



MORE THAN JUST AIR...

Solutions for Indoor Climate

- HEATING
- VENTILATION
- COOLING
- HUMIDIFICATION
- DEHUMIDIFICATION



walter
meier



MORE THAN JUST AIR...

Fresh air – every day

Space explorers always look for water, because water could be an indication of life in a form similar to that on earth. This also means: Water is indispensable for our survival and the survival of our environment, both as drinking and industrial water and as a constituent part of the ambient air.



more than just air...

We can only feel good and stay healthy if the air surrounding us contains a certain percentage of water. This is true for people, animals, plants and all materials made from animals or plants: leather, wool, timber, tobacco, cotton and many other things. Many manufacturing processes do not function properly unless the moisture content of the air is high enough.

In this brochure you can read what air humidification means for hygiene, well-being and productivity – day in, day out. You will be able to familiarize yourselves with the most important technologies and innovative brands: Condair and Defensor. Finally, we will give you an overview of all our products and tell how you can contact us worldwide. To ensure the best solutions, both ecologically and economically.



The perfect feel!

Warm and tender skin symbolizes life and health. And a healthy skin makes children and adults resistant, prevents the intrusion of germs and ensures that people "feel good in their skin". The largest human organ rapidly senses that the air is too dry. Then the dryness is felt by the eyes, the vocal chords, the lungs. Not just in the case of infants, but also for you, your co-workers, your customers.



more than just air...

Professional air humidification helps ensure health, a pleasant mood and trouble-free production. The investment will pay off faster than you can imagine. Operating and maintenance costs are easily calculated in advance.





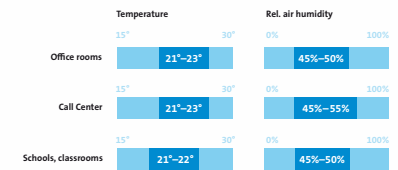
Open-plan office

Minute toner particles emerge from your laser printer, tiny paper chips are whirled through the air by your shredder, and the woman who has to work here has been suffering from a cold for three days now. Dry air in the office reduces resistance against flu viruses and makes oxygen inhalation more difficult. People's mood and concentration will sink, and productivity will go down as well.



It has been proven that sufficiently humidified air will keep your employees in a good mood, improve their health and thus performance at work. Sufficiently humidified respiratory organs and mucus membranes are less vulnerable to irritations and bacteria. The mind stays clear and the air stays fresh.

Whether there are five or fifteen people in an office, whether or not the are windows open, or fresh air is provided by an air conditioning system – there is the optimum humidification solution for all needs.



The Challenge: Well-being

Humidification

The Solution

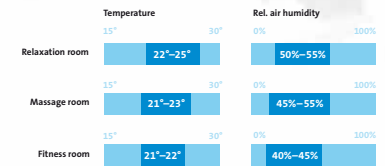


Spa and wellness facilities

It can be expected that the air is humid enough in swimming pools and saunas. But how do guests and employees feel in chill-out and massage rooms, in the solarium, at the bar or in the nearby beauty parlour? Dry air from the heating system absorbs the moisture from skin and hair like a sponge. The consequence: The skin itches, the eyes burn, the head aches – and guests are tired instead of relaxed.



This should be reason enough to keep the ancillary rooms of indoor swimming pools not only warm, but also sufficiently humid, thus ensuring that guests stay healthy and re-visit the facility. And your employees who have to move between the individual areas will also benefit: They are able to resist colds and infections. Air humidification and sauna technologies can be perfectly combined with each other.



Vaporizing, evaporating, atomizing – the optimum humidification solution is geared to your specific needs and your customers' needs. Products from Condair and Defensor will be presented in this catalogue.



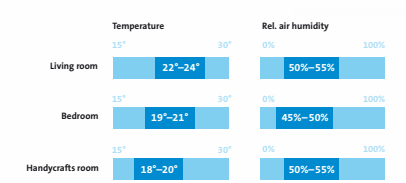
At home

In older houses and apartments the plastics or ceramic "evaporator" on the radiator is often a mere decoration element. But wherever modern floor heating systems are used to heat rooms, the air is much too dry. This is especially felt by the people who stay there for longer periods of time.

