

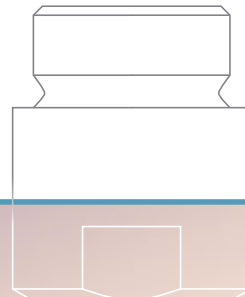
ENGINEERING
YOUR SPRAY SOLUTION



➤➤ SCRUBBERS

Spraying solutions from a single source

PROCESS TECHNOLOGY



WE THINK IN DROPLETS FROM THE START ...

Effective scrubbing is essential to protect the environment and minimize problematic emissions. Its efficiency always depends on the generation and optimum distribution of countless droplets. And this is exactly where Lechler's core competence starts.

For 140 years now, we have been researching and developing solutions for the generation, distribution and separation of droplets. As Europe's leading company for nozzle technology, we support a wide range of different industries with state-of-the-art spray solutions from a single source.

Your Lechler benefits at a glance

- Outstanding process know-how
- Complete product range from the nozzle to the droplet separator
- Precise flow simulations
- Efficiency optimization for existing installations



Packed-bed scrubber

With packed-bed scrubbers, the gas is routed through packing material whose large surface area is wetted with the washing fluid. This scrubber type removes pollutants very effectively but requires a lot of space and maintenance. High pressure losses have to be taken into account in calculations due to the design principle. A continuous and uniform supply of the washing fluid is important in order to avoid clogging.

1879

Company founded
by Paul Lechler

1893

Patent for
liquid atomization

1967

Relocation of production
to Metzingen

1978

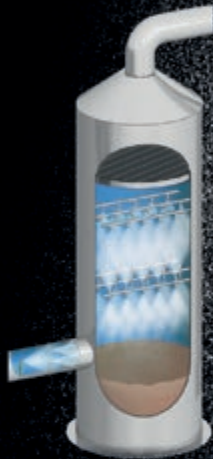
Expansion to the
USA and then to
other countries

1995

Production, sales and
administration are
concentrated in Metzingen

... THROUGH TO THE FINISHED SCRUBBER

Even though there are different types of scrubbers for different processes, they all use the principle of separation: the generation of the largest possible contact surface between the washing fluid and the gas to be scrubbed. In practice, this is found by three scrubber designs:



Spray scrubber

Spray scrubbers atomize the washing liquid by means of several spray nozzles and generate a large reactive surface area. They require more washing liquid than packed-bed scrubbers but are characterized by lower installation and maintenance costs and lower pressure losses. In addition, spray scrubbers can react more flexibly to different gas compositions and flow rates.



Venturi scrubber

With this special form of a spray scrubber, the gas is routed through a narrow section into which the washing liquid is injected. Dirt particles are effectively separated due to higher flow velocity. Venturi scrubbers require less washing liquid than conventional spray scrubbers but are less effective for the separation of smaller particles.

Different scrubber types are recommended depending on the application. The nozzle selection and positioning are selected for their efficiency. Here, Lechler does not just provide support as a supplier but also assists with its extensive experience in the planning and design of scrubbers.

140

1879 - 2019

2010

Expansion of production with a new 13,000 m² production hall

2016

Opening of the state-of-the-art Development and Technology Center in Metzingen

2019

Lechler celebrates 140th anniversary

2021

New factory in China

2022

New logistics center in Metzingen

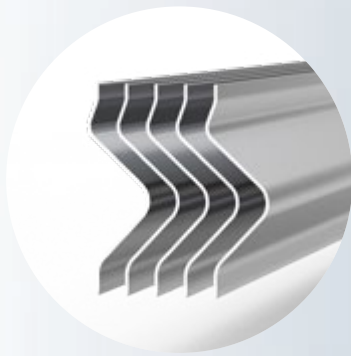
2023

Start of construction of the new Lechler Campus



MANY CONTROL VARIABLES FOR MAXIMUM SCRUBBING EFFICIENCY

Efficient scrubbing depends on many factors. At Lechler, we know them all and understand exactly which measures are most likely to achieve the greatest effect. We are the only company to offer a complete portfolio of nozzles and droplet separators. Together with services ranging from engineering support to complex CFD calculations, this makes us the No. 1 partner for spray applications in scrubbers.



CUSTOMIZED DROPLET SEPARATORS

protect downstream components and optimize pressure losses.



