, Ammine, R-SH, VOC, Odors, particulate, other organic inorganic compounds



**OXY SCRUBBER**

It is a specialised environmental control system designed specifically for applications requiring ethylene oxide treatment, ensuring efficient pollutant removal with a focus on safety and compliance.

**Pollutants:** EO (Ethylene Oxide)  
PO (Propylene Oxide)



**POST OXIDATION SCRUBBER**

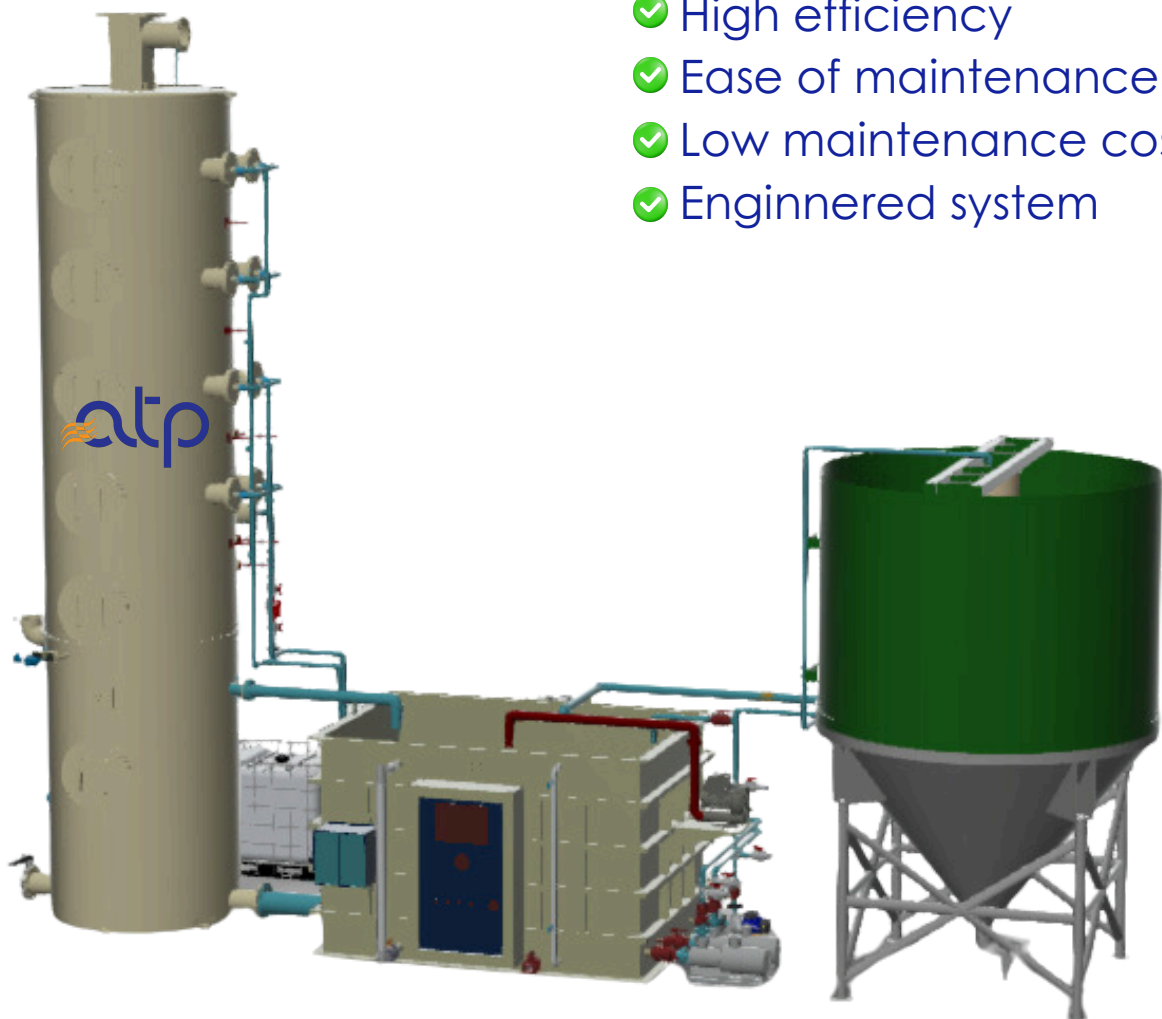
It is a system designed to cool and treat the gas from the Power Generation Package (M-252) through a column using water and caustic solution.