Furniture, flooring, books, pictures and musical instruments also suffer from dry air: Pianos and clarinets do not produce pure sounds any more, picture frames start to warp, paper and leather become brittle, carpets break and even high-quality furniture starts to disintegrate.



It is worthwhile making a – small – investment in comfort: Modern air humidifiers are silent, energy-efficient and of timeless design. They consequently fit any style and protect the health of people living there. They ensure that your furniture, your books, musical instruments and art objects will last longer.



The Challenge: Well-being

Humidification

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Senior citizens' homes

When people get older, their skin is less able to store moisture. Their immune system becomes weaker, and germs and bacteria can easily attack. When, in senior citizens' homes, the heating systems work at full power because older people often feel cold, relative humidity will quickly drop to levels that are no longer healthy. Then a trivial cold can quickly turn into pneumonia.



The more important it is to ensure optimum conditions in such homes: an adequate level of movement and exercise, variable meals and sufficiently humid air. The effects can be seen, heard and felt: Old people feel more vigorous, they are more mobile and thus strengthen their own health and well-being.



Test the smell!

In the basement and on screed flooring dust is more or less acceptable. But wherever food is stored and processed, or drugs are manufactured, dust has to be avoided. Where people receive cosmetic or medical treatment, dust and germs are as harmful as in the production of electronic components or in material testing.



more than just air...

One of many 'clean' tricks is air humidification. A suitable technological concept ensures that the humidified air stays odourless and sterile.

Sufficiently humid air also prevents electrostatic charge: A very thin moisture film forms on the surfaces, making them conductive and preventing the accumulation of electrostatic charge.





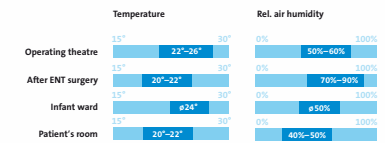
Operating theatre

No-one will dispute that the air in operating theatres has to be sterile. We all know, at least from television, how much effort doctors and nurses put into keeping their skin, clothing, as well as patients and instruments sterile. But how can we ensure that air stays sterile even where people are talking, breathing, moving, and machines working, and blood is flowing?



Highly efficient filter systems help keep the air clean. But this is not sufficient: optimum temperature and humidity levels in the room are necessary to ensure that the measuring instruments display the correct data, that the heart-lung machine functions properly, that patients and medical staff are protected from bacteria, that wounds heal faster and people feel good.

With optimum air humidity, electrostatic charges will dissipate rapidly, which means that electrical and electronic devices work reliably, and flammable narcotic gases can be safely handled.



The Challenge: Hygiene

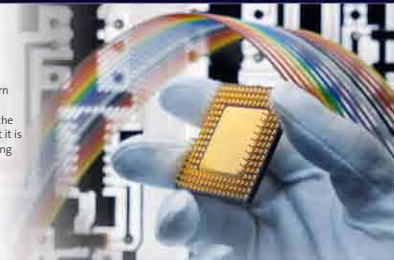
Humidification

The Solution



Clean room technology

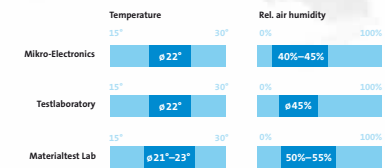
Microchips are at the heart of mobile phones, notebook computers, modern air humidifiers and many electronically controlled devices. Even before these integrated circuits are manufactured, high costs are incurred for design and the 'mask'. Production faults are almost impossible to repair. The more important it is that the chips can be manufactured reliably. Even tiny particles are a disturbing factor – the air has to be dust-free.



Maximum amounts of particles, germs and micro-organisms per m³ of air have been defined for various production processes. Hygienic air humidification ensures that these levels are complied with for these "clean room classes".

Modern equipment regulates the percentage of air humidity with maximum accuracy, thus ensuring balanced, optimum manufacturing conditions.

The positive side-effect: The people working in the clean room can work with full concentration over longer periods of time.



