



**Spray Nozzles
and Systems –
Creative Solutions in
Spray Technology**



Lechler – working with you to enhance product quality and efficiency

Today's producers have to operate in a tougher environment than ever before, driven by:

- Customer requirement for improved quality
- Constant pressure on costs
- Fluctuating demand
- Tighter pollution controls

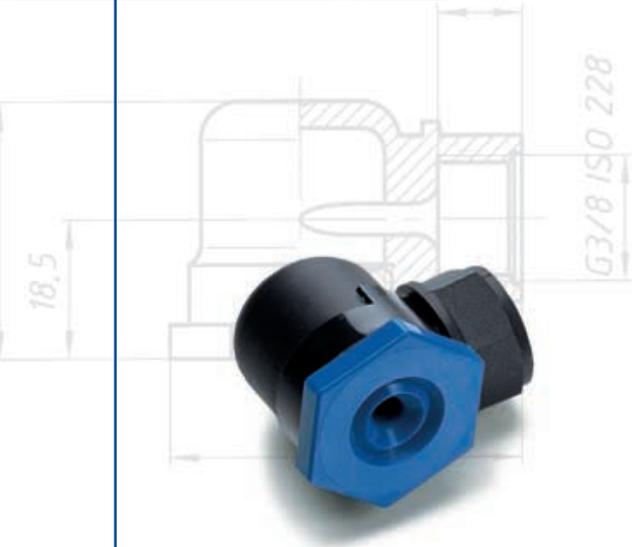
Nozzles and spray systems are used in virtually every stage of production and their performance can have a major impact on product quality and manufacturing costs. For over 125 years, Lechler has pioneered developments in spray

technology for all industries, designing, developing and manufacturing products of outstanding reliability and performance. All accompanied by expert advice based on a thorough knowledge gained through experience in providing both conventional and innovative solutions. Today, Lechler offers the most comprehensive range of nozzles and spray systems available to industry worldwide.

Serving industry worldwide

Lechler is a truly international company, offering sales and technical support to diverse industries, throughout the world. In addition to over 250 employees at our Metzingen headquarters in Germany, subsidiary companies have plants and offices in the UK, the USA, China, India, France, Belgium, Spain, Sweden, Finland and Hungary. We also have a network of sales offices and representatives covering many other countries.

Wherever you are, Lechler seeks to establish a partnership, helping you to enhance product quality through the application of advanced fluids engineering expertise.



Advanced spray technology based on 125 years experience



Best measurement and documentation

Well before its daily use, we know the exact flow rate, spray angle and uniformity of distribution of each Lechler nozzle.

Right from the beginning, functions and spray characteristics are accurately defined and recorded by our sophisticated measuring techniques and reliable documentation. Our computer-controlled measuring facilities such as the Laser-Doppler Particle Analyzer, the spray jet measuring device with 3D presentation, liquid distribution systems and many more are the essential prerequisite for precise measuring data. Thanks to this data we can help solve your spraying problem.

Lechler – synonymous with quality

The Lechler policy of continuous improvement and meticulous inspection is evidence of our commitment to whole life quality. From development, through manufacture to installation, Lechler products are subject to continuous quality management. State of the art test and

inspection methods, often in excess of our ISO 9001 certification, guarantee the durability, reliability and longevity of Lechler spray nozzles and systems.



Automated production for consistent performance

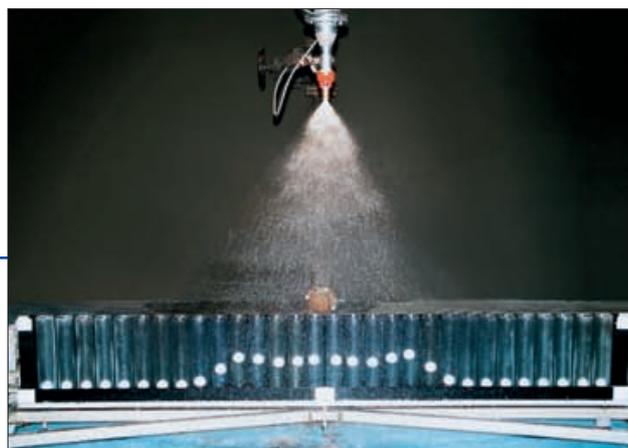
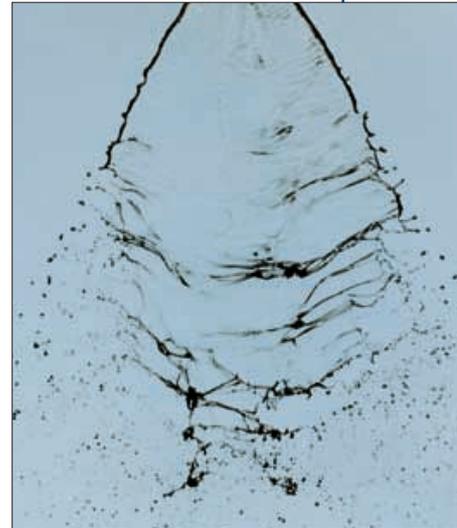
Many of Lechler's automated manufacturing processes have been developed to guarantee not only optimum productivity, but also consistency of product parameters to exacting tolerances. Not only does each nozzle look like another of its type, but its spray characteristics will also be identical – guaranteed. This applies to every single nozzle in the large portfolio of sizes, materials and spray characteristics.