**Pollutants:** SO<sub>x</sub> (Sulfur Oxides)  
CO (Carbon Monoxide)  
NO<sub>x</sub> (Nitrogen Oxides)



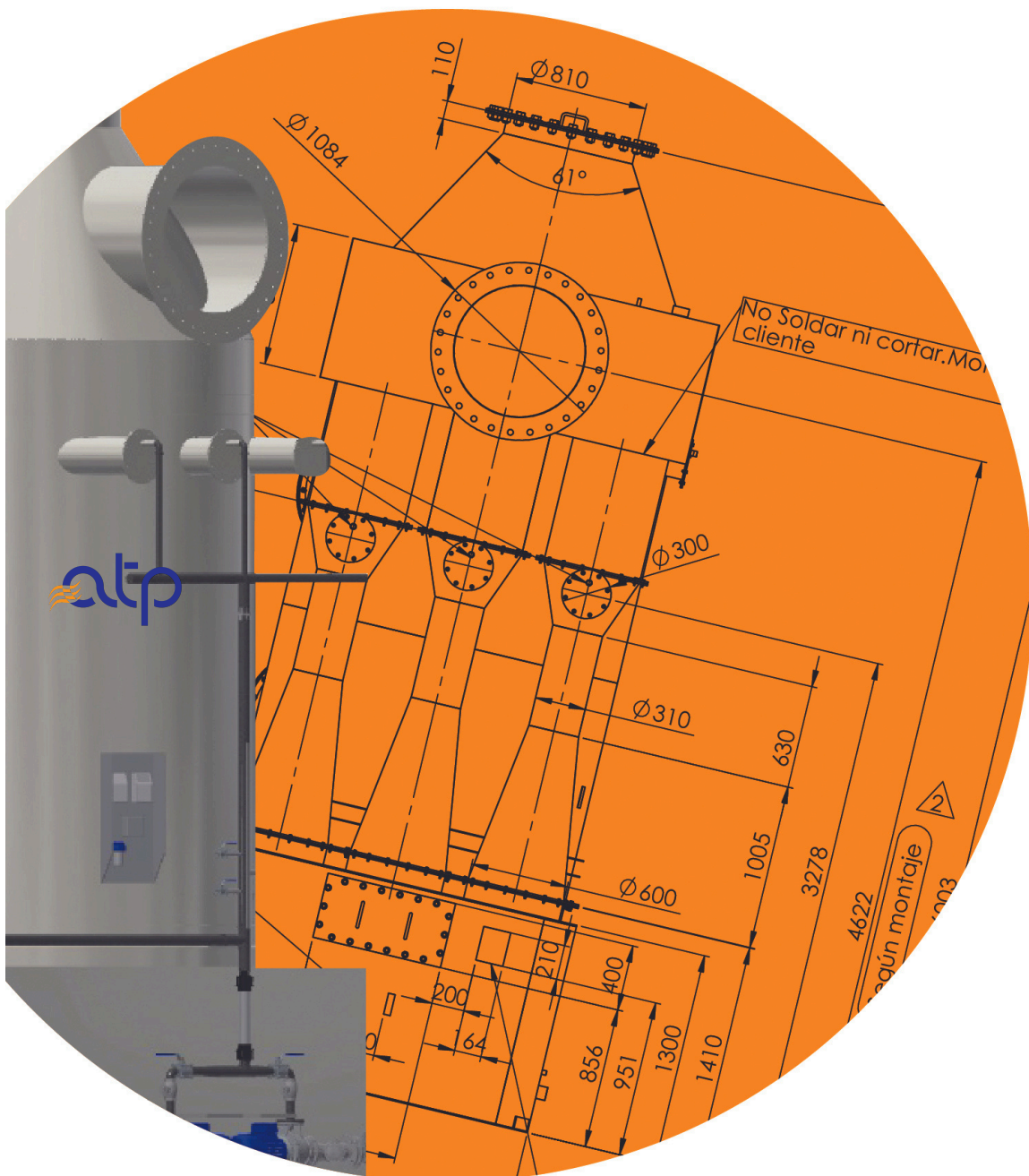
Biogas usually contains a high concentration of H<sub>2</sub>S, which is highly toxic and corrosive. It is therefore necessary to remove the hydrogen sulfide in order to reach environmental standards and to avoid the corrosion of the equipment.

- ✓ Efficient H<sub>2</sub>S removal
- ✓ High efficiency
- ✓ Ease of maintenance
- ✓ Low maintenance costs
- ✓ Engineered system



efficient to removal of H<sub>2</sub>S  
from exhaust gases in  
**BIOGAS industry**

# Technical Datasheets



# SCB-Vertical Scrubber



**SINGLE STAGE**



**DOUBLE STAGE**

- ✔ Vertical compact design
- ✔ Process versatility
- ✔ High efficiency
- ✔ Ease of maintenance
- ✔ Low maintenance costs
- ✔ Engineered system
- ✔ Effective odor control
- ✔ Wide range of targeted pollutants

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Chemical/pharma, food, rendering, foundry, metallurgical, water & solid waste treatment, composting	H <sub>2</sub> S, NH <sub>3</sub> , Ammine, R-SH, VOC, Odors, other organic and inorganic compounds	1.000-80.000 mc/h for single scrubber; higher airflows available	Polimers (PP, PVDF, PE) Metals (AISI316L, AISI304L, carbon steel) Fiberglass

In vertical scrubbers contaminated air is introduced at the base of the tower, and it moves upward through the tower filled with packing material; the latter, can consist of trays, layers of fill media, or specialized structures, and is carefully selected to maximize the surface area available for interaction between the air and scrubbing medium.

The scrubbing medium is continuously introduced from the top of the tower, and it flows in countercurrent with the air through the packing material. The purified air exits at the top of the tower, and it can either be safely released into the atmosphere or directed to the next step of the process. The waste containing the pollutants is collected at the bottom of the tower and it requires further treatment or specific disposal. The scrubber system is equipped with automated controls that monitor and regulate parameters such as flow rates of air and scrubbing medium, pH levels, and pressure differentials. These ensure optimal system performance and efficiency.

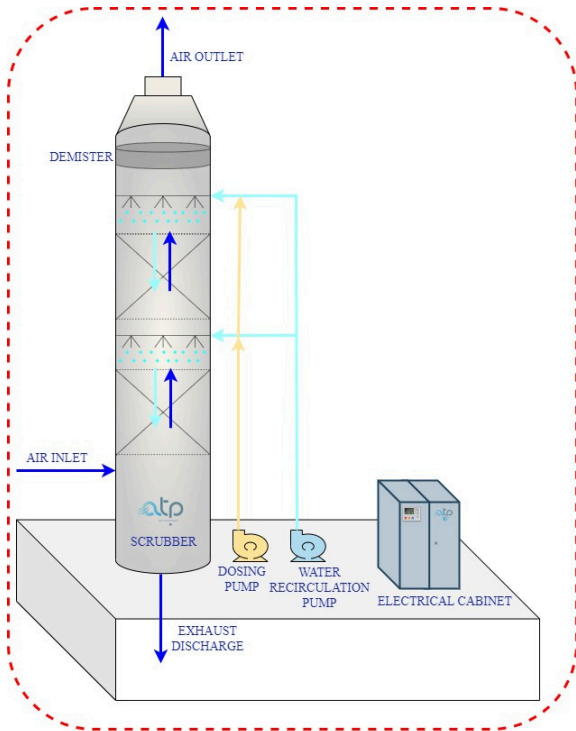


## SERVICES OFFERED

- Conceptual Engineering
- FEED engineering
- Complete plant production
- Installation location - worldwide
- Configurations variant: multiple stage

## AFTER SALES

- Spare parts
- Consumables
- Remote assistance



AIRFLOW [m3/h]	OVERALL DIMENSIONS [m]	INSTALLED POWER [kW]
1.000	1,0 x 1,0 x H 3,0	2,5
5.000	1,4 x 1,2 x H 4,2	10
10.000	1,8 x 1,6 x H 5,0	18
20.000	2,2 x 1,6 x H 5,6	36
30.000	2,8 x 2,4 x H 6,1	45
40.000	3,2 x 2,8 x H 6,6	65
50.000	3,4 x 3,0 x H 6,8	88
60.000	3,8 x 3,6 x H 7,0	95

SERIES EQUIPMENT (according to stages composition)	LINE EQUIPMENT (if required by the application)
Scrubber structure	Heat exchanger
Automatic water recirculation system	Electrical heaters
Automatic reagent dosing system	Centrifugal fan
Automatic discharge system	Electrical panel
Analytical instrumentation	Chimney
Process instrumentation	Skids
Scrubber internals	Interconnection piping
	Reagent tanks (IBCs)
	Air dampers

