ENGINEERING
YOUR SPRAY SOLUTION

NEW

TwinAbsorbPRO

PATENTED

The next generation of flue gas cleaning



GENERAL INDUSTRY

LECHLER
DECADES OF SCRUBBING EXPERIENCE

For more than 40 years, Lechler has been contributing to making gas scrubbers more efficient, processes more effective, and emissions cleaner. We have always seen the increasingly stringent regulatory limits as a challenge to continuously improve our nozzle solutions.

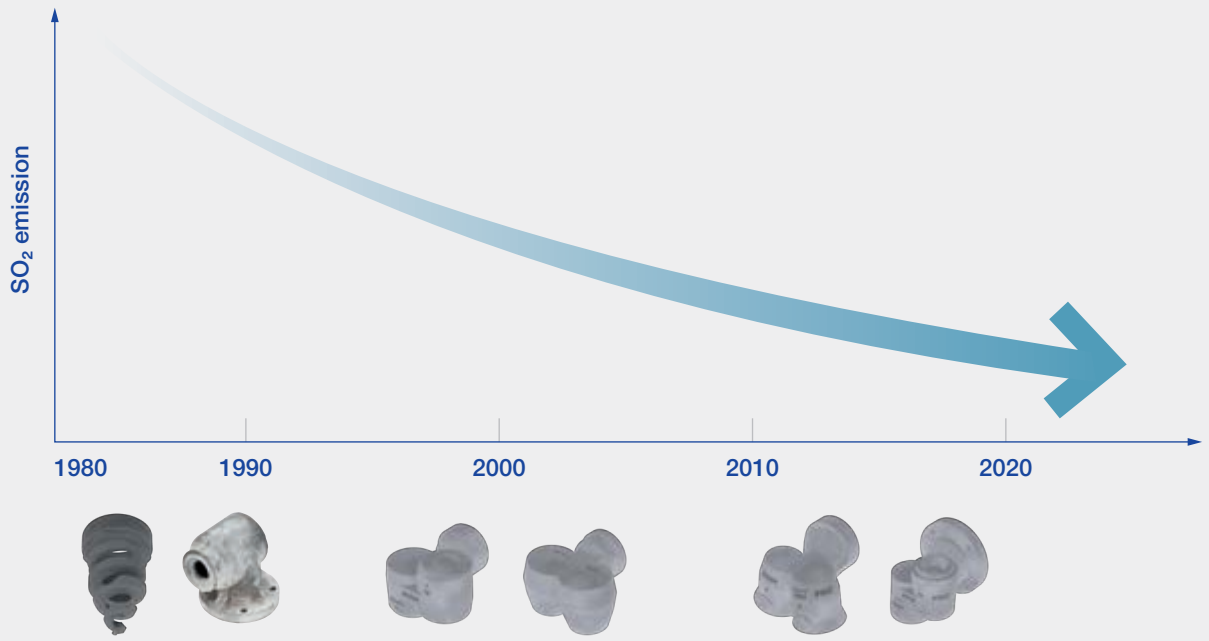
Over the years, we have successfully equipped, upgraded or renewed more than 350 gas scrubbers with our nozzles. We have always looked for new ways to improve our solutions. It has always been our goal to further reduce emission values as well as systems' energy consumption and operating costs while increasing plant availability. We anticipate emissions to become more strict and are prepared to help our customers to stay profitable.

Key factors for successful chemical separation are:

- The substantial increase of the reactive droplet surface
- The best possible support to realize a most uniform gas distribution

We achieve both through the features of the proven TwinAbsorb and TwinAbsorbPRO series.

SO_2 emission limits



Your benefits with Lechler

- Optimized processes
- Operational cost reduction
- Increased scrubber availability
- Compliance with BREF emission limits
- Spray solutions engineered to your needs



TO IMPROVE YOUR SCRUBBER PERFORMANCE LET'S HOLD BACK

The TwinAbsorb and TwinAbsorbPRO series ensure maximum availability and D32 optimization of the scrubber suspension. With the help of innovative, newly developed and patented spray components, they ensure increased separation results. In addition, in thermal power plants they reduce the pressure drop in the FGD system when using trays.