We offer reliability

Our computer-controlled inventory ensures rapid delivery of your nozzles. Yet our real service starts much earlier: technical advice on spray applications and assistance by our experienced Lechler sales representatives. Actually, there is always a Lechler sales office or representative close by, wherever you are in the world. And it goes without saying that there is always a competent technical advisor in our headquarters who is pleased to help you even long after the sale. You can depend on us.



Lechler Inc., USA



Tell us your application and we offer you the best spray solution

Coating, cleaning and cooling for industry

Lechler nozzles are to be found carrying out a wide variety of cleaning, coating and cooling tasks across all aspects of manufacturing and processing industries, worldwide. Renowned for our broad-based knowledge and depth of experience, it is this diversity that sets Lechler apart from its competitors.



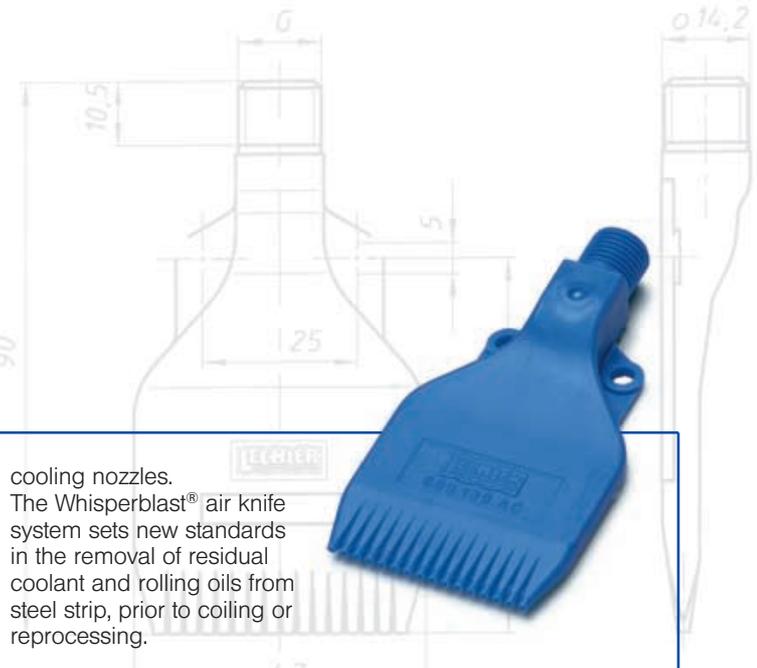
From the cooling of gases emitted from manufacturing plant, tank cleaning in food and drink processes, to the coating of pharmaceutical tablets, you will find Lechler spray nozzles in many varied situations. Crop spraying, gas cleaning, steel descaling, humidifying, dust suppression and even ornamental fountains in shopping centres, all rely on Lechler's expertise to help deliver solutions for every type of spray problem.

Problem solving is Lechler's strength. Innovation and the ability to provide a spray nozzle solution to suit your particular need, are all factors that have made Lechler world leaders in nozzles and spray systems. Be it an "off-the-shelf" or a bespoke solution, Lechler delivers.

Spray solutions for the metals industry

Nobody has more experience in the design and manufacture of nozzle systems for the primary metals industry than Lechler. The Lechler SCALEMASTER® descaling nozzle is the acknowledged standard amongst steel mill builders and steel producers throughout the world and our descaling nozzles have led the way for forty years. This clearly demonstrates a capability, efficiency and quality that is unparalleled by other manufacturers. These skills have enabled Lechler to develop and enhance its range of nozzles and systems for use throughout the metals industry. Experience in roll cooling systems for cold mills of steel rolling plants is unchallenged by any other spray nozzle manufacturer.

