



WETCLEAN | Industrial scrubber system

Vertical wet scrubbers for air pollutants treatment

What is the vertical wet scrubber WETCLEAN?

The vertical wet scrubber WETCLEAN is a wet reducing technology system used to remove pollutants in the gas flow thanks to the use of a washing liquid made with water. The air scrubbers are particularly recommended for the reduction of VOCs (Volatile organic compound), VICs (Volatile Inorganic Compounds) and dust. Below we will explain how they work.

Gallery

How does a scrubber work? Focus on pollutants removal

As we have already seen, industrial scrubbers clean the gas flow neutralising the pollutants there. In order to do this, at the base of the **vertical wet scrubber** there is a tank containing the water solution, which is then pumped in the upper part of the scrubber by the recirculation pumps and the vaporizer nozzles. They spray this liquid inside the scrubber, in order to allow the pollutants to be reduced.

This form facilitates the exchange between the water solution and the gas flow, which comes upstream from the scrubber's lower part.

The water solution must have suitable **pH** and **Redox**, in order to provide the pollutants' correct treatment: the acidic pollutants are treated with base solutions (caustic soda), on the other hand the base pollutants are treated with acidic solutions (sulphuric acid). In order to reduce the bacterial flora and the potential pollutant's pathogenic load, a tank with oxidizing solutions such as sodium hypochlorite, hydrogen peroxide, peracetic acid and similar could be added.

The storage tanks containing the water solutions are provided with dosing stations with metering pumps needed to compensate for reagents values in order to provide a suitable reduction-effectiveness.

After having been treated inside the vertical wet scrubber, the gas flow seeps into the droplet separator, which recovers the leftover droplets flow or they would be released into the atmosphere.

The scrubbers for air treatment can be made up of one, two or more stages. The stages quantity varies according to the types of pollutants there and their concentration. For example, the scrubbers with two stages can be used when the gas flow includes both base pollutants (hydrogen sulphide, mercaptans) and acidic ones (ammonia, organic nitrogen).

The functioning principle of the vertical wet scrubbers is the same one used in the **horizontal wet scrubber** but it has differences in its own structure. In it, rather than an upstream gas flow, it is cross-flow: the gas comes in sideways, whereas the liquid comes from the top. The horizontal wet scrubbers can be designed with two or more abatement stages and they are recommended in case the vertical ones are not allowed due to the available area.

Vertical wet scrubbers: available models

During wet scrubber design, it is essential to define the most suitable model to use in order to meet the specific client's needs and to choose its structure. Considering the pollutants' capacity and types, you can choose between the following models:

- **Static bed scrubber:** in this kind of scrubbers there are one or more grating levels including the **filling corps**. These ones are continually sprayed by the vaporizer nozzles and they are used in order to optimize the exchange between the liquid solution and the gas flow encouraging the reduction of the concentration of pollutants. According to the flow temperature and the type of pollutant we might use filling corps of different size and realized with different materials, such as PP, PVC, PVDF, Teflon PFA;
- **Floating bed scrubber:** this kind of scrubber is different from the previous one, because there are not static filling corps. Instead, there are **light balls**, which move when air goes in the scrubber. This model is particularly recommended in case the gas flow includes some particulate, as it allows the pollutants to be reduced and at the same time the filling corps to be cleaned due to the continuous movement of the balls;
- **Hydro Venturi:** it is used as a **pre-scrubber** to remove any dusts in the flow to be treated. It can be used with the static bed scrubber

Wet scrubber WETCLEAN: advantages

- It is designed and made according to the specific needs of the clients, considering the available area, the pollutants and their concentrations;
- It can be made up of different materials according to the temperatures and pollutants to be treated;
- It has an automated system for the reagents management;
- It has several entry doors which even allow the filling corps to be replaced;
- Droplet separator included;
- Low maintenance costs

WETCLEAN: maintenance service

Tecnosida® even deals with the planning of recurring ordinary and extraordinary maintenance works on the systems. This service is also available for the WETCLEAN products and ensures:

- a correct scrubber's operation;
- an high efficiency in the pollutants removal;
- a reduction of waste of money and energy

For more information do not hesitate to contact us: we will plan with you this important activity!

WETCLEAN: remote management systems

WETCLEAN can have remote management systems to monitor the services and their correct operation.

Get in touch with Tecnosida to have a specific advice that meets the technical needs of your

company!