NEW

What's new with TwinAbsorbPRO?

Conventional FGD nozzle solutions ensure uniform, nearly circular coverage in the scrubber. It is well-recognized that during operation the lime slurry frequently hits piping, headers and walls. This leads to an unnecessary loss of reaction surface and to costly wearing of the scrubber internals.

This is where the TwinAbsorbPRO comes in. Thanks to the adjustable spray pattern and the asymmetrical spray angles, nozzles close to the scrubber walls, along with piping and headers can now be adjusted to allow loss-free spraying while protecting the scrubber internals. This also provides a most optimized spray coverage of the scrubber cross section.

Every scrubber system can be improved

We will be happy to advise you on the optimum nozzle configuration in your scrubber.

Please contact **info@lechler.de**

TwinAbsorbPRO
The innovative scrubber nozzle that fits your needs

NEW

PATENTED

Properties:
- Adjustable spray angle in all directions
- Supports uniform gas distribution
- Non-circular spray pattern
- Improved mass transfer
- Optimized atomization
- Clogging insensitive

Applications:
- Flue gas cleaning



Equilateral

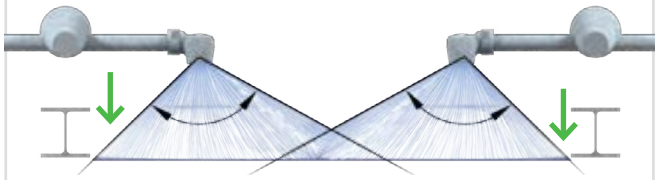


Bi-directional

The TwinAbsorbPRO (Lechler patented) provides non-circular spray patterns. Among other things, it can stimulate the desulfurization process through counter-rotating swirl and intensive secondary atomization. Higher differential velocities between gas and sprayed medium as well as stronger turbulence of the droplets correspondingly improved mass transfer in the scrubber. All this ensures that the largest possible reaction surface is permanently available for the absorption process.

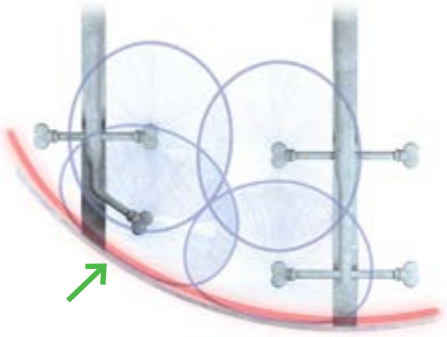
Protection of piping, installations and walls

The TwinAbsorbPRO series features an all-round adjustable hollow or full cone spray pattern. This allows nozzles close to the wall and piping to be adjusted. Therefore the spray cone follows the scrubber walls and piping gently, avoiding erosion and preventing the loss of reaction surface which will enhance the process.



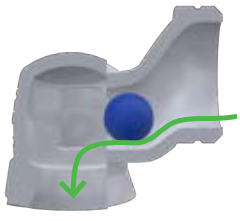
Improved coverage

Thanks to the spray angles, which are adjustable in all directions, complete coverage of the interior can be achieved while protecting walls piping and internals.



Maintenance-free design

Due to self-draining design and the wide free cross sections, TwinAbsorbPRO is maintenance-friendly and allows continuous processes.



Experience TwinAbsorbPRO live

Seeing is believing. Convince yourself of the technical advantages of TwinAbsorbPRO in the videos, which show the coverage of scrubber sections and protection of installations, walls and piping.

