Technical data sheet

BAT- Best Available Technology

Scrubber SCR - Monsoon

Main characteristics

Air flow rate: ranging from 100 to 100.000 m³/hour per tower, multiple towers in parallel can be used for higher flowrates
Structural material (tower and washing solution vessel): polypropylene or stainless steel (AISI 304, AISI 316)
Nuts and bolts: stainless steel (UNI EN ISO 3506:2009)
Nozzles: depending of the requirements
Water consumption: it depends by chemical-physical air flow characteristics
Water pressure required by nozzles: approx. 2 bar
Energy consumption: it depends by the scrubbers' size, but is approximately the same of the fan/s
Vessel dimensions: diameters ranging from 200 to 3.000 mm, heights typically up to 10 m.
Service life: > 10 years

Description

The scrubbers of the SCR-MONSOON series are spray towers. Unlike the SCR-GHIBLI, the spray towers do not have packing materials. SCR-MONSOON can be made in counter-current or co-current. Contact between contaminated gas and water flow are realized by one or more nozzles positioned inside the tower, even at different heights. The use of many nozzles is useful for maximizing the number of fine droplets that hit the polluting particles and providing a large surface for gas absorption. Therefore, from a theoretical point of view, the smaller the droplets formed, the greater the efficiency achieved for pollutants removal, both gaseous and particulate. However, the liquid droplets must be large enough to be not carried away by the purified gas stream. Therefore, during the design phase, it is important to identify the size of the droplets that allow to obtain the desired removal yields at the lowest cost. In these towers the gas velocity is kept low so as to avoid entrainment of droplets with the treated gas. Obviously, the lower the crossing velocity of polluted air flow the higher the footprint of the towers.
SCR-MONSOON can be made of steel (AISI 304 or AISI 316) or polypropylene; the same materials can be used for the nozzles, that have to be chosen in order to minimize the maintenance interventions. Finally, the column is equipped with inspection windows and manholes strategically positioned in such a way as to facilitate routine inspection and maintenance operations.
SCR-MONSOON operate as a single-stage and can be realized with or without the recirculation of the gas scrubbing solution. Other configurations (i.e., horizontal or cross-flow configurations) can be realized.
Thanks to the customized design it is possible to reduce the consumption of water, electricity and chemical reagents.
Packing materials: not required.

Drops separator: high efficiency, usually in plastic material.

Performances

SCR-MONSOON is mainly used for gas conditioning (i.e., humidification and temperature control). It can be effective for particulate and soluble compounds removal. Under optimal operating conditions it is possible to achieve an ammonia removal yield of 10-15%. VOCs and other chemical substances removal yield depend (mainly) by their solubility.

Advantages

SCR-MONSOON can be useful in those situations where it is necessary to remove, in addition to soluble compounds, particulate (in small concentrations). SCR-MONSOON can be particularly useful when gas conditioning (i.e., humidification and temperature control) is required or high soluble compounds have to be removed.

Maintenance

SCR-MONSOON requires a periodic revision (ranging from monthly to annual frequency); the main interventions consist in cleaning (and replacing) the spray nozzles, calibrating the probes and checking the recirculation pumps. Maintenance interventions must be carried out by qualified personnel.

Recommended for…

SCR-MONSOON is recommended for (public and private) companies who want a long-lasting, efficient, effective, reliable, product that requires low-maintenance product.