WE LOVE HUMIDITY

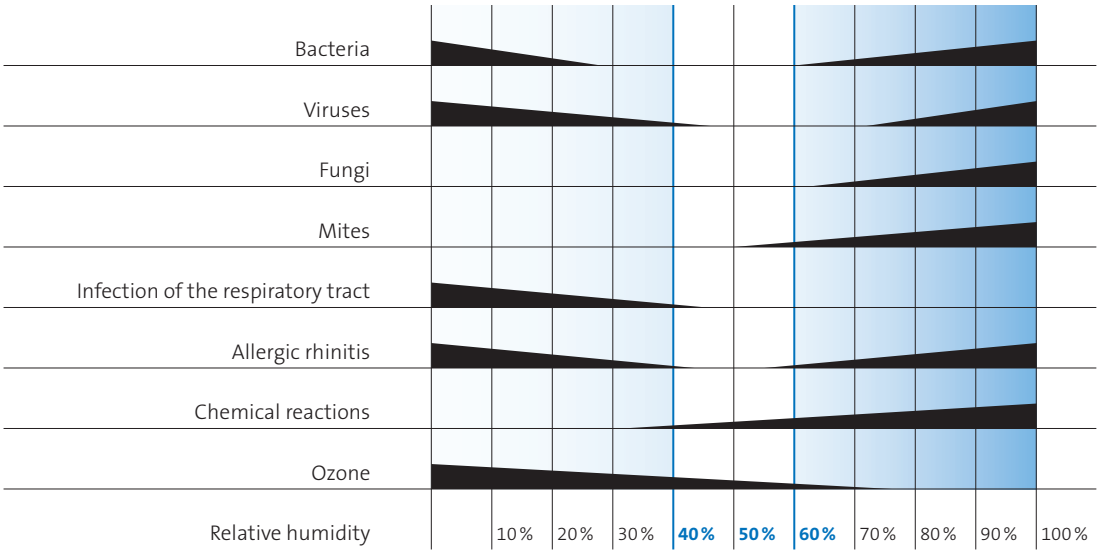
Humidification and Evaporative Cooling

condair

OUR COMPETENCE

HUMIDIFICATION

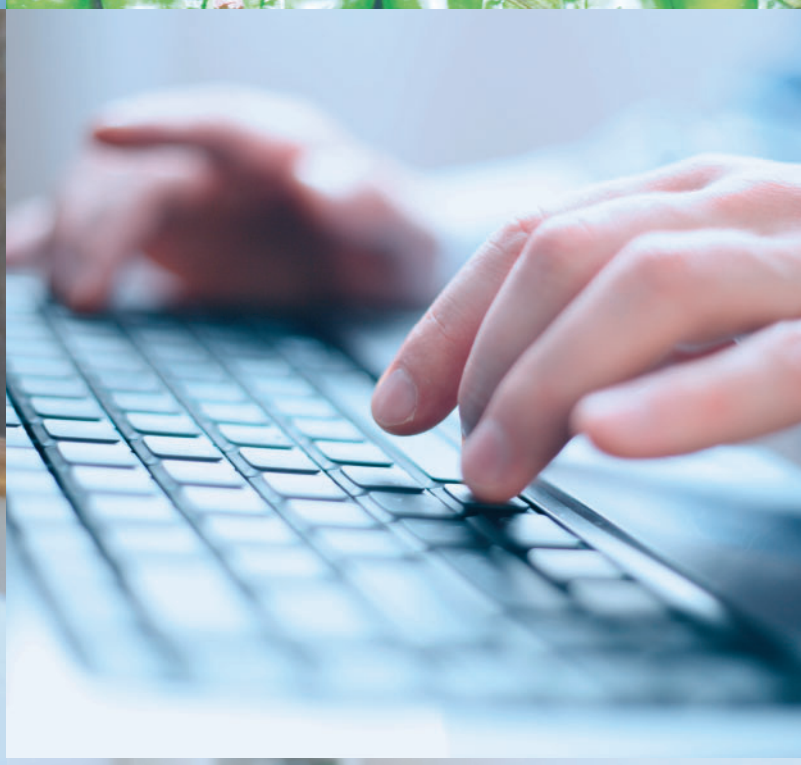
The right humidity makes a decisive contribution in a variety of situations encountered in day-to-day life – in the business environment as well as in private premises. The importance of humidity is so significant that clear directives exist in many countries for the operation and maintenance of humidification systems. It is scientifically proven that a real sense of well-being can only be achieved in a narrowly defined humidity range between 40 – 60 %. These values are often difficult to maintain under day-to-day conditions. This is why we provide a comprehensive range of different humidification systems embodying a variety of technologies – to ensure optimal air humidification in every situation.