THE RIGHT NOZZLE FOR ANY TASK

accelerates reactions, improves separation, optimizes the use of the washing liquid and thanks to suitable materials, guarantees a longer service life with lower maintenance requirements.



NOZZLE LANCES AND SPRAY HEADERS FROM A SINGLE SOURCE

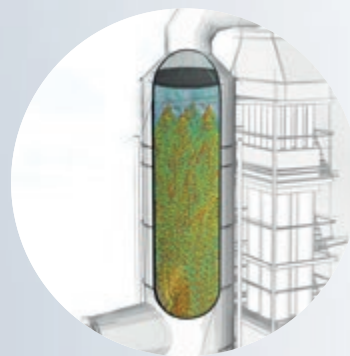
reduce procurement costs, optimize the coordination between piping and nozzle and reduce operating costs.





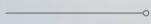
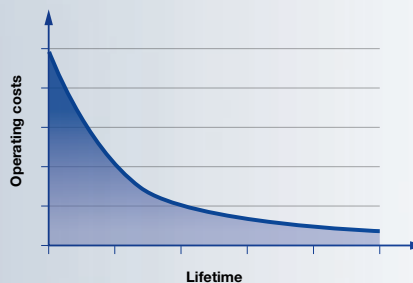
INDIVIDUAL CFD SIMULATIONS

help to optimize processes, identify weak points, minimize pressure losses, reduce operating costs and extend system service life.



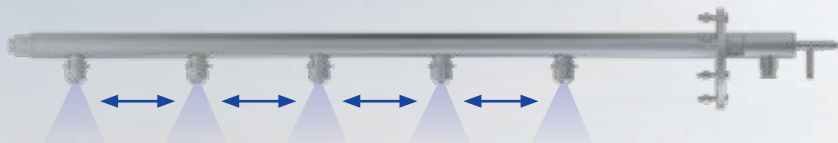
ANALYSIS OF THE CURRENT STATUS

provides an in-depth understanding of the current system status. This allows to uncover optimization potential, which can cut operating costs and extend the service life of the system.



THE OPTIMUM POSITIONING AND ARRANGEMENT OF THE NOZZLES

delivers the scrubbing liquid exactly where it is needed. The reaction time is shortened, the need for scrubbing liquid is reduced and the service life of the system is extended.



»» YOUR ONE STOP SHOP FOR SCRUBBERS EVERYTHING FROM ONE SOURCE

Lechler supports its customers in achieving optimum gas scrubbing – from atomization and droplet separation to system planning and maintenance.

Lechler does not just see itself as a component supplier but rather as a solution provider. With our extensive industry and process know-how we contribute to increasing the efficiency of scrubbers and reducing emissions and costs.



Greater efficiency

EVERYTHING STARTS WITH DETAILED PLANNING

We first examine the requirements together with our customers. For this, numerous influencing factors such as temperatures, flow rates and chemical ambient conditions are taken into account. Gas scrubbing is not just about generating an optimum droplet spectrum, but also about the propagation in and interaction with the gas flow. That's why we create a digital model if required, in which different configurations can be tested using flow simulations.

The bottom line for our customers:
more efficient processes.