### COMPLEMENTARY TECHNOLOGIES



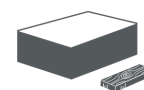
CARBON FILTER



BAGHOUSE FILTER



COALESCENCE FILTER



BIO FILTERS



CYCLONE

### SPECIAL APPLICATIONS



BIO SCRUBBER



DESULFURIZER SCRUBBER



DENOX SCRUBBER



# BS - BIO SCRUBBER



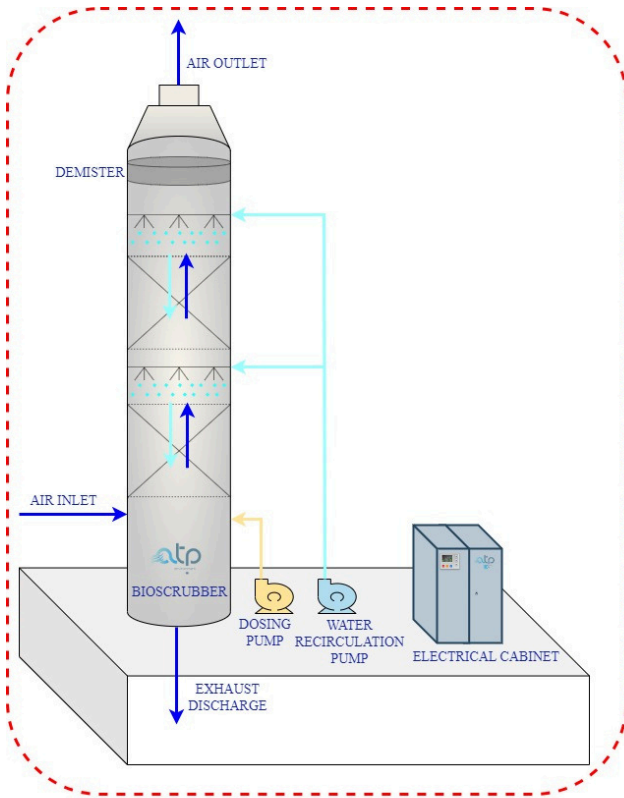
- ✓ Space-efficient design
- ✓ Consistent and reliable
- ✓ Ease of maintenance
- ✓ Low maintenance costs
- ✓ Engineered system
- ✓ High efficiency

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Suitable for all industries in particular composting plants, WWTP, solid waste treatment	COV	500 - 20.000 mc/h for single scrubber; higher airflows available	Polypropylene (PP) Fiberglass (GRP)

A bioscrubber is the combination of a scrubber and a biofilter. The principle of operation of the bioscrubber consists in using a biological activator to confirm the pollutants into carbon dioxide. More specifically, the gas containing the pollutants enters the column and it moves upward through the washing liquid in countercurrent, resulting in the absorption of the particles along with oxygen. During this process, the pollutants pass to the liquid phase and are utilised by the biomass contained in the scrubbing liquid as nutrients and are consequently converted into carbon dioxide and water.

The reactor is packed with a high-specific-surface-area material that promotes adhesion of the microorganisms.

Periodically, small amounts of biomass are purged, and the water tank is replenished. The clean gas passes through a demister to remove any droplets of liquid, and then it leaves the tower from the top.



AIRFLOW [mc/h]	OVERALL DIMENSIONS [m]	INSTALLED POWER [kW]
1.000	1,0 x 1,0 x H 8,5	2,5
5.000	1,5 x 1,2 x H 9,0	10
10.000	2,0 x 1,5 x H 9,5	18
20.000	2,5 x 2,2 x H 10,0	36
30.000	2,8 x 2,4 x H 10,5	45
40.000	3,4 x 2,8 x H 10,0	65
50.000	3,6 x 3,0 x H 10,5	88
60.000	3,8 x 3,6 x H 11,0	95

SERIES EQUIPMENT (according to stages composition)	LINE EQUIPMENT (if required by the application)
Bottom tank	Heat exchanger
Bottom drain and automatic exhaust valve	Electrical heaters
Automatic reagent dosing system	Centrifugal fan
Automatic discharge system	Electrical panel
Analytical instrumentation	Chimney
Scrubber internals	Skids
	Interconnection piping
	Reagent tanks (IBCs)
	Air dampers



### SERVICES OFFERED

- Conceptual Engineering
- FEED engineering
- Complete plant production
- Installation location - worldwide

### AFTER SALES

- Spare parts
- Consumables
- Remote assistance



# DeNOx SCRUBBER



- ✓ Vertical compact design (small footprint)
- ✓ High NOx removal efficiency
- ✓ Ease of maintenance
- ✓ Low maintenance costs
- ✓ Engineered system

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Suitable for automotive, foundry, oil&gas, mechanical, chemical&pharmaceutical industries	NOx	1.000-80.000 mc/h for single scrubber; higher airflows available	<ul style="list-style-type: none"> <li>• Polimers (PP, PVDF, PE, PPES)</li> <li>• Metals (AISI316L, AISI304L, CARBON STEEL)</li> <li>• Fiberglass</li> </ul>

The DeNOx scrubber implements the use of liquid hydrogen peroxide to oxidize NOx species. This technology guarantees a reduced NOx emission with contained costs.

For this treatment, it is used a vertical scrubber in which contaminated air is introduced at the base of the tower, and it moves upward through the tower filled with packing material.