Scofield/Sterling-Diagram:
The illustration presents correlations relevant for comfort and health protection at different room humidity levels. The risk posed by undesired microorganisms and the occurrence of specific symptoms of illness are minimal **within the optimal range between 40 and 60 % relative humidity.**

Newest studies also confirm that transmissions of viruses through particulate matter (e.g. through coughing) are significantly reduced at levels above 40% relative humidity.



FIELDS OF APPLICATION

Heating indoor air causes a drop of humidity to very low levels. Humidification is a central factor in many different areas ensuring production stability, conservation of value or a feeling of well-being. As humidification must be appropriately configured according to every application requirement, system planning and the selection of the right products are of great importance.

Industry

Throughout various industries, the correct level of humidity is of such significant importance that it becomes an essential success factor. For example, due to electrostatic charging, efficient handling of paper in the printing industry depends heavily on the appropriate level of air humidity. Moreover, various production procedures in the pharmaceutical industry are only conceivable if the correct humidity is achieved. Waste heat from machines and procedural processes is neutralized through evaporative cooling.

Storage

Air humidity often ensures a consistent quality level of goods in storage. As an example, fresh food remains crisp and attractive in storage and therefore sellable if circulating air is correctly humidified. The humidity of air is also essential where textiles are stored: Textile fibers need a certain degree of moisture, which also prevents electrostatic charging.

Datacenter

Data traffic and storage are constantly increasing. At the same time the number of servers located in datacenters worldwide is increasing and so is the demand for cooling capacity. The implementation of evaporative cooling is an ideal solution in this industry, as enough waste heat is generated to benefit from this technology.

Culture

Air humidity protects valuable cultural assets! For example, oil paintings in galleries and museums are extremely susceptible to dry air. Paint can crack if conditions are too dry, destroying magnificent works of art. The lacquer and wood of valuable musical instruments and precious antiques can also develop fissures under such conditions.

Offices

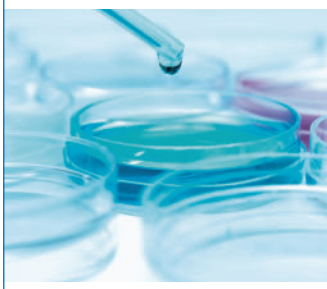
For office staff, air humidity has an essential impact on health. The correct humidity level in the respiratory air prevents the mucus membrane from drying out and reduces the risk posed by microorganisms and the occurrence of specific symptoms of illness. Air humidity is especially important where verbal communication plays a central role – for instance in call centers.

Health Care

Air humidity in the health care sector requires a high level of attention, for instance in hospitals, clinics, nursing homes or even fitness studios. On the one hand, it contributes significantly to the recovery and the preservation of health, on the other hand it supports a high level of performance.

Residential

In residential properties, the right level of air humidity contributes to the health of residents. Moreover, it preserves the value of paintings, music instruments or even costly hard wood flooring.



Hygiene
In order to ensure a long-term operation of humidifiers, free of malfunctions and posing no risk to health, the consideration of simple but important hygiene criteria defined for each specific system is of great importance. Our experience and know-how make us the perfect partner for planning, installation and operation, especially when it comes to this sensitive topic.

RELIABLE TECHNOLOGIES

Vaporization

For air humidification through vaporization (isothermal humidification), water is heated to the boiling point, thus transformed from a liquid to a vapor state. The great advantage of this process is that steam is sterile and free of germs. Moreover, vaporization is a humidification process that can be controlled most accurately, which is of central importance for various applications. The power sources utilized to generate steam either involve electric current (for electrode steam and resistive steam humidifiers) or gas (for gas-fired steam humidifiers).

Evaporation

For evaporation as an adiabatic principle, the energy required is obtained from ambient air. Water is conveyed over evaporator mats, while air that simultaneously flows past these mats is enriched with moisture. The simple functional principle of evaporation has the major advantage that operating and investment costs for such humidification system are manageable.

Atomizing

Atomizing also works based on the adiabatic principle. Fine water droplets are released to the surrounding air using mechanical atomizers or nozzles. In addition to humidification, high-pressure nozzle systems are also used for ambient and outdoor cooling purposes.

Hybrid Humidification

Hybrid humidification systems combine the advantages of both adiabatic processes (evaporation and atomizing) in a single system. Hybrid systems are characterized by a very high degree of efficiency and low energy consumption, which makes them attractive for use in large buildings.

Humidification and Cooling

In addition to humidification, surface evaporators based on the latest technology are ideally suitable for indirect evaporative cooling. Thus cooling especially becomes energy-efficient: The dimensions of conventional cooling units can be reduced considerably, hence operating costs can be lowered accordingly.