Continuing development by Lechler and mutual close co-operation with metals manufacturers and machine builders enables the group to provide solutions for virtually every aspect of metal production. The precision control of shape and flatness benefits from Lechler's SELECTO-SPRAY® differential roll

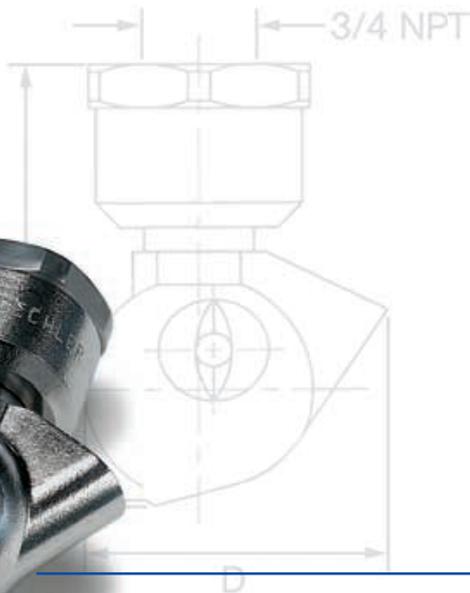


cooling nozzles. The Whisperblast® air knife system sets new standards in the removal of residual coolant and rolling oils from steel strip, prior to coiling or reprocessing.

In continuous casting, Lechler's MASTERCOOLER air mist nozzles are used in secondary cooling. Offering maximum heat transfer, even cooling and excellent spray distribution for a finished product of superior quality.

Whatever your requirements, Lechler has a solution to suit you.





Spray solutions for the food and beverage industry

Many different types of Lechler nozzles are in use in the food and drink sector, being utilised extensively in product washing and for the hygienic cleaning and sterilisation of equipment.

Coating applications include applying the decoration and glazing of cakes and other food products.

For spray drying applications, Lechler offers a special range of nozzles. These are available in a wide range of sizes, each specifically designed to produce the optimum droplet size required for the particular manufacturing process. Lechler spray nozzles are also available in hydraulic and pneumatic versions, providing a wide choice of options and solutions.

A whole range of tank cleaning nozzles has been developed specifically for the internal cleaning of process vessels and food processing machinery. Connections are available to suit all international food standards.



Spray nozzles for the pharmaceutical industry

Nozzles are extensively used in the process of pharmaceutical preparation, including the manufacture and processing of drugs intended for human consumption or veterinary use. Whether in the form of tablets, capsules, vials ointments, powders or suspensions, there are three main processes where nozzles are used.

In the coating process, very fine droplets, often 50 microns or less, are applied by an air atomising nozzle, which ensures a uniform coverage across the product. Lechler nozzles are also used to spray dry materials for use in the manufacture of pharmaceutical products and a variety of nozzle sizes is available for optimum specification.

A variety of nozzles is available for the internal cleaning of tanks and vessels of up to 16 metres in diameter. Tank cleaning nozzles are used to efficiently clean the inside of vessels and tanks without any damage to linings, such as glass.



Spray Nozzles for the Automotive Industry

In the manufacture of automotive, components and their supplier related industries the spraying ideas from Lechler are used to improve many processes. Such processes are surface treatment, in the process of mechanical fabrication, assembly functions and in quality assurance.

One very well known example is the "intelligent" nozzle system MEMOSPRAY®. It can be adjusted exactly and guarantees a reduced time in changing the nozzles whilst the spray direction remains exactly in the former position.

Lechler nozzles are used for degreasing, phosphate treatment, cleaning and conservation. Other processes such as testing for leaks and stopping distance on aquaplane surfaces are part of Lechler's supply program. Our partners profit from our sector-specific know how and a complete nozzle program. We have the experience and expertise to cover the whole automotive manufacturing spraying needs, creating solutions to meet process requirements.

Spray nozzles for the electronics industry

Lechler is a leading supplier to the electronics industry, producing a variety of types for spray coating, rinsing and washing. A spray nozzle is a vital contributor in the precision manufacture of printed circuit boards and silicone chips. The PCB production process requires an etchant to be sprayed evenly and accurately to both sides of the board, the quality of this spray process determining the quality of the finished board. Once the process is complete, the boards are rinsed and cleaned, again using spray nozzles.