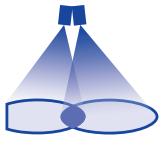
Available TwinAbsorbPRO videos:
- Efficient coverage of scrubber sections and protecting walls from wearing
- Efficient coverage of scrubber sections and protecting beams and installations from wearing
- Efficient coverage of scrubber sections and protecting piping from wearing

The PROs of TwinAbsorbPRO

PROdeSOx:	Improved DeSOx due to higher availability, less liquid loss at wall and smaller drop size.
PROdedust:	Consequently DeDusting can be improved. First plants operate already successful.
PROactive:	A 70:30 spray distribution enables exceptionally low pressure losses in the system.
PROtective:	Less impact onto the wall protects rubber lining and others.
PROdrain:	Improved self-drain function.
PROavailability:	Less clogging compared to full cone nozzles due to largest free passages.
PROmaintenance:	Less replacements, less cleaning effort, higher availability, reliable operation of plant.

Spray pattern

The spray angle of the TwinAbsorbPRO can be adjusted in all directions between 35 and 55°. Standard operating pressure is between 0.5 and 2 bar. Other design data are available upon request. The flow rate depends on the application. The connection to the piping is available as thread, flange, clamp, glue or laminate connection.



TwinAbsorbPRO
Equilateral hollow
cone nozzle



TwinAbsorbPRO
Bi-directional
hollow cone



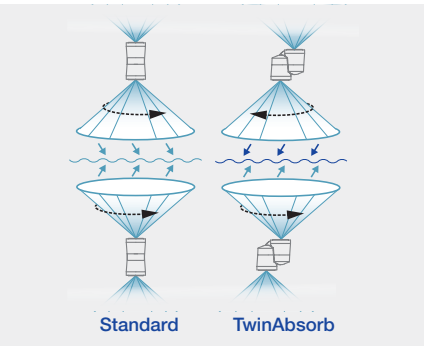
TwinAbsorbPRO
Equilateral
full cone

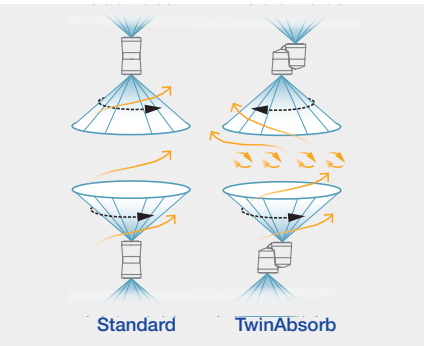


TwinAbsorbPRO
Bi-directional
full cone

Triple DeSOx benefits







Collision effects

The angled nozzle openings of a TwinAbsorb equilateral nozzle create two overlapping spray cones, which additionally intersect the neighboring spray cone within the same unit. The resulting collisions increase the specific surface area significantly and form a reactive droplet surface which is not yet saturated.

Swirl effects

In improvement to standard tangential nozzles the TwinAbsorb series creates counter-rotating swirls whose droplets collide with higher energy and thus atomize much finer. At the same time studies show that the counter-rotating swirls support a most uniform gas distribution.

Jet pump effects

Nozzles work like jet pumps and influence the spray turbulence. This increases the relative velocity of the droplets, which leads to finer atomization. The jet pump effect along with counter-rotating swirls significantly improves the separation of harmful gas components and particulates.

TwinAbsorb
The perfect counterpart to the TwinAbsorbPRO for the remaining scrubber sections

Properties:
- Supports uniform gas distribution
- Improved mass transfer
- Optimized atomization
- Clogging insensitive