Water Treatment

A prerequisite for long-term, failure-free and hygienic operation of a humidification system is the quality of the water used. Consequently, it is important that the water treatment works perfectly in line with the humidification system. With our range of water softeners, desalination systems and systems for complete water purification through reverse osmosis, we can provide solutions that meet all needs and requirements.

From top to bottom

Vaporizer (steam)
Evaporator
Atomizer
Hybrid

HUMIDIFICATION AS PART OF A VENTILATION AND AIR-CONDITIONING SYSTEM

Condair Dual in an air handling unit (AHU)

To achieve an optimal indoor climate, air humidification is an indispensable part of an overall ventilation and air-conditioning solution.

Modern buildings have airtight facades and are ventilated with ventilation and air-conditioning systems. Room temperature only varies within a narrow range throughout the entire year. Therefore recommendations to achieve an optimal air climate should always take the overall climatic situation into consideration. Especially in an air handling unit, all four climate factors always work together: air temperature, air movement, air humidity, as well as warm and cold radiation.

Dry air jeopardizes health

Heating of incoming outdoor air during the cold time period of the year can lower the indoor humidity level to below 30 % relative humidity. Consequently, the mucous membrane in the respiratory passages becomes dry, considerably increasing the risk of respiratory tract illness. Typical consequences are coughing, catarrh, bronchitis and even sinusitis.

Know-how as a basis for competent consulting

One of our focal points is to provide our customers with advice and support in all questions related to air humidification, the selection of the optimal technology, an exact calculation of its performance, the layout of humidification drawings and questions related to hygiene before and during operation. Our comprehensive know-how and experience provide the basis we utilize to develop healthy and energy-efficient solutions together with our customers.

Comprehensive service portfolio

We foster close communication with all our direct market partners. We offer them special training programs and support during commissioning. We also provide service and maintenance solutions for air humidification systems on request.

HUMIDIFICATION AS A DIRECT ROOM SOLUTION

Humidification in the paper industry

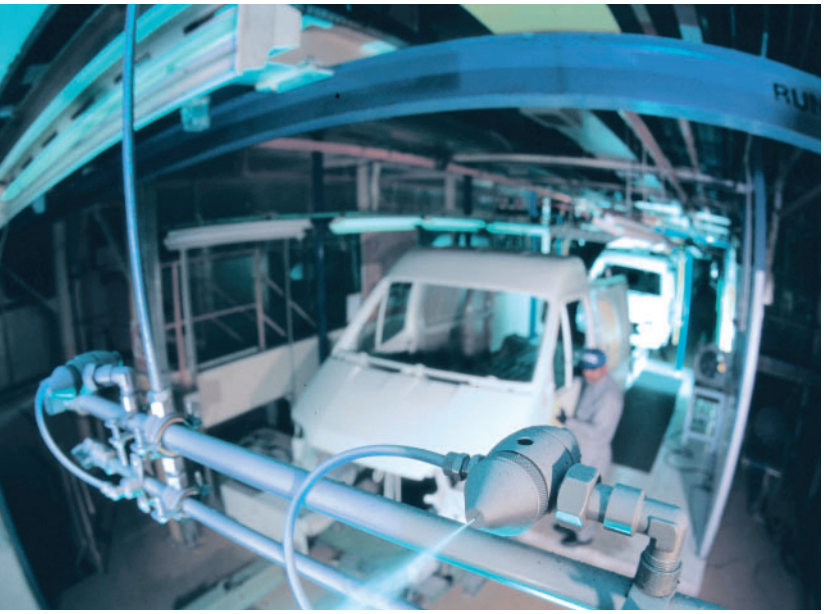
Humidification in a retail store

Air humidification makes a significant contribution to optimized production and storage processes, conservation of value and work performance.

Direct room humidification solutions enhance productivity, improve quality during storage and enable conservation of value of cultural assets, or the reduction of absenteeism rates due to a cold or the flu.

Application specific solutions

We have the right solutions for all application areas and are therefore able to offer customized and precise humidification with corresponsing water treatment; serving for example the printing and paper industry, the textile industry, the wood processing industry, food storage and processing, the tobacco industry, call centers and office buildings.



Humidification in an automotive painting plant

Humidification in a museum

Different technologies

Different direct room humidification technologies are available, depending on the location, the available infrastructure and application area. They include high-pressure nozzles, compressed air nozzles, rotary disk atomizers and our mobile air purifiers/evaporators.