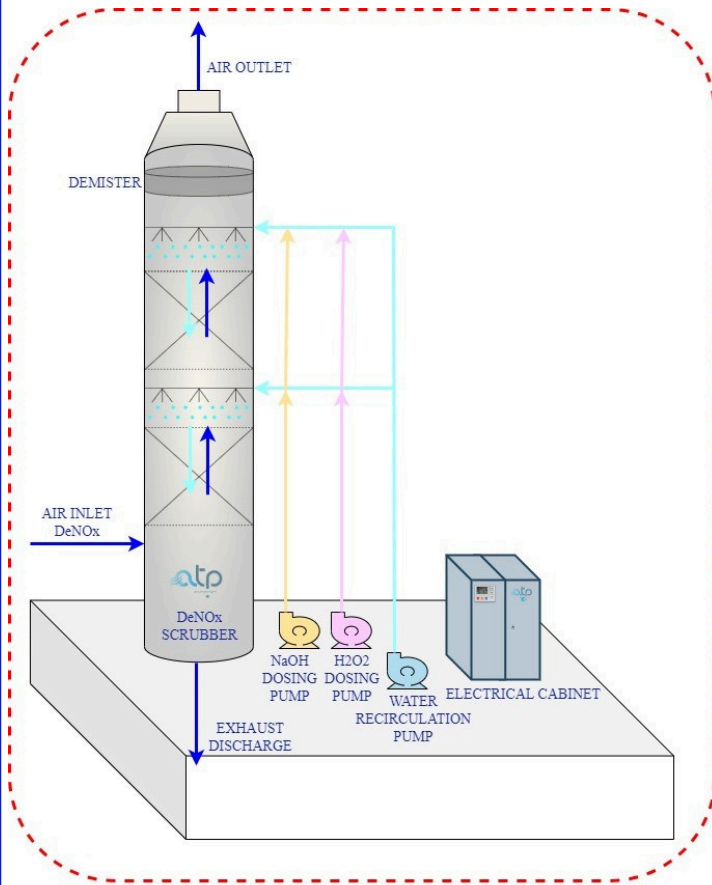
The hydrogen peroxide-containing scrubbing medium is continuously introduced from the top of the tower, and it flows in countercurrent with the air through the packing material.

The purified air exits at the top of the tower, and it can either be safely released into the atmosphere or directed to the next step of the process.

The waste containing the pollutants is collected at the bottom of the tower and it requires further treatment or specific disposal.

The scrubber system is equipped with automated controls that monitor and regulate parameters such as flow rates of air and scrubbing medium, pH levels, and pressure differentials.

These ensure optimal system performance and efficiency.



<b>SERIES EQUIPMENT</b> (according to stages composition)	<b>LINE EQUIPMENT</b> (if required by the application)
Scrubber structure	Heat exchanger
Automatic reagent dosing system	Electrical heaters
Automatic discharge system	Blower
Analytical instrumentation	Electrical panel
Process instrumentation	Chimney
Scrubber internals	Skids
	Interconnection piping
	Reagent tanks (IBCs)
	Air dampers



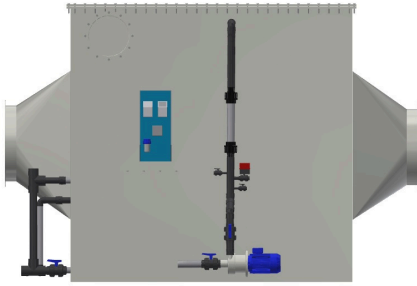
**SERVICES OFFERED**

- Conceptual Engineering
- FEED engineering
- Complete plant production
- Installation location - worldwide

**AFTER SALES**

- Spare parts
- Consumables
- Remote assistance

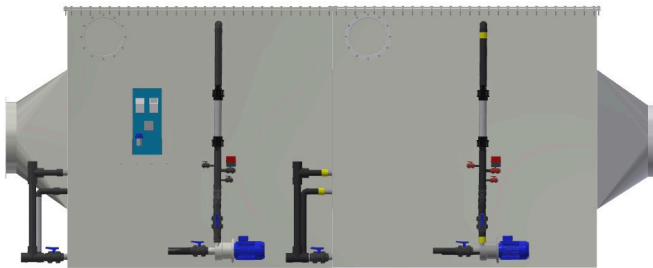
# HCB-Horizontal Scrubber



**SINGLE STAGE**



- ✔ Horizontal compact design
- ✔ Ease of maintenance
- ✔ Low maintenance costs
- ✔ Engineered system
- ✔ Wide range of targeted pollutants
- ✔ Process versatility



**DOUBLE STAGE**

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Suitable for all industries in particular chemical/pharma, food, foundry, metallurgical, water treatment, solid waste treatment, composting	H <sub>2</sub> S, NH <sub>3</sub> , Ammine, R-SH, VOC, Odors, other organic and inorganic compounds	1.000-50.000 mc/h for single scrubber; higher airflows available	Polimers (PP, PVDF, PE, PPES) Metals (AISI316L, AISI304L, CARBON STEEL) Fiberglass

ATP horizontal scrubber is an air pollution control device designed to remove harmful contaminants, and it is characterized by its orientation which allows for a more compact and space-efficient design. The gas stream is fed to the scrubber horizontally, and perpendicularly to the carefully selected packed bed. The scrubbing liquid is introduced from the top where it is continuously sprayed downward in cross-current by the centrifugal pumps. The system automatically replenishes the washing solution as needed, thanks to the Automatic Refill and Replacement System (ARRS). Furthermore, the Automatic Water Refill System (AWRS) ensures the consistent maintenance of the liquid working level within the base of the scrubber.

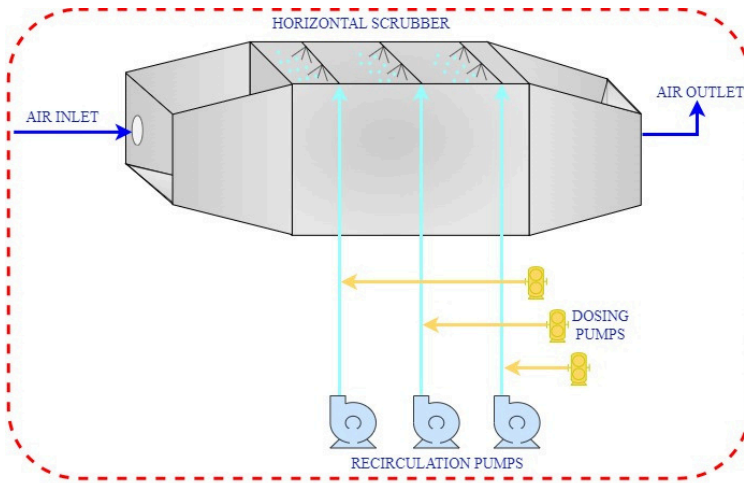


## SERVICES OFFERED

- Conceptual Engineering
- FEED engineering
- Complete plant production
- Installation location - worldwide
- Configurations variant: multiple stage

## AFTER SALES

- Spare parts
- Consumables
- Remote assistance



AIRFLOW [m3/h]	OVERALL DIMENSIONS [m]	INSTALLED POWER [kW]
1.000	1,2 x 1,2 x H 3,2	2,5
5.000	1,6 x 1,4 x H 3,8	10
10.000	2,1 x 1,8 x H 4,1	18
20.000	2,6 x 2,4 x H 5,0	36
30.000	3,4 x 2,4 x H 5,5	45
40.000	4,0 x 3,0 x H 5,8	65
50.000	4,4 x 3,0 x H 6,0	88
60.000	4,6 x 3,8 x H 6,6	95

