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Information from Zehnder Clean Air Solutions · No. 1/2013

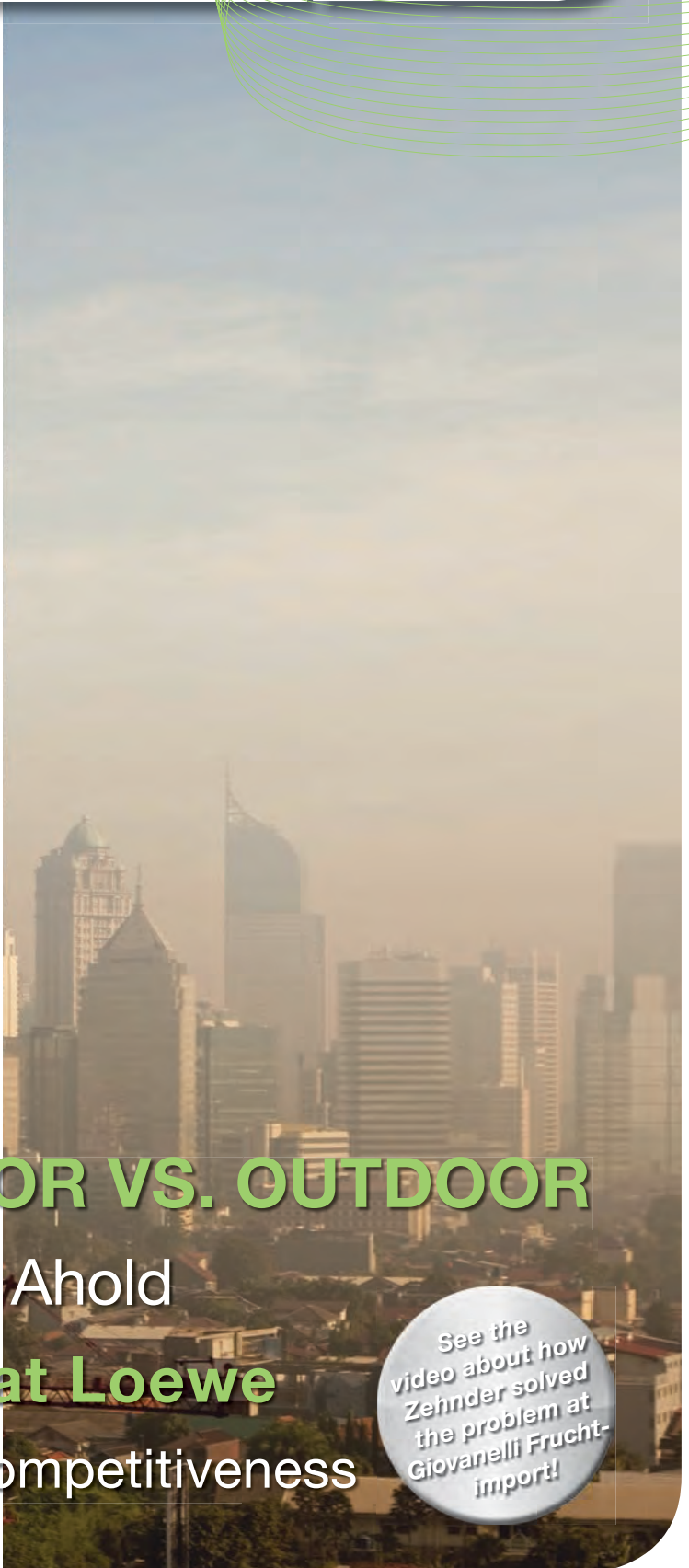


CLEAN AIR - INDOOR VS. OUTDOOR

A win-win-situation for Ahold

Clean room quality at Loewe

Fruit wholesaler boosts competitiveness



See the
video about how
Zehnder solved
the problem at
Giovannelli Frucht-
import!



Dear reader,

Welcome to the first issue of Clean Air Magazine 2013.

A great deal has happened since the last issue of the magazine hit the streets. We have been working hard on product development and on improving our range for our customers. In 2013, we will be introducing a completely revamped model of our existing unit E3000. The new machine has been designed by leading industrial designers and features the very latest technology in the field of fan and control options. Briefly put, it is a really sharp product which we are sure will help us to reinforce our position of market leader even further.

Another piece of news is that we have altered our customer contract. We previously worked primarily with a 5-year rental arrangement. However, through discussions with our customer contacts we have discovered that many companies consider five years to be too long. In order to deal with this situation, we are now launching a new full-service contract which means that customers never need to sign a binding agreement for more than 11 months. We have decided to call this type of contract a service contract. As we are sure of the peerless function of our systems, we will be offering this solution at the same price as our 5-year agreement – the only difference being that customers are not required to commit to a period longer than 11 months.