Operational safety and hygiene

Any direct room air humidification system is only as reliable with regards to operation and hygienie as the service and maintenance concept behind it. Besides traditional services, we also offer a modular full-service-package. Thereby we ensure regular maintenance, including the automated bi-annual exchange of our water treatment containers. This clearly eases the stress on the customer and ensures that he always has a reconditioned system incorporating the latest technology.

DIRECT AND INDIRECT EVAPORATIVE COOLING

Outdoor air cooling in Medina, Saudi Arabia

The need to cool outdoor air is continually growing in countries with a hot and dry climate. However, this cannot be realized with classic chillers or air conditioners.

Our reference: Medina

The climate in Saudi Arabia is hot and dry almost throughout the entire year, with temperatures frequently climbing to 60 °C in the sun. The Saudi Arabian city of Medina is home to one of the largest mosques in the world, visited by millions of people every year during the Muslim holidays. A total of 250 «air conditioning sun shades» have been installed on a square in front of the mosque to provide visitors with protection against sunrays and intense heat, hence to avoid any impairment of health and uncontrolled reactions of large crowds of people.

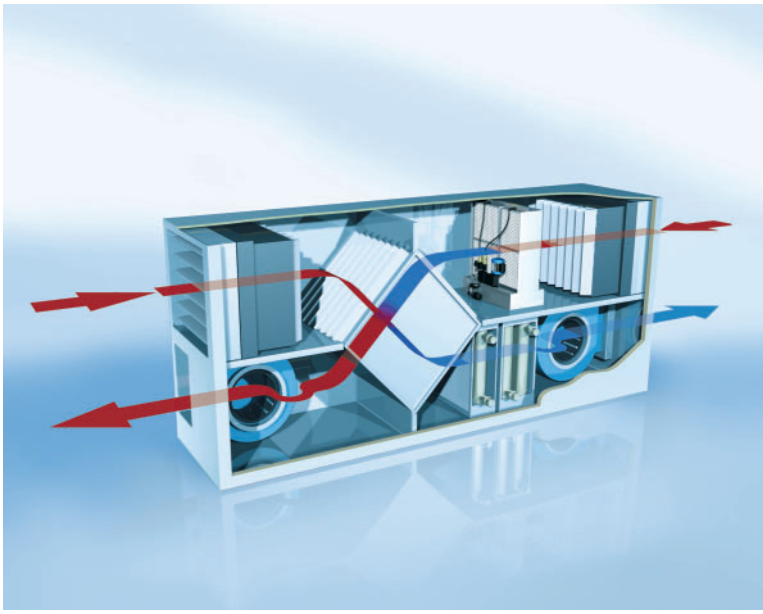
Diverse challenges

Especially the demand for a very low noise level and the limited space available for installing the pump units proved to be the greatest challenges during realization of the largest «outdoor air conditioning system» in the world. Further difficulties which needed to be surmounted were the very high temperatures of up to 60 °C and the corresponding hygiene requirements.

High performance potential

Up to 50 000 liters of water can be atomized every hour when all 250 «air conditioning parasols» are operating. This creates a total evaporative cooling capacity of 34 MW and leads to a considerable temperature reduction of 10 °C on the 145 000 m^2 square, which is considerably perceptible and enhances overall comfort.

Evaporative cooling at Facebook Datacenter in Luleå, Schweden



Indirect evaporative cooling with Condair SH2

The demand for alternative and energy-efficient solutions to replace traditional cooling systems is growing.

Our reference: Facebook datacenter in Luleå, Sweden

In Luleå, Facebook operates three server buildings with a surface area of 28 000 m^2 each. The location in the colder northern Swedish region has been chosen by Facebook, as it alleviates the cooling of servers. The entire datacenter is operated using only renewable energy sources.

The adiabatic cooling system uses 13 000 liters of water per hour to achieve a cooling capacity of 8840 kW.

Simple principle

Evaporative cooling is based on the physical effect that warm and dry air cools down when it is humidified through water evaporation. The more water evaporates and is absorbed by the air, the more heat is needed for this process and the greater is the cooling effect.

Increasing demand for indirect evaporative cooling

Experience has shown that the power required to operate fans and generate an appropriate cooling capacity of air conditioning units to cool and dehumidify supply air, has a major impact on operating costs. Hence, the concept of indirect evaporative cooling is increasingly utilized today to reduce the usage of conventional cooling technology and consequently to minimize its power consumption. Efficient heat recovery systems and the simultaneous operation of an evaporative cooler with mineral-free water will add very interesting, budget-related amortization periods.

OUR COMPLETE RANGE

Our comprehensive air humidification product range enables us to provide the right solution, for every conceivable task.