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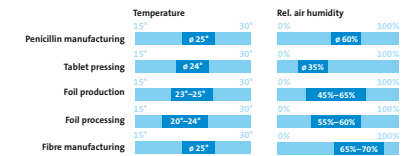
Pharmaceutical lab

Tablets, vials, creams and other medical substances and objects must not be contaminated with dirt, germs or spores. At the same time, the input materials for medical drugs need certain ambient conditions to retain their efficacy and consistency.



Today, many medical drugs are manufactured in clean room conditions. But even when conditions are less strict, it is important to ensure constant temperature and relative air humidity levels in order to maintain a consistently high quality of the final products.

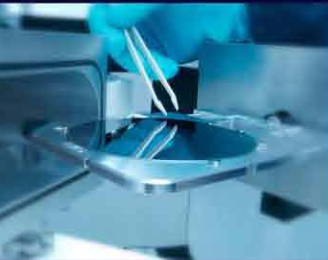
Hot steam is free of minerals and hygienically proper. Adiabatic systems, together with suitable hygiene concepts, may also be used to ensure odourless, clean humidification. Whether you use adiabatic systems or steam – the humidifiers can be controlled with precision, thus considerably enhancing safety during production.



The Challenge: Hygiene

Humidification

The Solution

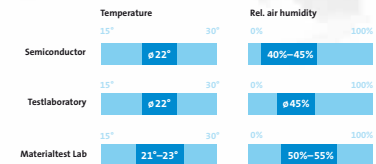


Material testing

From chemical fibres to bricks – all materials can be tested in test labs. Devices used for force and length measurements can measure even smallest differences in individual fibres that may lead to problems during further processing. A key factor in the process is homogenous and reproducible sample preparation.



Since deviations are often very small, highly sensitive measuring instruments are required. And a constant room climate is indispensable: even temperatures, no draughts and of course constant air humidity. Depending on the application, different technologies can be used – for the best solution, both ecologically and economically.



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Try to count this!

An ingenious product idea is great. But you must also be able to manufacture "the thing" – in large series, be it paper clips, T-shirts or cardiac pacemakers. For each production step different ambient conditions are required: germ-free air, cooling or heating, high or low levels of air humidity. Only if all these requirements are met, can the products be manufactured at high speed and with consistent quality.



more than just air...

Air conditioning and humidification are not only necessary in countries with "difficult" climatic conditions. The same rule applies everywhere: consistent ambient conditions and precise controllability are indispensable for the quality expected by retailers and consumers.



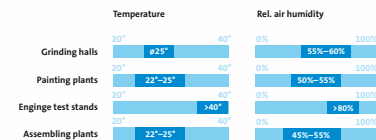


Automotive paint-shop

Even paint application, short drying times, dust-free gloss: the vehicle paint is both decoration and protection. The individual coats have to be applied in the shortest of times, and even drying must be ensured. Consistent conditions are required for this.



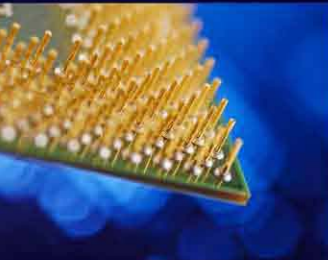
It must be possible to adjust temperature and air humidity with the same degree of precision as the desired colour. Modern humidifying systems can cope with this challenge. There is an optimum solution for each room size and each building situation to exactly control the percentage of air humidity.



The Challenge: Industry

Humidification

The Solution

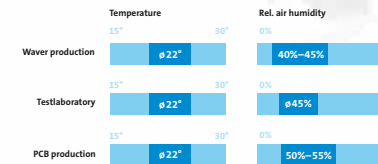


Electronics industry – computer rooms

Heat emanates from all computers and electronic devices, which reduces relative air humidity and increases the danger of electrostatic charges. These can discharge more easily in the dry air and lead to failure or destruction of equipment components.



Controlled air humidification is used to apply a moisture film to all surfaces. In spite of its low density, the film will make the surface conductive and thus prevent the accumulation of electrostatic charges. This will reduce the charges and the hazards.