SERIES EQUIPMENT (according to stages composition)	LINE EQUIPMENT (if required by the application)
Scrubber structure	Heat exchanger
Automatic water recirculation system	Electrical heaters
Automatic reagent dosing system	Centrifugal fan
Automatic discharge system	Electrical panel
Analytical instrumentation	Chimney
Scrubber internals	Skids
	Interconnection piping
	Reagent tanks (IBCs)
	Air dampers

## COMPLEMENTARY TECHNOLOGIES



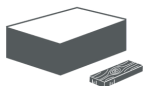
CARBON FILTER



BAGHOUSE FILTER



COALESCENCE FILTER



BIO FILTERS



CYCLONE

# VCB-Venturi Scrubber



**SINGLE STAGE**



**DOUBLE STAGE**

- ✔ Wide range of targeted pollutants
- ✔ Process Versatility
- ✔ High efficiency
- ✔ Ease of maintenance
- ✔ Low maintenance costs
- ✔ Engineered system
- ✔ Temperature reduction
- ✔ Particulates reduction

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Suitable for all industries in particular chemical, food, mining, foundry, battery recycling, metallurgical, plastic production	H <sub>2</sub> S, NH <sub>3</sub> , Ammine, R-SH, VOC, Odors, other organic and inorganic compounds	1.000-80.000 mc/h for single scrubber; higher airflows available	Polimers (PP, PVDF, PE, PPES) Metals (AISI316L, AISI304L, CARBON STEEL) Fiberglass

The venturi tube is characterized by a converging section, the throat, and a diverging section which is connected to the scrubbing tower. When passing through the venturi throat, the polluted gas stream is washed in co-current with the scrubbing liquid, which is either introduced at the converging section or in the throat. Due to the narrowing of the duct, turbulence increases, and the scrubbing liquid is atomized (reduced into small droplet) allowing for an increased interaction between the droplets and the pollutants. Leaving the diverging section of the duct, the stream's velocity significantly reduces resulting in an increased residence time in the scrubbing tower; here, the clean gas is separated with a demister from the liquid entrapping the polluting particles, and it can then proceed to the next step of the process or can be released directly into the atmosphere.

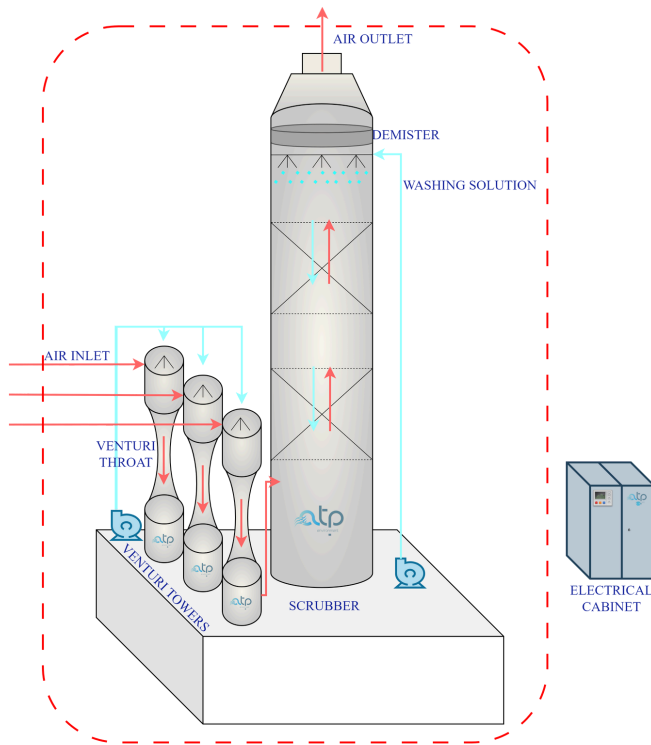


## SERVICES OFFERED

- Conceptual Engineering
- FEED engineering
- Complete plant production
- Installation location - worldwide
- Configurations variant: multiple stage

## AFTER SALES

- Spare parts
- Consumables
- Remote assistance



AIRFLOW [m3/h]	OVERALL DIMENSIONS [m]	INSTALLED POWER [kW]
1.000	1,2 x 1,5 x H 3,3	2,5
5.000	1,6 x 2,0 x H 3,8	10
10.000	1,8 x 2,5 x H 4,1	18
20.000	2,0 x 2,5 x H 5,0	36
30.000	2,5 x 2,5 x H 5,5	45
40.000	3,0 x 3,0 x H 5,8	65
50.000	3,0 x 3,5 x H 6,0	88
60.000	3,5 x 3,5 x H 6,6	95

SERIES EQUIPMENT (according to stages composition)	LINE EQUIPMENT (if required by the application)
Scrubber structure	Heat exchanger
Automatic water recirculation system	Electrical heaters
Automatic reagent dosing system	Centrifugal fan
Automatic discharge system	Electrical panel
Analytical instrumentation	Chimney
Scrubber internals	Skids
	Interconnection piping
	Reagent tanks (IBCs)
	Air dampers

## COMPLEMENTARY TECHNOLOGIES



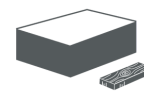
CARBON FILTER



BAGHOUSE FILTER



COALESCENCE FILTER



BIO FILTERS



CYCLONE

## SPECIAL APPLICATIONS

POST OXIDATION SCRUBBER

OXY SCRUBBER



# OXY SCRUBBER



- ✔ Vertical compact design (small footprint)
- ✔ High EO/PO removal efficiency
- ✔ Ease of maintenance
- ✔ Low maintenance costs
- ✔ Engineered system
- ✔ Wide range of targeted pollutants

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Suitable for oil&gas industry	SO <sub>x</sub> CO NO <sub>x</sub>	1.000-80.000 mc/h for single scrubber; higher airflows available	<ul style="list-style-type: none"> <li>• Polimers (PP, PVDF, PE, PPES)</li> <li>• Metals (AISI316L, AISI304L, CARBON STEEL)</li> <li>• Fiberglass</li> </ul>

The OXY scrubbing system is based on the absorption of ethylene/propylene oxides and their subsequent hydration to ethylene/propylene glycols.