Isothermal humidification (vaporization)

Electrode steam humidifiers

Simply steam – thanks to a simple and reliable design

Resistive steam humidifiers

Getting rid of scale – thanks to scale management

Gas-operated steam humidifiers

The steam alternative – thanks to energy-efficient gas firing

Pressurized steam distribution systems

Absolutely tight and precise – thanks to rotary disk valves

Atmospheric steam distributors

Optimum distribution – thanks to a broad range

OEM consoles

The essentials, or simply all you need – thanks to flexible engineering

Water treatment

Reverse Osmosis

The ultimative scale management for our steam units

HELP software

Our HELP software is an innovative web-based tool for simple and rapid planning of humidification solutions. It includes features such as different planning and specification tools, or an online catalogue for easy product selection.

Strong product brands

condair DRAABE nortec Defensor

Adiabatic humidification and evaporative cooling (evaporation and atomizing)

Surface evaporators/ Evaporative coolers

Reduction of complex cooling technology – thanks to energy-efficient cooling with water

Hybrid-Humidifiers

Superior hygiene – thanks to HygienePlus-silver-ionizing and ceramic post-evaporation

High-pressure nozzles

Traditional or including a full-service-package – thanks to convincing business models

Compressed air nozzles

In case of a high level of dust pollution– thanks to an extremely robust design

Rotation atomizers

The original form of water atomizing – thanks to our experience... we were there from the outset

Mobile comfort evaporators

The upmarket class for value conservation – thanks to worldwide use in museums

Water treatment

Reverse Osmosis

Water in its purest form – thanks to a clear design for optimum air humidification

Reverse Osmosis

The full-service rental system – 100 % hygiene and reliability


delete
enter
return
shift
option
command


condair
condair

PARTNER FOR HUMIDIFICATION SOLUTIONS

We are a globally leading manufacturer and provider of complete solutions in the areas of air humidification and evaporative cooling, with a comprehensive portfolio including products, services, experience and know-how. This enables us creating the ideal indoor climate while keeping energy consumption low and reducing impact on the environment. This holistic approach will gain importance in the future. We are proud that we are already well equipped to embrace this challenge.

Service quality from the manufacturer

As global market leader we continuously aim to exceed customer satisfaction through reliable and durable solutions.

With Service provided by Condair, we transfer the knowledge of building our products right to the customer site. We deliver you the benefit of a wide range service product and spare part portfolio, service experts and over 30 years of experience in service delivery.

Our Condair partners automatically archive the system- and design data for each delivered system. During a service work, the technicians can access this data on-site via mobile software to get an accurate picture of the system's history. Condair's partners experienced employees are of course the best people for the job when it comes to the necessary expertise to maintain a Condair system or procure spare parts.

They will be happy to assist you on-site with any maintenance, installation, or commissioning work you may wish to carry out. And if you require a functional safety guarantee without having to maintain the system yourself, they can also offer this.

Your local Condair partner will provide you with a quote for individual maintenance of your system in accordance with the manufacturer's specifications at any time.

Benefits of Condair Service include:

Expert humidifier engineers experienced with all makes and models

Highest level of engineering knowledge direct from the manufacturer

Increase humidifier reliability and improved humidity control

Efficient and hygienic humidifier performance

Reduced energy consumption

Expert ongoing advice and guidance

Extended humidifier operational lifetime

CONDAIR IS...

We Love Humidity

Dynamic & Straightforward

Cooperative & Open Minded
Result Oriented

Our Vision

Productivity, sustainability and health through air and water.

Our Mission

We understand our customers' specific needs and undertake to advise and support them professionally, delivering energy-optimized solutions for productivity, sustainability and health.

We deliver products and services that are world-class, offering industry-leading performance and quality.

We offer our customers the assurance that all the solutions we supply will function properly and effectively throughout their whole life cycle.

We partner with our customers through service, to help maximize and sustain the return on their investment in our air and water technologies.

We are the global market leader in humidification and we shape this specialist niche through innovation.

We create a working environment that is dynamic, challenging, motivating and rewarding for all of our employees, leveraging their talents in a culture of trust, empowerment, accountability and recognition.

Our Corporate Culture

The corporate culture of Condair is based on the moral concepts and mindsets that shape the behavior of each of our staff and, consequently, our ethics and image.

We live our values in our day-to-day work, in dealing with each other, in making decisions, in appraising performance, in information and communication, and in our relationships with our stakeholders.

Dynamic & Straightforward
We are a forward-looking company, taking a positive approach to change and using our initiative to achieve it. We are decisive, quick to act and to respond. We are honest and uncomplicated to deal with.

Cooperative & Open Minded
Together, by willingly sharing knowledge, skills and ideas, we are strong. We listen, and respect opinions different to our own. We are open to new ideas and ways of doing things.