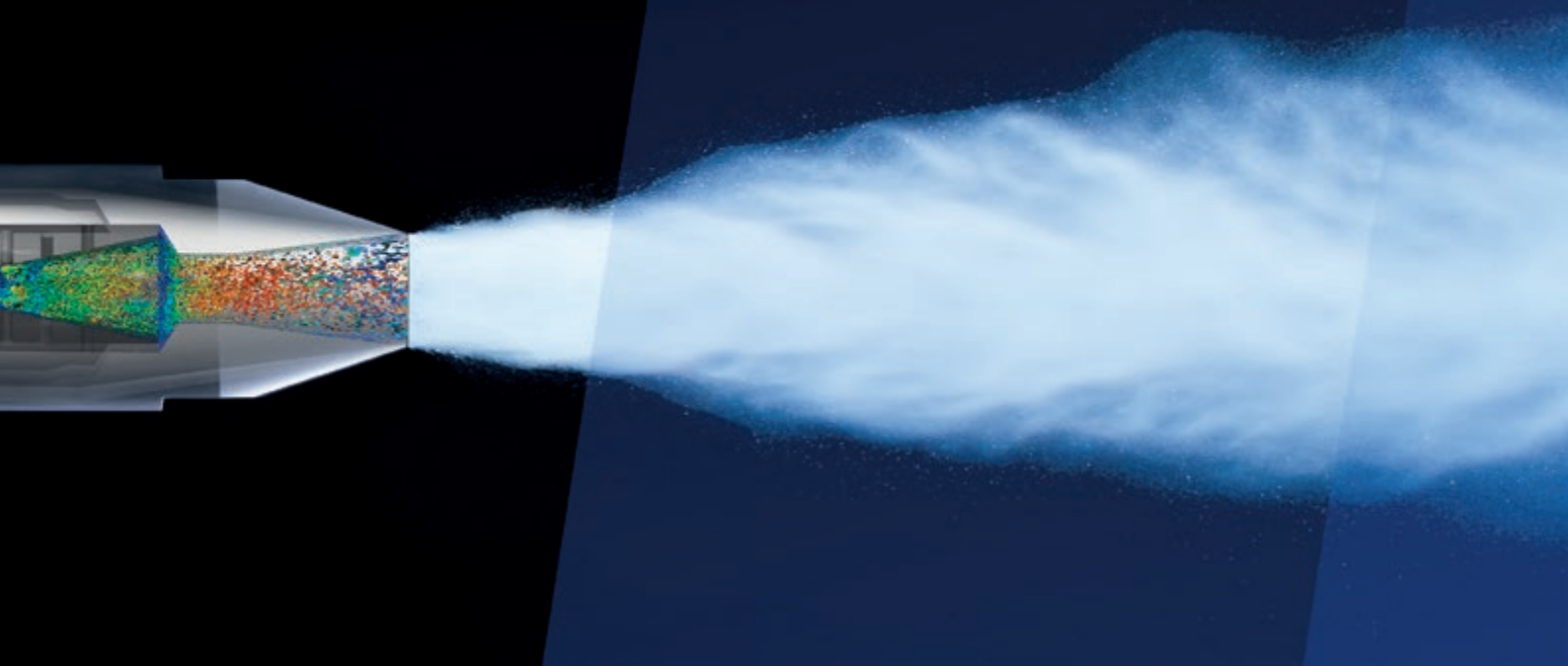


Reduced energy consumption

THE THEORY BEHIND THE PRACTICE

We know what we are doing before we do it. This is made possible by the utilization of computer-aided simulation, specifically Computational Fluid Dynamics (CFD), which models the flow processes of one or more substances in either static or dynamic environments. Through this simulation, we can predict the dispersion of sprays, considering factors such as heat and mass transfer with the gases to be treated. Additionally, accurate calculations of pressure losses in the flow field are possible. This comprehensive approach enables the optimization of the overall scrubber process, involving careful selection of nozzles, determination of nozzle operating points, management of liquid distribution, control of droplet sizes, and regulation of the inflow and outflow of process gases.

Your advantage: reduced energy consumption.





Everything from one source

FOR AN ENTIRE DROPLET LIFETIME

The Lechler portfolio covers the entire life cycle of a droplet – from the first atomization in the nozzle through to separation in the droplet separators. We match the latter exactly to the operating parameters such as gas velocity, gas composition, liquid load and droplet size. Alongside the lower procurement effort, a key advantage of purchasing nozzles and droplet separators from a single source is the optimum matching of both components.

Your advantage: further energy savings thanks to lower pressure losses and protection of downstream processes.



100% reliability

EVERYTHING FOR A LONG INSTALLATION LIFE

We support our customers at every stage from planning through installation and maintenance up to modernization of existing systems. With our branches all over the world, we are always close to where you are located. This means we can provide any required spare parts quickly and also support you during installation. Thanks to our decades of experience, we have unique know-how when it comes to the life cycles of scrubbers. We know what is necessary to bring older systems up-to-date, comply with stricter emission standards and optimize processes.

Our promise: 100% reliability for the entire system life cycle.



WHAT CAN LECHLER DO FOR YOU?

We will gladly help you make your scrubbers even more efficient. You will be amazed at how much optimization potential there is in your systems. Just contact us free of charge: by telephone on +49 7123 962-0 or by e-mail at info@lechler.de.

**ENGINEERING
YOUR SPRAY SOLUTION**



Lechler GmbH · Precision Nozzles · Nozzle Systems

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