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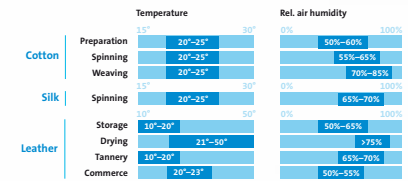
The textile industry

Yarns and fabrics respond quickly to dry or humid air: Fibres crumble, fabrics shrink or extend in longitudinal or transverse directions. This will reduce the quality of semi-finished and finished products.

In addition, there are electrostatic charges in dry air that increase as a result of friction. Then fibres tend to move apart from each other, carding and combing becomes difficult, and guiding fibres through spindles becomes impossible. Threads break, woven fabrics become irregular, clothes lose their shape.



The more important it is to ensure constant air humidity in storage and production rooms, thus paving the way for high productivity and quality. And your employees will also feel better in such production conditions – in Asia and Africa as well as in Europe and America.



The Challenge: Industry

Humidification

The Solution



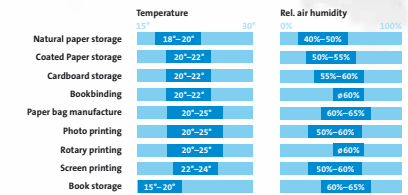
The paper and printing industries

Even if reading is no longer as fashionable as it used to be, paper is still needed: for newspapers and books, but also for packaging and posters, for documents and bank notes, even for furniture.

To ensure that the corrugated cardboard structure does not collapse, that the packaging material provides adequate protection, that documents retain their shape, it is necessary to store and process raw materials, paper and printed products in accordance with their specific requirements: not too moist, not too dry.



If newspapers are to run through roller offset machines at speeds of up to 15 metres per second, a maximum degree of precision is required. Modern air humidification systems help keep the climate stable and contribute to higher productivity, lower reject rates and timely delivery.



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Take a look at this!

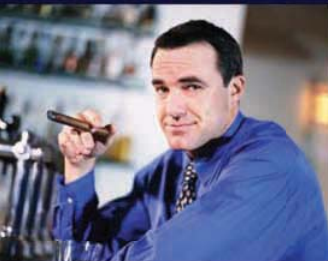
Clothes make people attractive; the same applies to shoes and handbags. Investment in the right pair of shoes and the perfect handbag will pay off in the long run. No less important than label, material quality and excellent workmanship is the shopping experience itself. This includes an aesthetic environment, friendly sales people, professional advice – and a climate where customers can feel comfortable.



more than just air...

The good thing: if temperature and air humidity levels are right, it is not only customers and employees that feel good, but also the products: from fresh lettuce to high-quality cigars or concert pianos.





Tobacco

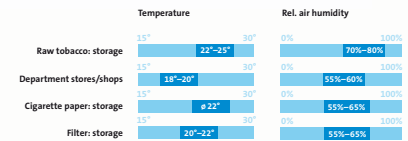
Pipe tobacco in tightly sealed sheet metal boxes, cigars in the humidior, cigarettes on the shelves. For real smoking pleasure, tobacco must have the right moisture levels. Otherwise it will lose its flavour, assume a straw-like taste and will be smoked away far too quickly.



People trading in tobacco and tobacco products can do themselves and their customers a favour.

Because good cigars, when properly stored at 20° C and 70% r. h., are like good wine: the longer they are stored, the better the quality and thus the enjoyment.

Optimum air humidification both in the shop and in the storage rooms maintains the quality of products – even over longer periods of time.



The Challenge: Trading

Humidification

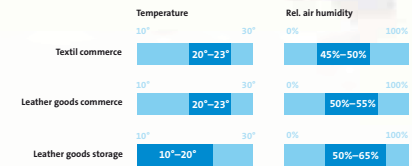
The solution



Fashion

An electric shock when touching the clothes rack. Or your hair sticking out in all directions when you try on a garment. Extremely dry air often spoils your shopping pleasure: Friction between pieces of clothing result in electrostatic charge which cannot properly dissipate, resulting in the unpleasant phenomena mentioned above.