Result Oriented
Because we are focused, we can concentrate on what is essential. We are tenacious, unyielding and push forward to our goals. We are only satisfied when our determination leads to consistently good results.

Customers
Distribution partners

Employees
Suppliers

Sustainability

Our Value Proposition

Condair gears its business to the needs of everyone who has a stake in the company's success. Our focus is long term, and we know that we shall only succeed in the distant future with the help and satisfaction of all those involved. We have devised a value proposition as a basis for sustained collaboration with everyone who has a stake in the company's success. We consider dialogue with representatives of all groups who have a stake in our company's success as an important source of information for making continuous improvements.

Customers
are provided by us with a need-oriented and user-friendly offering.

Distribution partners
are enabled by our products to achieve a sustainable competitive advantage.

Employees
are provided with security, challenging and fulfilling tasks and fair compensation

Suppliers
are considered long-term partners who can rely on us.

Sustainability

Social, ethical and environmental criteria are becoming more and more important in the future. We will be successful in the long-term if our business contributes to economic development and a healthy environment. As a company we want to lead by example and also like to encourage our employees to be aware of their own environmental footprint and support initiatives in this direction.

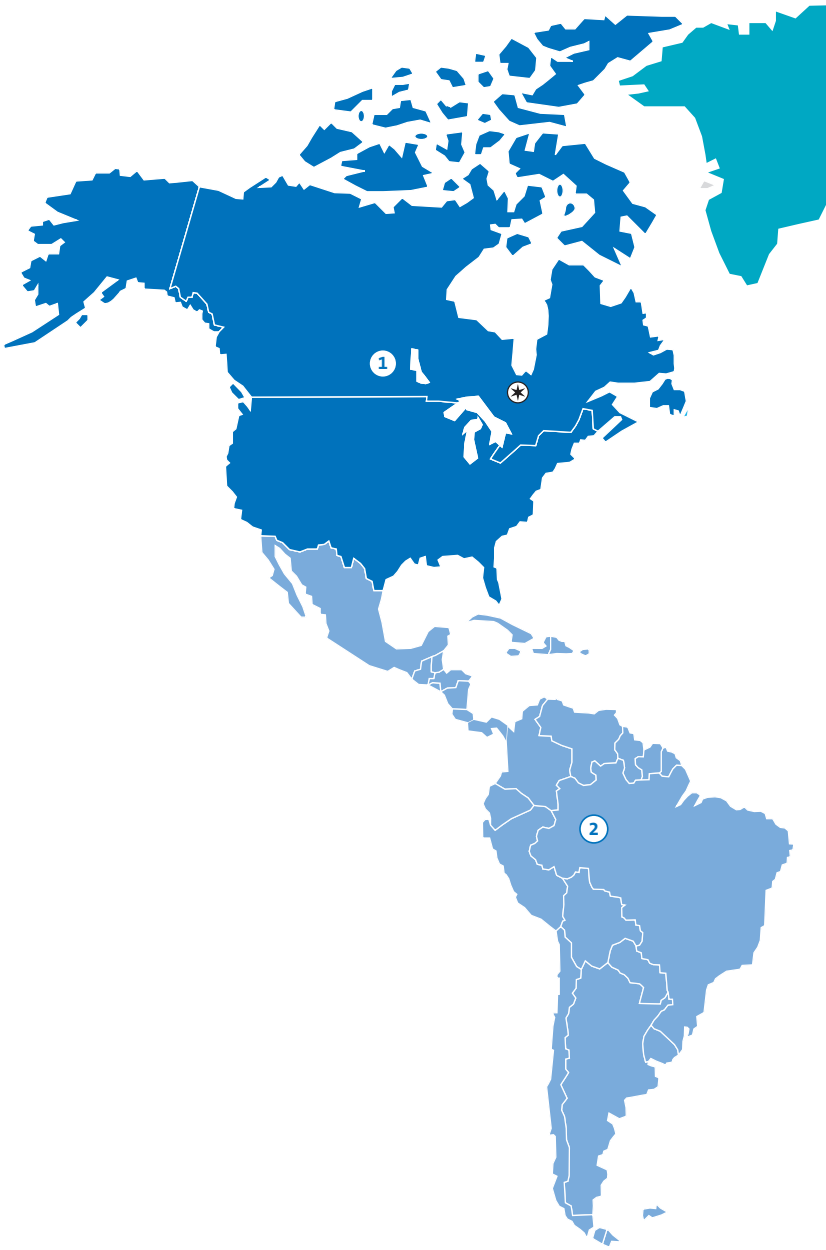
Environment
At Condair we believe that the environment and future generations will benefit from our commitment to efficient and low-emission technologies, like indirect evaporative cooling, heat recovery and the positioning of adiabatic humidification solutions.

