

Stripping plant TS-ST series

EQUIPMENT TYPE

Stripping plant is composed with a stripping tower and a chemical scrubber.

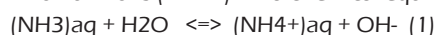
APPLICATION

The stripping plants **TS-ST** series are used for the treatment and removal of a contaminant from ground or surface waters, from landfill leachate or from liquid digestate from biogas plant. The contaminant is transferred from the liquid phase to the gas phase (air or steam), if required the air is treated in a second scrubber before his expulsion into the atmosphere.

OPERATING PRINCIPLE

We build and sell columns for stripping gases dissolved in water, such as carbon dioxide, ammonia and VOCs in general. The most common application is using air to remove ammonia dissolved in water. Ammonia air stripping is a process where the ammonia nitrogen is removed from wastewater stream by an air stream in countercurrent flows.

The wastewater to be purified contains primarily dissolved ammonia (NH₃)_L and ammonium ions (NH₄⁺)_L in a chemical equilibrium:



Another equilibrium present is that of ammonia gas solubility in water:



To reduce the concentration of (NH₄⁺)_L (to move the equilibrium (1) to the left) we have several options:

- raising the operating temperature (heating the wastewater to be treated and the air stripping);
- raising the pH of the wastewater to be treated (by adding a basic solution to the wastewater);
- reducing the concentration (NH₃)_G (by mass transfer in the column)

Our stripping Plants exploit all the possible options mentioned above: The optimal air flow rate is calculated, the optimal operating temperature in the stripping column and the optimal pH of the effluent to be treated are determined. Then the diameter and the height of the column are calculated in order to create all the necessary conditions for the transfer of ammonia from the effluent liquid to the air during their contact along the stripping column.

The air exiting from the stripping column is polluted by ammonia in the gaseous phase, it will be treated in a second column with a chemical washing, using the sulphuric acid H₂SO₄ to get a salt (solution of ammonium sulphate (NH₄)₂SO₄) which has a commercial value in the production of fertilizer industries.

MAIN ADVANTAGES

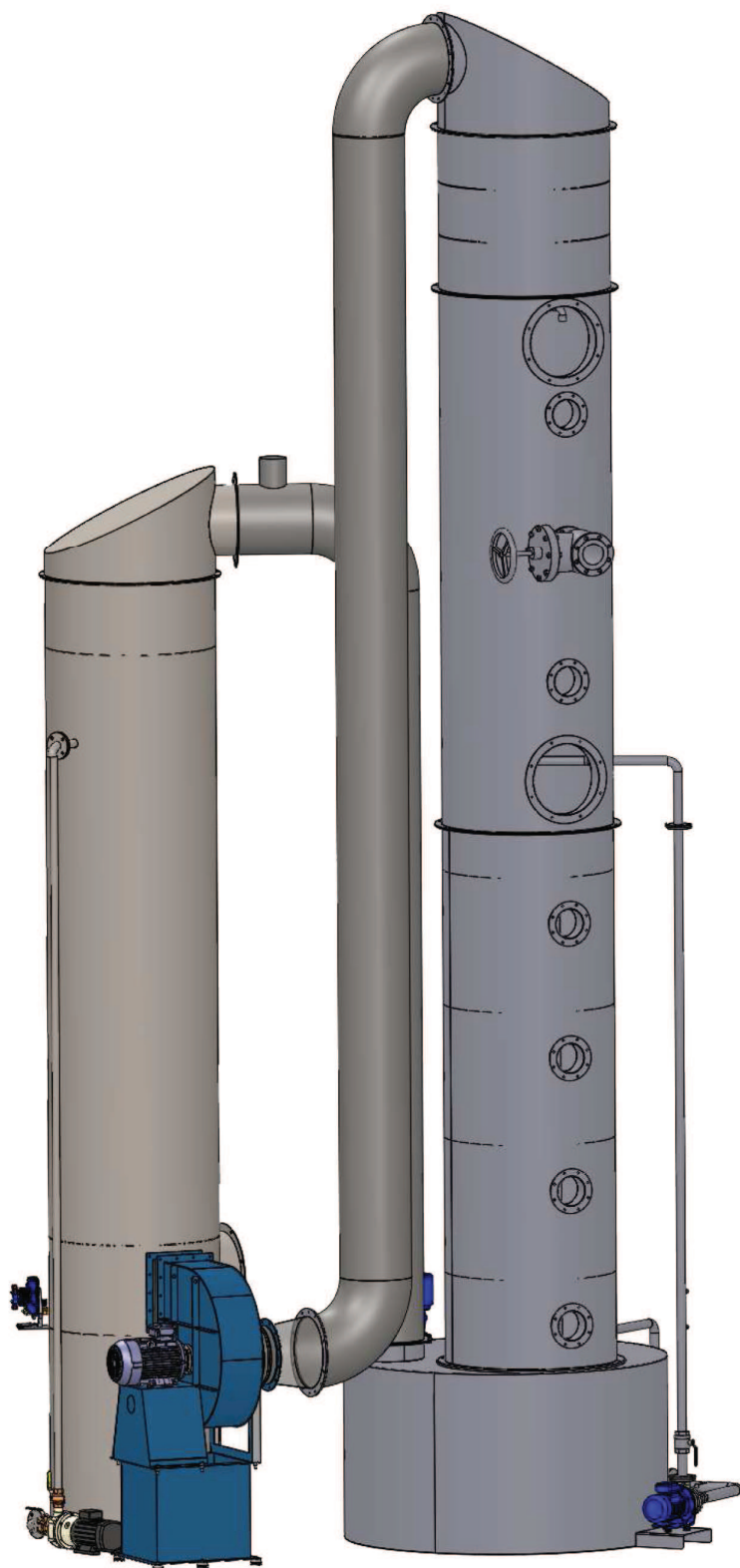
Stripping plant **TS-ST** series is applied both for low and for high concentrations of pollutants (from 2 to 5000 ppm)