Well-being for customers and employees starts at the shop entrance: Keeping the cold air outside and sufficiently humidifying the air inside the shop will create a shopping climate promoting the health of employees and the customers' readiness to spend their money in this shop.



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Musical instruments

The young musician chooses her first flute on the basis of appearance: shall I take the bright one or the dark one? But soon she will learn that it is the sounds that create the music. And this sound will only be pure and harmonic when the instrument is in full working order.

Splintering reeds in clarinets and saxophones, warped strings and out-of-tune pianos: instruments can even be destroyed when the air in the music shop is too dry.



Shop owners ensuring adequate air humidification in their shops and storage rooms can offer instruments to their customers with equally good sound from delivery to sale.

And if the air is sufficiently humid, more oxygen can be taken in during breathing. Thus customers will find it easier to test and select their new instruments.

	Temperature	Rel. air humidity
	15° 30°	0% 100%
Musicstore	20°-23°	50%-55%
Instrument storage	15° 30° ø 18°	0% 100% 50%-55%

The Challenge: Trading

Humidification

The solution



Try one of these!

Not only logistics companies know that the storage of goods is an art – irrespective of whether we talk about raw materials, semi-finished products, consumables or capital investment goods. Washing powder must not be stored close to chocolate, best-by dates as well as ordering and minimum quantities have to be taken into consideration, and the computer should know which product can be found where in the high-bay storage.



more than just air...

Adequate ambient conditions for each product have to be provided in the warehouse to maintain functionalities, freshness and taste. Cooling chains must not be interrupted; the specified temperature and air humidity must be complied with. Fortunately, there is an optimum solution for each application: Water can be atomized, vaporized or evaporated; the air can be humidified on the spot or together with the fresh air supply.





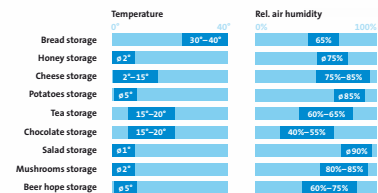
Storage of fruit and vegetables

Fruit and vegetables have to go a long way before arriving in your kitchen. To ensure that ingredients such as vitamins and enzymes are preserved, retailers have to create adequate conditions.

At a temperature of 20° C, vegetables can only be kept for two days, while storage of up to two weeks is possible at 2° C. Even at low temperatures vegetables must not get dry, since shrinkage as a result of water depletion cannot be compensated for.



Humidification is important both in the exclusive delicatessen shop and in the well-frequented chain store. An adequately dimensioned, efficient system will save costs and increase turnover: Fruit and vegetables will stay fresh and can be sold up to closing time – without any weight loss.



The Challenge: Storage

Air humidification

The solution

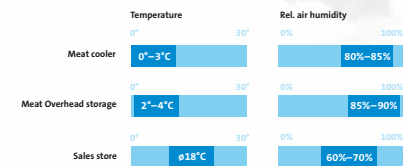


Meat storage

Wilhelm Busch's Widow Bolte had no choice: When Max and Moritz killed her rooster and hens, the birds had to be cooked immediately. Today, cold stores and refrigerated counters keep steaks and minced meat fresh for longer periods of time. But if the air humidity is not right, chops and other meat products will soon look grey and unappetising. And above all, they quickly lose weight. The butcher will soon feel the loss of income.



Air humidification in the cold store is almost as important as proper cooling – even lean beef contains up to 75% of water. Beef keeps its weight only if there is adequate humidity, and the butcher can present the meat so that customers do not hesitate to “take a little bit more”.



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Wine storage

Good soil, sunshine and experienced wine growers are the prerequisites for excellent wines. But there are risks during maturing. If the air in the wine storage is too dry, the wine will evaporate in the casks, until the moisture equilibrium has been restored. Wine growers may lose several tens of thousands of Euros every year as a result of this.

When the wine has been filled into bottles and corked, external conditions have to be right as well. Inadequate storage may turn the wine into vinegar within a short period of time.



Cool, dark and sufficiently humid – these are optimum storage conditions for wine. Depending on local conditions, the appropriate climate can be generated by a stationary humidifier or a unit coupled with the ventilation system. The investment will pay off in either case.