Resource efficiency
At Condair, resource efficiency is driven by the continuous improvement of quality and productivity that leads to the usage of fewer resources and the reduction of waste.

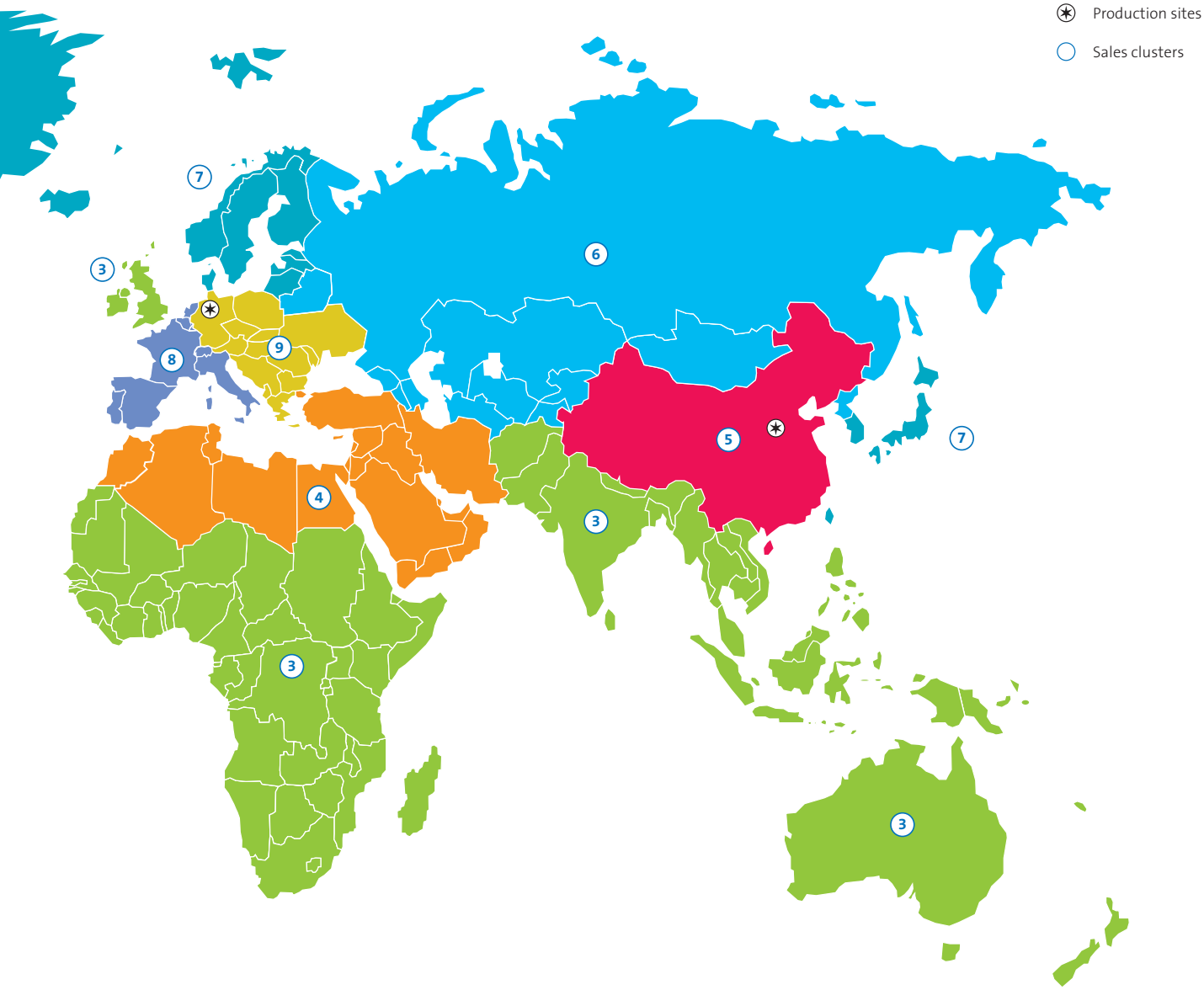
Transparency
At Condair we believe that by providing meaningful and accurate documentation and environmental information about our products at different stages of their product life cycle, we can also help to raise environmental awareness among our customers.

GLOBAL PRESENCE

Our competencies have helped us to become a global player and leading provider of Humidification and Evaporative Cooling solutions. Today, with approximately 600 employees, we operate production sites in Europe, North America and China. We are represented in 15 counties by our own sales and service organizations and supported by distribution partners in more than 50 locations worldwide.