During the attachment of the electronic components, nozzles are used to spray flux on to the reverse of the board to ensure secure connections and the board is blown dry, this time with a suitable air nozzle.

During the manufacture of silicon chips, ultrasonic nozzles are used in wafer processing and development and also to apply anti-static solutions to the surface of the chip.





Spray solutions for the environment.

Air pollution affects our environment. Lechler controls it – by cooling and cleaning exhaust gases from power stations, cement works, chemical works, incinerators and factories worldwide.

Using the most modern computer programmes, Lechler can determine the volumetric flow rates and droplet spectrum of the water required for the process. This coupled with the engineers experience gained through numerous installations worldwide, enables tailor-made solutions to be designed and implemented.

Ease of maintenance and replacement are also key factors when designing systems. Lechler offers complete solutions which have been proven in use by cement works, power stations and incinerators located all over the world.



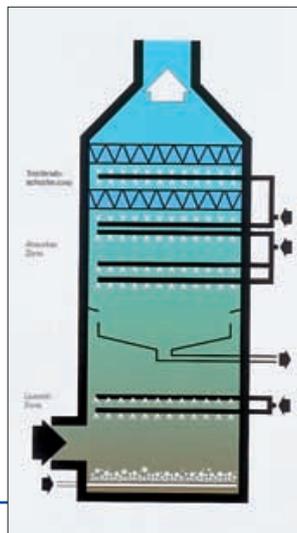
Spray solutions for agriculture

Pest management and fertilisers produce healthy plants and higher yields, as well as preserving soil fertility; plant protection and nourishment can be achieved by the precise application of agro-chemicals. The Lechler Group, working in association with agro-chemical and spraying equipment manufacturers, has developed an entire range of nozzles for the agricultural industry, all of which conform to national and international standards.

Only international companies, like Lechler, can provide such continuous co-operation. It provides farmers, horticulturists and grounds care specialists with the support and information they require to achieve the best results within the ever increasing environmental controls on spraying operations.

The latest developments in drift reduction nozzles were pioneered by Lechler and have now been adopted by the agricultural industry worldwide. In addition to its

range of nozzles, Lechler supplies dosage and droplet size calculators and nozzle selection guides that allow the successful, safe and economical application of agro-chemicals. As all nozzle types conform to the ISO standards, they can be fitted to sprayers of any manufacture.



Contact us now



Lechler GmbH
Precision Nozzles · Droplet Separators
P.O. Box 13 23
72544 Metzingen / Germany
Phone +49 (0 71 23) 962-0
Fax +49 (0 71 23) 962-333

E-mail: info@lechler.de
Internet: www.lechler.de



Belgium: Lechler S.A./N.V. · Avenue Mercatorlaan, 6 · 1300 Wavre · Phone: (10) 225022 · Fax: (10) 243901 · info@lechler.be
China: Lechler Intl. Trad. Co., Ltd. · Beijing Office · Rm.1812 CTS Plaza · No.2 Bei San Huan Dong Lu · Phone: (86) 1064661986, Fax: (86) 1064660196 · info@lechler.com.cn
Finland: Lechler Oy · Kalliotie 2 · 04360 Tuusula · Phone: (358) 98709844 · Fax: (358) 98709847 · info@lechler.fi
France: Lechler France, S.A. · Bât. CAP2 B51 · 66-72, Rue Marceau · 93558 Montreuil cedex · Phone: (1) 49882600 · Fax: (1) 49882609 · info@lechler.fr
Great Britain: Lechler Ltd. · 1 Fell Street, Newhall · Sheffield, S9 2TP · Phone: (0114) 2492020 · Fax: (0114) 2493600 · info@lechler.com
India: Lechler (India) Pvt. Ltd. · Plot B-2 · Main Road · Wagle Industrial Estate · Thane (W) - 400604 · Phone: (22) 25811196 · Fax: (22) 25821262 · lechler@lechlerindia.com
Sweden: Lechler AB · Box 158 · 68324 Hagfors · Phone: (46) 56325570 · Fax: (46) 56325571 · info@lechler.se
Spain: Lechler S.A. · Avda. Pirineos 7 · Oficina B7, Edificio Inbisa I · 28700 San Sebastián de los Reyes, Madrid · Phone: (34) 916586346 · Fax: (34) 916586347 · info@lechler.es
USA: Lechler Inc. · 445 Kautz Road · St. Charles, IL. 60174 · Phone: (630) 377-6611 · Fax: (630) 377-6657 · GeneralMgr@lechlerUSA.com