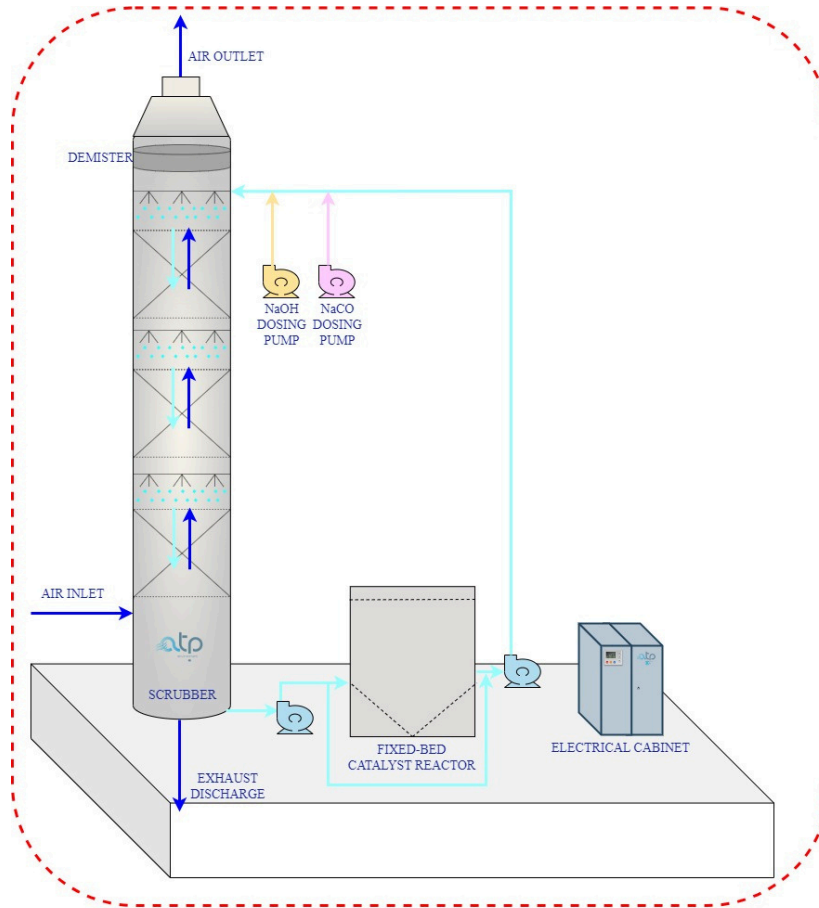
The rate of reaction is a function of temperature in the presence of a catalyst, typically sulfuric acid. Energy consumption is minimal. The final product of a system is a glycol solution containing a small amount of acid (3-5%).

The equipment used for this process is a counter-current packed column where the initial absorption takes place.

The polluted gas enters at the bottom of the column, and flows upward through the packing material, while the scrubbing liquid flows downward by gravity. In the process, intimate mixing and absorption of the gas takes place.

The liquid carries the absorbed gas into the reaction vessel which is designed to allow sufficient residence time for the complete conversion of EO/PO to ethylene and propylene glycol.





<b>SERIES EQUIPMENT</b> (according to stages composition)	<b>LINE EQUIPMENT</b> (if required by the application)
Scrubber structure	Heat exchanger
Automatic water recirculation system	Electrical heaters
Automatic discharge system	Blower
Analytical instrumentation	Electrical panel
Automatic reagent dosing system	Chimney
Process instrumentation	Skids
Scrubber internals	Interconnection piping
	Reagent tanks (IBCs)
	Air dampers



**SERVICES OFFERED**

- Conceptual Engineering
- FEED engineering
- Complete plant production
- Installation location - worldwide

**AFTER SALES**

- Spare parts
- Consumables
- Remote assistance

# POST OXY SCRUBBER

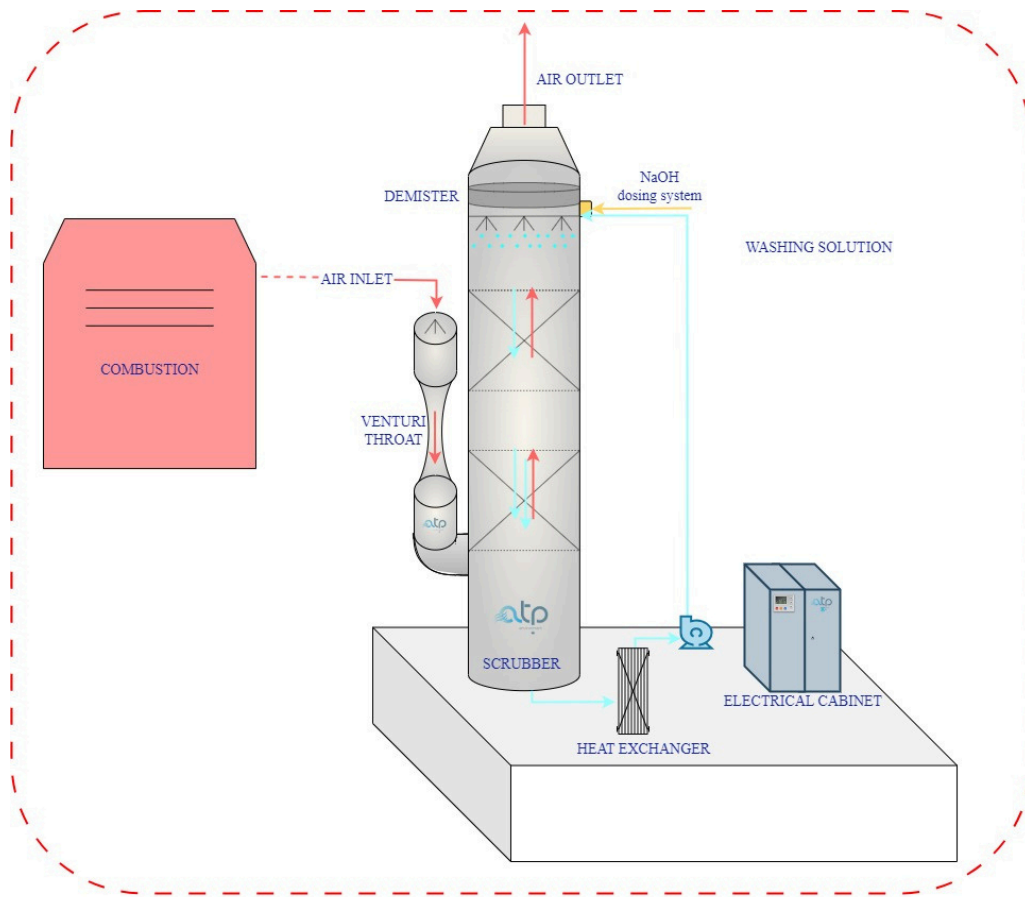


- ✔ High post oxidation pollutants removal efficiency
- ✔ Ease of maintenance
- ✔ Low maintenance costs
- ✔ Engineered system
- ✔ Wide range of targeted pollutants
- ✔ Temperature reduction
- ✔ Particulates reduction

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Suitable for oil&gas, chemical&pharmaceutical industries	SOx CO NOx	1.000-80.000 mc/h for single scrubber; higher airflows available	<ul style="list-style-type: none"> <li>• Polimers (PP, PVDF, PE, PPES)</li> <li>• Metals (AISI316L, AISI304L, CARBON STEEL)</li> <li>• Fiberglass</li> </ul>

Gases coming from oxidation processes need to be treated before being released to the atmosphere.