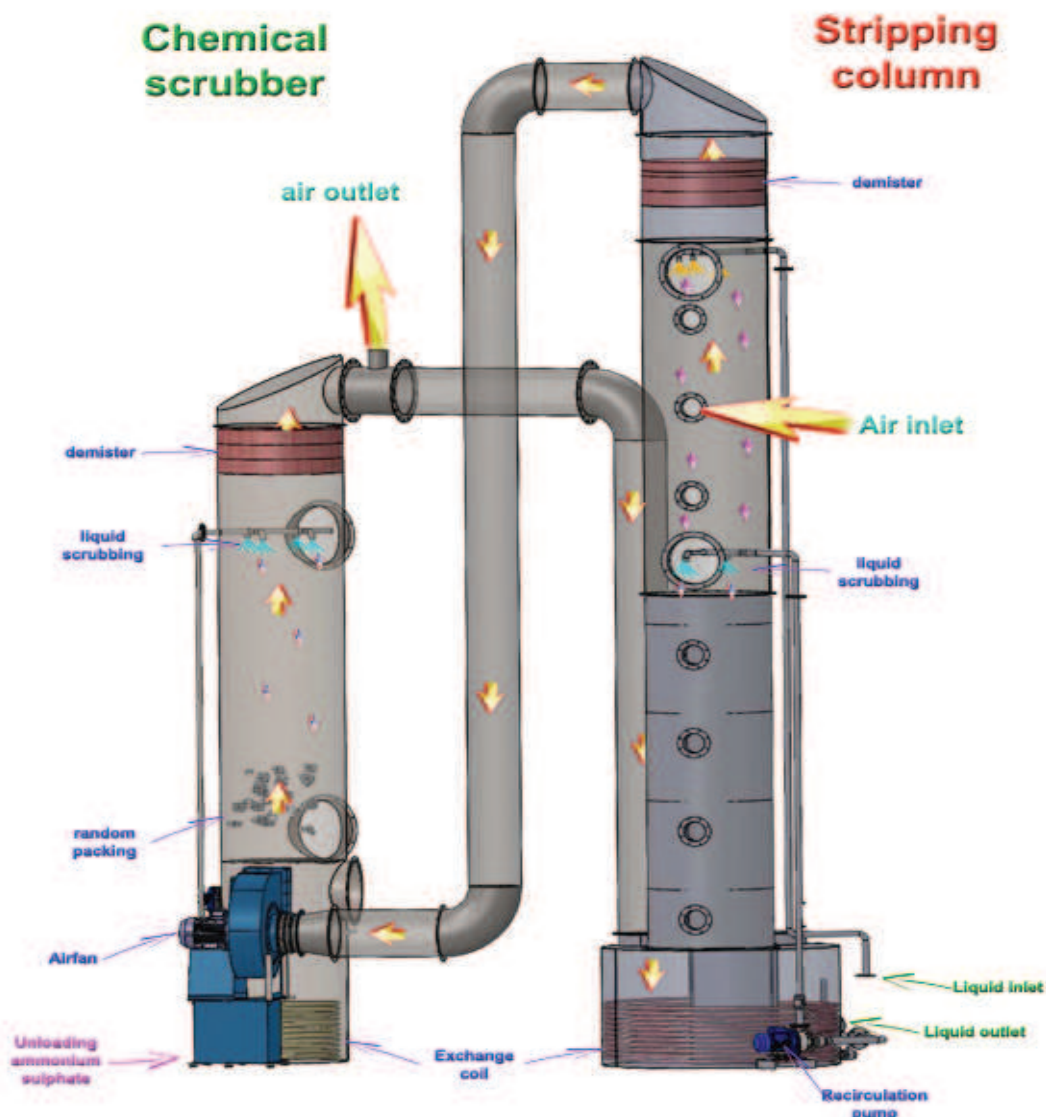
He hasn't problems of clogging

He hasn't problems of discharges management

Low energy consumption

Low investment cost





Liquid flow rate (m3/h)	From : 0,5	To : 20
Dimensions	Are determined according to the flow rate, to the contaminant Concentration, to the available space and to the customer request.	
Random packing	According to the project data and column diameter	
Liquid distributor	Anti-clogging nozzles are used.	
Demister	With a high efficiency alveolar demister made in PP or inox mesh type.	

CONSTRUCTION

The towers can be made of polypropylene, of fiberglass or of inox, on the tower inside are installed: spray nozzles, random packing and portholes. Each tower is equipped with one or more horizontal recirculation pumps, and, for each tower, one dosing pump is used for chemical reagents feed. We also provide an electronic level control, a water valves loading and a unloading washing liquid valve.

OPTIONAL

- Structure in fiberglass , PP or inox
- Structure in PP or SS AISI304 or SS AISI316L
- Electrical panel;
- Heat exchanger for waste liquid;
- Heat exchange for air stripping
- Air fan