Applications:
- Flue gas cleaning



Equilateral

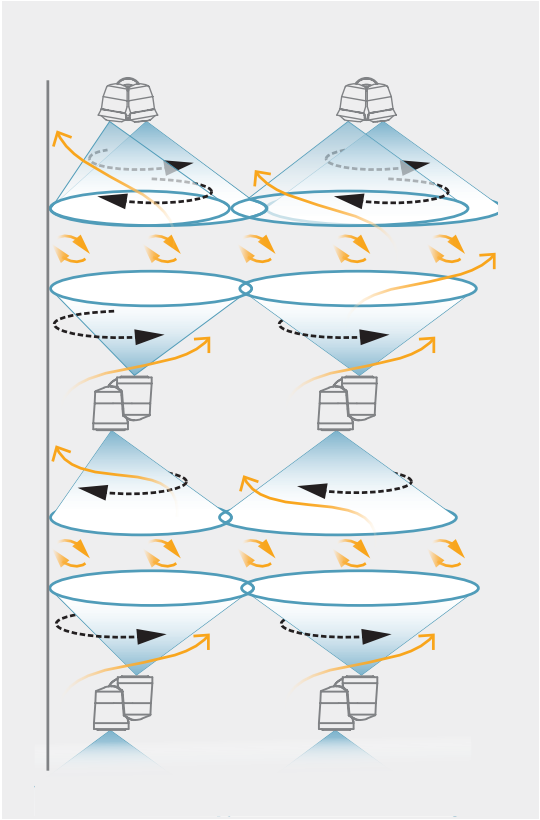


Bi-directional

TwinAbsorb is the proven solution for scrubbers where no attention to header, piping or wall coverage is necessary. Four versions are available: Equilateral and bi-directional, each as double hollow cone or double full cone nozzle.

The equilateral nozzles TwinAbsorb-EH/TwinAbsorb-EV spray with two spray cones in one direction. TwinAbsorb-H/TwinAbsorb-V spray up and down, all providing additional droplet atomization while keeping the proven advantages of tangential nozzle types.

All models generate a counter-rotating swirl and an increased relative velocity of the droplets. This results in an intense secondary atomization and an extremely fine spray. Higher velocity difference between gas and injected liquid as well as a higher turbulence within the droplets lead to a considerably improved gas-to-liquid exchange while maintaining the largest possible total surface area for absorption.



Your benefits with TwinAbsorb

- Finer droplets (SMD d32) due to doubling of the spray cones.
- Improved mass transfer due to higher relative velocities to the gas stream.
- Better coverage of the scrubber edge zone.
- Reduced torque on the piping.
- Low maintenance thanks to the self-cleaning, clogging-resistant design and large free cross sections.

Spray pattern

The spray angle of the TwinAbsorb can be adjusted between 70° and 120°. Standard operating pressure is between 0.5 and 2 bar. Other design data are available upon request. The flow rate depends on the application. The connection to the piping is available as thread, flange, clamp or glue/laminate connection.



TwinAbsorb Equilateral hollow cone



TwinAbsorb Bi-directional hollow cone



TwinAbsorb Equilateral full cone



TwinAbsorb Bi-directional full cone

Additional services and products
Maximum support for minimum emissions

In addition to the TwinAbsorb series, Lechler offers you an extensive range of nozzles for flue gas desulfurization, in various designs and materials, precisely tailored to your application.



Tangential nozzles made of SIC/NBSC



Axial nozzles made of SIC/ NBSC/SISIC



Helix nozzles made of SISIC/ Stainless steel/alloys



Twin4Absorb

Twin4Absorb nozzles are a further development of the TwinAbsorb nozzle series. Four overlapping spray cones generate additional jet collisions and create a more active reaction surface. Thanks to the enhanced spatial distribution, the Twin4Absorb nozzles are ideal for optimizing existing scrubbers. TwinAbsorbPRO features are also available for this nozzle type.



Measuring technologies

The Lechler Development and Technology Center provides state-of-the-art test equipment to test and study the spray performance of nozzles under realistic conditions. We would be pleased to examine and simulate different spray characteristics according to your specifications.

Just contact us.

Talk to us

We are happy to support you at any time in making your processes lower in emissions and more efficient. Our CFD experts can simulate gas flows and thus optimize nozzle and lance arrangements. In the Lechler Technical Center, high-performance test facilities are available to test nozzles, connections and piping under practical conditions. Do not hesitate to contact us. We look forward to assisting you.

ENGINEERING
YOUR SPRAY SOLUTION

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