This is performed through absorption in a venturi scrubber, which is characterized by a converging section, the throat, and a diverging section which is connected to the scrubbing tower. When passing through the venturi throat, the polluted gas stream is washed in co-current with the scrubbing liquid, which is either introduced at the converging section or in the throat. Due to the narrowing of the duct, turbulence increases, and the scrubbing liquid is atomized (reduced into small droplet) allowing for an increased interaction between the droplets and the pollutants. Leaving the diverging section of the duct, the stream's velocity significantly reduces resulting in an increased residence time in the scrubbing tower; here, the clean gas is separated with a demister from the liquid entrapping the polluting particles, and it can then proceed to the next step of the process or can be released directly into the atmosphere.



<b>SERIES EQUIPMENT</b> (according to stages composition)	<b>LINE EQUIPMENT</b> (if required by the application)
Scrubber structure	Heat exchanger
Automatic water recirculation system	Electrical heaters
Automatic discharge system	Blower
Analytical instrumentation	Electrical panel
Automatic reagent dosing system	Chimney
Process instrumentation	Skids
Scrubber internals	Interconnection piping
	Reagent tanks (IBCs)
	Air dampers



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# DESULFURIZER SCRUBBER



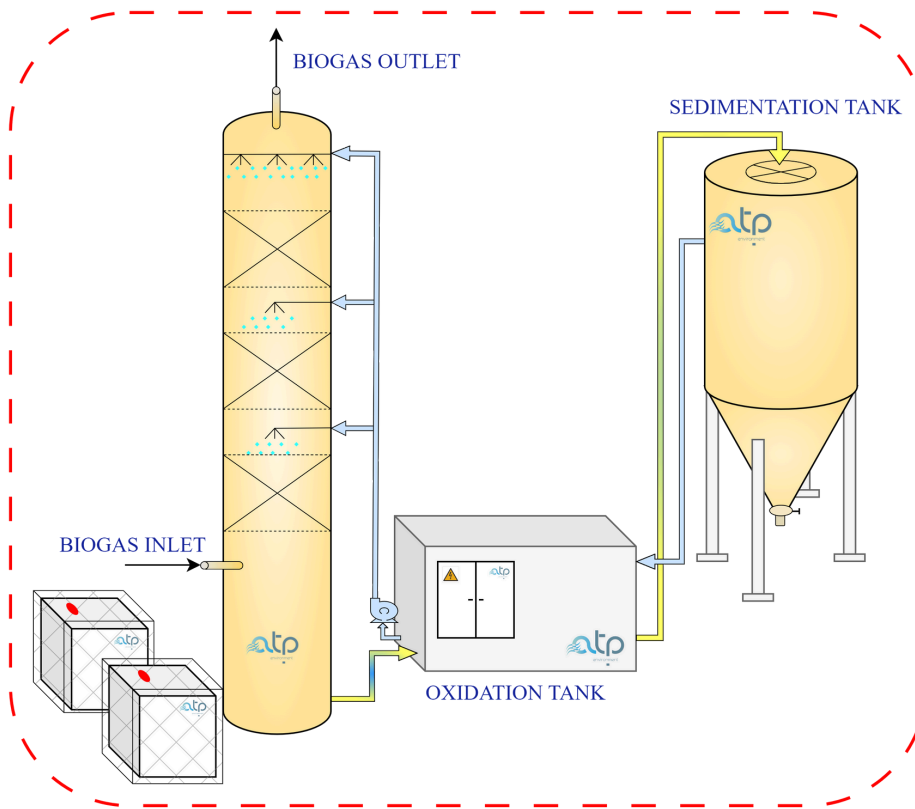
- ✓ Efficient removal of H<sub>2</sub>S in biogas
- ✓ High efficiency
- ✓ Ease of maintenance
- ✓ Low maintenance costs
- ✓ Engineered system

INDUSTRIES	POLLUTANTS	AIRFLOWS	CONSTRUCTION MATERIALS
Suitable for BIOgas industry	H <sub>2</sub> S	300-2.000 mc/h for single scrubber	<ul style="list-style-type: none"> <li>• Polypropylene (PP)</li> <li>• Fiberglass (GRP)</li> </ul>

Biogas usually contains a high concentration of H<sub>2</sub>S, which is highly toxic and corrosive. It is therefore necessary to remove the hydrogen sulfide in order to reach environmental standards and to avoid the corrosion of the equipment.

The desulfurization unit consists of a chemical scrubber combined with an oxidation tank and a sedimentation tank.

The biogas enters from the bottom of the scrubbing tower, and it is washed at low speed in counter-current with the washing liquid (NaOH) that moves through the packed bed and reacts with H<sub>2</sub>S to yield NaHS. This then flows to the oxidation tank where a blower introduces air to promote oxidation; finally, the liquid is transferred to the sedimentation tank to let the elemental sulfur settle at the bottom, and the liquid can be recirculated to the scrubber.



<b>SERIES EQUIPMENT</b> (according to stages composition)	<b>LINE EQUIPMENT</b> (if required by the application)
Scrubber in PP	Heat exchanger
Oxidation tank	Electrical heaters
Sedimentation tank	Blower
Analytical instrumentation	Electrical panel
Automatic reagent dosing system	Chimney
Automatic water recirculation system	Skids
Automatic discharge system	Interconnection piping
Analytical instrumentation	Reagent tanks (IBCs)
Process instrumentation	Air dampers
Scrubber internals	



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Project # XXXX  
Data: XX.XX.XXXX  
Customer: XXXXXXXX

## CONCEPTUAL ENGINEERING

(document example)

### Project description:

**Conceptual engineering**, also called feasibility study:

In the industrial world projects often need to be defined in advance, sometimes years before the start of it. In this preliminary phase, you will need preliminary details of your air treatment system, not a simple budgetary offer.