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The Challenge: Storage

Air humidification

The solution



Just listen!

The enjoyment that music generates is much greater if the musician can play the music on well-sounding instruments, in an environment where we can hear both forte and piano sounds in a pure and clear fashion.

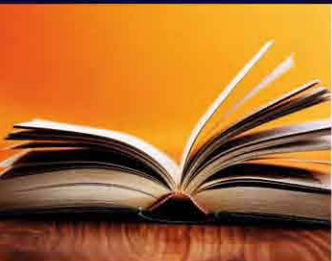


more than just air...

Similarly, we like to enjoy pictures, sculptures and art installations in rooms where light and air provide the optimum atmosphere for the colours. Much old handwriting has been preserved simply because people treated it with care.

Today we have adequate means for the restoration and preservation of ancient works of art and for providing optimum conditions for new works of art. Important factors in this context are temperature, cleanliness and air humidity – whether in the theatre, the library or the museum.

Defensor
condair[®]



Library

From parchment to papyrus up to wood-free special paper – there have been many materials on which to multiply ideas and retain them for long periods of time. Not only fire and water, but also “completely normal” ambient conditions may damage books, journals and scores. The binding glue decays, the lettering becomes blurred and finally the paper decomposes – cultural assets are lost for ever.



Today it is well known what conditions are required to preserve paper, leather, glue and printing inks from the different epochs. Libraries and archives are equipped with modern heating, ventilation and humidification systems that ensure a long life for the printed materials stored there.

	Temperature	Rel. air humidity
Library	20°–22°C	45%–55%
Archive	18°–20°C	45%–55%

The Challenge: Culture

Air humidification

The solution



Museum

Van Gogh's Sunflowers or Paul Klee's Hand Puppets, the Bayeux Tapestry or Andy Warhol's Serigraphs – more and more people want to see the original works of art. Both large museums and small, exclusive galleries can profit from this trend. Pictures and sculptures travel round the world. Everywhere conditions have to be created in which the underpainting, frames and materials retain their form, where glued objects stay together and colours retain their brilliance.



Air humidity, freedom from dust or even germs is often indispensable in ensuring that works of art retain their effect and value. Humidification systems are therefore often provided with suitable hygiene concepts. They can be used both in small gallery rooms and large museums. So the masterpieces will feel good, no matter where they are and how many people look at them.

	Temperature	Rel. air humidity
Museum	18°–22°C	45%–50%
Gallery	18°–22°C	45%–50%

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Restoration

If wood carvings, frescos, paintings and items of graphical art have suffered from the ravages of time, restorers and conservators have to come in. They do their job with utmost precision and skill, because just one small mistake may destroy an ancient piece of art for ever.



Therefore, ambient conditions have to be right during restoration – both beneath the dome of a cathedral and in the artist's workshop. Adequate humidification systems create an atmosphere in which materials can be created and processed on the basis of original recipes, so that damaged works of art can be restored to their former glory.

	Temperature	Rel. air humidity
	0° 30°	0% 100%
Studios	20°–24°C	45%–50%
	0° 30°	0% 100%
Gallery	18°–22°C	45%–50%

The Challenge: Culture

Air humidification

The solution



Theatre and opera

If the premiere has to be put off because the prima donna has a sore throat, this will be a great disappointment for opera-goers, and a tremendous financial loss for the opera house or the festival management. Of course it is impossible to foresee all such contingencies, but a lot can be done to ensure that actors, singers, dancers and musicians can perform their work under favourable conditions.



Air that is sufficiently humid protects the respiratory tract. Voices – whether spoken or sung – sound powerful and clear. The audience can benefit as well: a better enjoyment of art, and the truly fresh air of the theatre. Air humidification also helps the owners protect their investments in the building: floors, furniture, windows and wall linings will not wear so quickly. Humidification solutions can be designed so that optimum conditions exist everywhere in the theatre.

	Temperature	Rel. air humidity
	0° 30°	0% 100%
Opera	20°–22°C	50%–55%
	0° 30°	0% 100%
Theatre	20°–22°C	50%–55%

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