	① North America	② Latin America	③ UK/IRE & AAA	④ Turkey & MENA
HVAC solutions	2740 Fenton Road CA-Ottawa Ont. K1T 3T7 Phone +1 866 667 8321 nortec@humidity.com www.humidity.com	2740 Fenton Road CA-Ottawa Ont. K1T 3T7 Phone +1 866 667 8321 nortec@humidity.com www.humidity.com	Artex Avenue GB-Rustington Littlehampton West Sussex, BN16, 3LN, UK Phone +44 (0)1903 850200 uk.info@condair.com www.condair.co.uk	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair.com
Direct room solutions	2700 90th Street Sturtevant, WI 53177 Phone +1 262 884 4669 nortec@humidity.com www.humidity.com	2700 90th Street Sturtevant, WI 53177 Phone +1 262 884 4669 nortec@humidity.com www.humidity.com	Artex Avenue GB-Rustington Littlehampton West Sussex, BN16, 3LN, UK Phone +44 (0)1903 850200 uk.info@condair.com www.condair.co.uk	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair.com



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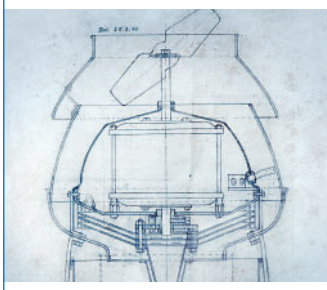
China	**Eastern Europe**	**Northern Europe & East Asia**	**Western Europe**	**Central Europe**
Building 3, Section C Beijing OPTO Mechatronics Industrial Park Beijing 101111, P.R. China Phone +86 10 8150 3008 cn.info@condair.com www.condair.com.cn	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair-russia.com	Parallelvej 2 DK-8680 Ry Phone +45 8788 21 00 dk.info@condair.com www.condair.dk www.condair.se	Gyroscoopweg 21 1042 AC Amsterdam Phone +31 (0)20 705 8200 nl.info@condair.com www.condair.nl www.condair.fr www.condair.be www.condair.es www.condair.ch	Parkring 3 DE-85748 Garching-Hochbrück Phone +49 89 20 70080 de.info@condair.com www.condair.de www.condair.at www.condair.hu
Building 3, Section C Beijing OPTO Mechatronics Industrial Park Beijing 101111, P.R. China Phone +86 10 8150 3008 cn.info@condair.com www.condair.com.cn	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair-russia.com	Parallelvej 2 DK-8680 Ry Phone +45 8788 21 00 condair.dk@condair.com www.condair.dk www.condair.se	Gyroscoopweg 21 1042 AC Amsterdam Phone +31 (0)20 705 8200 nl.info@condair.com www.condair.nl www.condair.fr www.condair.be www.condair.es www.condair.ch	Schnackenburgallee 18 DE-22525 Hamburg Phone +49 40 85 32 7700 draabe@draabe.com www.draabe.de www.draabe.pl

TRADITION

Since more than 65 years active in humidification for commercial, industrial and HVAC solutions.

2013–2015	Condair transforms from an international group of autonomous companies to an integrated global enterprise with production sites in Europe, North America and Asia and 15 own sales organizations in Switzerland, Germany, Austria, France, Spain, Netherlands, Belgium, United Kingdom, Ireland, Denmark, Sweden, Hungary, Canada, United States of America and China
2014	Geographic expansion through the acquisition of Geveke Technology Solutions in Netherlands and Belgium
2011	Geographic, technological and application-technical expansion through the acquisition of JS Humidifiers in United Kingdom
2011	Technological and application-technical expansion through the acquisition of ML-System in Ry (Denmark)
2001	Technological and application-technical expansion through the acquisition of Draabe in Hamburg
1996	ISO-9001 certification
1995	Merger of Defensor AG and Condair AG – the product range now includes all humidification technologies
1982	Geographic expansion through the acquisition of Nortec in Canada/USA
1975/81	Takeover of Defensor AG (75) and Condair AG (81) by WMH (today: Walter Meier AG, Schwerzenbach)
1958	Entry into the HVAC market with electrode steam humidifiers developed and produced in-house
1955	The use of our rotary disk atomizers in new ways enabled us to enter the humidification business
1948	Entry into the disinfection business through in-house development and production of rotary disk atomizers using the brand Defensor



Defensor
Rotary Disk Atomizer
from 1948

2575066 1509

Condair Group AG
Talstrasse 35–37, CH-8808 Pfäffikon/SZ
Telephone +41 55 416 61 11, Fax +41 55 416 62 62
info@condair.com, www.condair.com