Our conceptual engineering service has the aim to propose the technology that represents the optimal solution to your project by providing comprehensive overview of the plant, including footprint, process functioning, planning and budget.

Deliverables:

1. Economic assessments (CAPEX, OPEX)
2. Preliminary layout
3. Preliminary Process Flow Diagram (PFD)
4. Process description
5. Preliminary P&ID
6. Project scheduling
7. Utility requirements





## CAPEX :

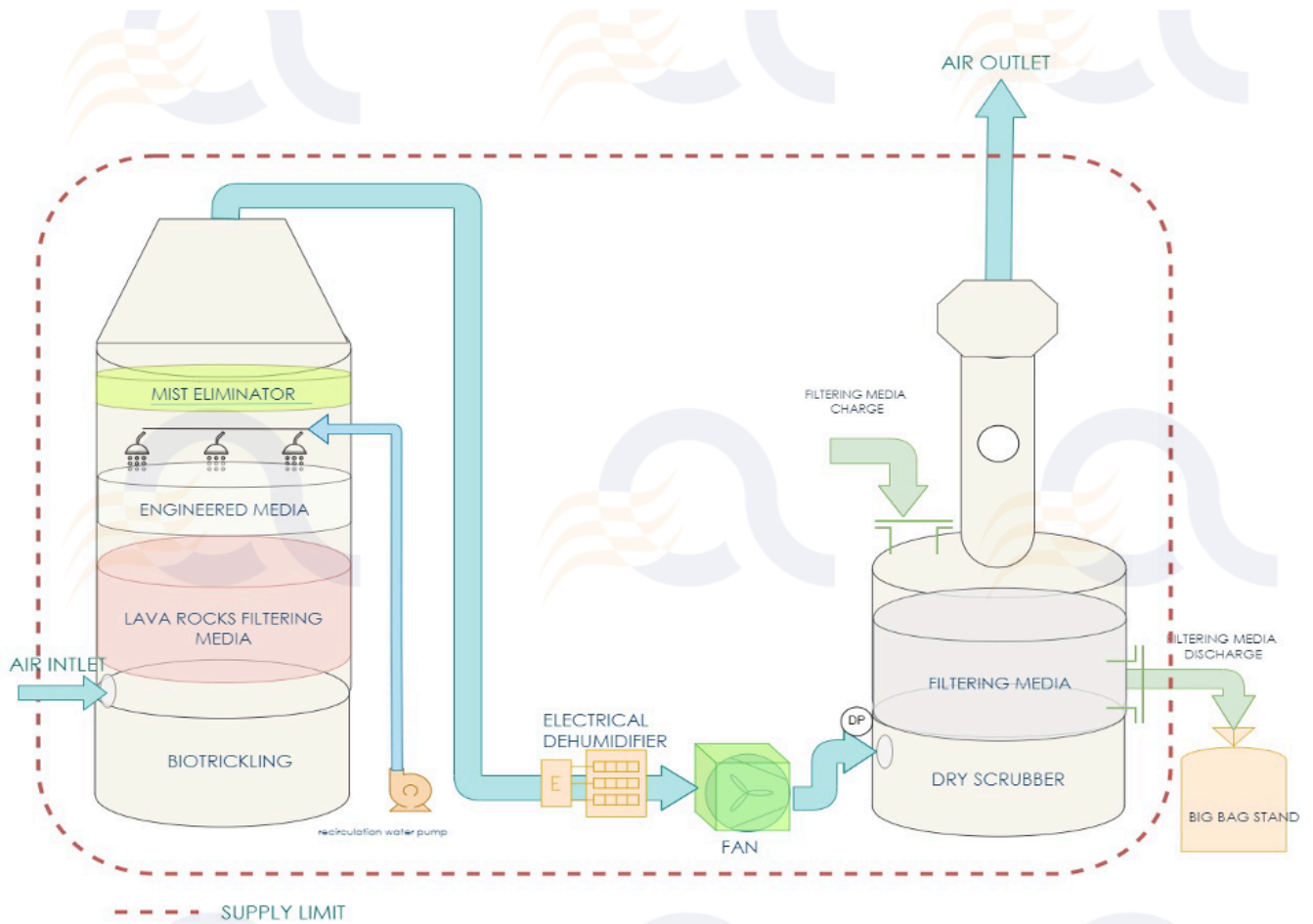
<p>BIOTRICKLING UNIT CATALOG: CBBTK</p>	<p>1x HDPE biotrickling structure – insulated with aluminium sheet finishing.                  2x Re-circulating centrifugal pumps.                  1x automatic biological additive dosing system, including metering pump.                  1x automatic clean water re-loading system with vortex nozzles.                  1x automatic waste water discharge system.                  1x HDPE dry scrubber structure - insulated with aluminium sheet finishing.                  1x HDPE connecting ducts and valves set.                  1x Set of filtering media.                  1x Set of instruments.                  1x Electrical heater to reduce RH at dry scrubber's inlet.                  1x Fan with soundproof cabinet.                  1x Electrical cabinet with VFD to regulate fan's speed and PLC Siemens for the fully automatic control of the plant.</p> <p>Suitable packing for road transportation.                  Complete Technical Documentation.</p>
<p>Warranty time</p>	<p>12 months from the acceptance certificate</p>
<p>Manufacturer</p>	<p>ATP Environment, Italy</p>
<p>Design Airflow rate</p>	<p>1200 m<sup>3</sup>/h@40°C</p>
<p><b>BUDGET PRICE</b></p>	<p><b>XXXXX</b></p>
<p>Needed place for installation:</p>	<p>6 m x 4 m</p>
<p>Total Power Installed</p>	<p>Pi = 11kW</p>

## PERFORMANCE

<p><b>Inlet</b>                  H2S: 5mg/m<sup>3</sup>                  R-SH: 2 mg/m<sup>3</sup>                  NH3: 2mg/m<sup>3</sup></p>	<p><b>Outlet</b>                  H2S: 0,1mg/m<sup>3</sup>                  R-SH: 0,1 mg/m<sup>3</sup>                  NH3: 0,1mg/m<sup>3</sup></p>
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## PRELIMINARY PROCESS FLOW DIAGRAM



### ATP SERVICES OFFERED

- Conceptual Engineering
- FEED engineering
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- Installation location - worldwide

### ATP AFTER SALES

- Spare parts
- Consumables
- Remote assistance



### FOR MORE INFORMATION

[WWW.ATPENvironment.COM](http://WWW.ATPENvironment.COM)

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your ideas to life.**



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