WHEN HUMIDITY COUNTS



Humidification and Evaporative Cooling



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.



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

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 m² 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 m² 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)





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.

Adiabatic humidification and evaporative cooling (evaporation and atomizing)



Surface evaporators/ Evaporative coolers

Reduction of complex cooling technology – thanks to energyefficient cooling with water



DUAL-System (Hybrid-Humidifiers)

Superior hygiene – thanks to HygienePlus-silverionizing and ceramic post-evaporation



High-pressure nozzles

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



Compressed air

In case of a high

level of dust pollu-

tion-thanks to an

extremely robust

nozzles

design

Antsi

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

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





≈nortec









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.



Customers are offered need-oriented and user-friendly solutions.

Sales partners achieve a sustainable competitive advantage, thanks to our products.

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

Environment and posterity benefit from our commitment to efficient and low-pollutant technologies.

Our mission

We understand the specific requirements of our customers and support them with professional advice. We provide them with energy and hygiene optimized air humidification and evaporative cooling solutions.

Our partner philosophy

We see ourselves as a competent manufacturer and professional partner for complete solutions in the areas of air humidification and evaporative cooling. We offer our entire know-how based on decades of experience exclusively to our planning and installation partners – architects, engineers, general contractors, administrative organizations and installers are our partners and customers.

Our references

Our vast experience and know-how derives from numerous projects and systems in various sizes, which we succesfully have completed to date. We are happy to provide references, so you can gain a first impression of our abilities and competencies.



Service and maintenance

are components of our service portfolio which are as important as our competent engineering and consulting services. These offerings complete the entire portfolio of offerings and ensure that our customers receive continuous support even after planning, installation and commissioning of their humidification solutions.

TRADITION AND GLOBAL PRESENCE

Our competencies have helped us become a global player and leading provider of air humidification solutions. Today we are represented in 12 countries, by our own sales organizations and furthermore in over 40 countries by distribution partners, while operating 6 production sites.

- as of 2012 Condair transforms from an international group of autonomous companies to an integrated global enterprise with six production sites and eleven own sales organizations
- 2011 Geographic, technological and application-technical expansion through the acquisition of JS Humidifiers in Great Britain
- 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 Takeover of the Canadian firm Nortec Ltd. by WMH
- 1975/81 Takeover of Defensor AG (75) and Condair AG (81) by WMH (today: Walter Meier AG, Schwerzenbach)
- 1958 Foundation of Condair (former Plascon AG) and 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 Foundation of Defensor AG and entry into the disinfection business through in-house development and production of rotary disk atomizers



	(1)	(2)	3	(4)
	North America	Latin America	υκ & ΑΑΑ	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 info@jshumidifiers.com www.jshumidifiers.com	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair.com
Direct room solutions	1680 Renaissance Blvd. Sturtevant, WI 53177 Phone +1 262 884 4669 nortecsystems@humidity.com www.nortecsystems.us	1680 Renaissance Blvd. Sturtevant, WI 53177 Phone +1 262 884 4669 nortecsystems@humidity.com www.nortecsystems.us	Artex Avenue GB-Rustington Littlehampton West Sussex, BN16, 3LN, UK Phone +44 (0)1903 850200 info@jshumidifiers.com www.jshumidifiers.com	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair.com



○ Sales clusters



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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.climate@waltermeier.com	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair.com	Parallelvej 2 DK-8680 Ry Phone +45 8788 21 00 condair.dk@condair.com www.condair.dk www.condairsystems.dk	Talstrasse 35–37 CH-8808 Pfäffikon SZ Phone +41 55 416 61 11 info@condair.com www.condair.com	Carl-von-Linde-Strasse 25 DE-85748 Garching-Hochbrück Phone +49 89 326 70 0 condair.de@condair.com www.condair.com www.condair.de
www.waitermeier.com	(incl. East Asia)	(without East Asia)		
Building 3, Section C Beijing OPTO Mechatronics Industrial Park Beijing 1011111, PR. China Phone +86 10 8150 3008 cn.climate@waltermeier.com www.waltermeier.com	Schnackenburgallee 18 DE-22525 Hamburg Phone +49 40 85 32 7700 draabe@draabe.com www.draabe.com	Parallelvej 2 DK-8680 Ry Phone +45 8788 21 00 condair.dk@condair.com www.condair.dk www.condairsystems.dk	Schnackenburgallee 18 DE-22525 Hamburg Phone +49 40 85 32 7700 draabe@draabe.com www.draabe.com	Schnackenburgallee 18 DE-22525 Hamburg Phone +49 40 85 32 7700 draabe@draabe.com www.draabe.com

Condair AG Member of the Walter Meier Group Talstrasse 35–37, 8808 Pfäffikon/SZ Telephone +41 55 416 61 11, Fax +41 55 416 62 62 info@condair.com, www.condair.com