This issue of the magazine contains articles explaining this in more depth, as well as features about how some of our customers view us and our solutions for cleaner, more efficient workplaces.

Enjoy!

Peter Krantz
CEO, Zehnder Group Nordic AB

"That is a win-win-situation for Ahold"



Ahold very enthusiastic about Clean Air Solutions

The royal Ahold is a global retailer of high-quality consumer goods with a turnover of more than 30 billion euros. The company with Dutch roots is primarily active in the United States and Europe. The group is the largest retailer in the Netherlands. The flagship, Albert Heijn, is the leading supermarket chain in the Netherlands with more than 800 stores. Specialty shop Gall & Gall is at the top of the wine & distilled beverages sector with more than 500 shops. Etos, a chain with more than 500 locations, is a leader in the field of healthcare, personal care and beauty products. The Dutch consumer is also served by the combined delivery service, Albert.nl.

For years, Ahold looked for a system that would improve the working conditions of employees in their distribution centres and reduce the costs of maintaining their machines. Last year that solution was finally found, in Zehnder Clean Air Solutions.





Scan the QR code with your smartphone and watch the video from Ahold.

You can download apps for reading QR codes from Apple App store or Android Market.



Roy Heijs, European Sourcing Manager at Ahold is delighted with Zehnder Clean Air Solutions.



"Previously, we organised cleanings in our distribution centres two to three times a year in order to keep the amount of dust under reasonable limits," explains Roy Heijs, European Sourcing Manager at Ahold. "This was to lower the level of dust on products, but also the level of dust in the air in the warehouse. People were regularly complaining of dusty air and difficulty breathing. At Ahold, we wanted to be free of this in one fell swoop, if at all possible."

Quickly convinced

As it turns out, that was indeed possible. Colleagues at sister company ICA in Sweden drew Heijs's attention to a new system. They had fitted their distribution centre with a very special air filter system. "We went there to investigate and we were very quickly convinced of the system's effectiveness." Our colleagues there said that they had installed Clean Air Solutions by Zehnder to filter and purify the air.

Since the installation of the new system, they have noticed that there is much less dust in the warehouse and a healthier working environment for employees. "Another added benefit was that machine maintenance costs decreased, which is also not a trivial point," comments Heijs.

Many hundreds of people work in Ahold distribution centres every single day. It is due to their efforts that all the items arrive on time at supermarkets throughout the country. "That is why people are a priority to us. Ahold believes that they deserve the best," states Ronald McMurray. McMurray is the facility manager at the Ahold distribution centre in Geldermalsen, where Clean Air Solutions was first installed in the Netherlands.

In the beginning, of course, there was some scepticism at Ahold about the system, despite the positive stories from Swe-



den. It was agreed that the system would first be tested during a trial period in one section of the distribution centre. "This was so successful in such a short time, that we were very quickly convinced. And this led to equipping the entire Geldermalsen distribution centre with Clean Air Solutions," says Heijs.

Positive reactions

McMurray received the first positive reactions after just a few days, as did Michael Keizer, who works in the Geldermalsen distribution centre.

"Colleagues often said they were bothered by the dust; they complained of various things, such as a dry throat. Now the dust content in the air is much lower and we hear far fewer complaints of sore throats, complaints that we did hear before." There is another way to see that the air in the hall is cleaner: "If you had worked in the warehouse and then went home in the evening and blew your nose, there used to be a lot of dust in the tissue; that's gone now. And there used to always be a thick layer of dust on the pallets in the hall; that's gone now too. Everyone here is really happy about it!" enthusiastically comments Keizer.

McMurray is not surprised by these reactions. "I don't think it's strange; measurements show that the quality of the air inside the facility is comparable to that of the air outside."

Roy Heijs also indicates that measurements show that Clean Air Solutions works. "We took measurements before we

installed Clean Air Solutions; the dust levels were above 400 microns per cubic metre. After we installed Clean Air Solutions the level was just 50 microns per cubic metre. A considerable improvement!"

Heijs had agreed with Zehnder that the system had to meet an upper limit of 50 microns per cubic metre. Zehnder was free to determine how many machines would be necessary to

"They easily met all our requirements, so we decided to install Clean Air Solutions at all Albert Heijn warehouses"

achieve this. "They easily met that requirement, so we've decided to equip all of the Albert Heijn distribution centres with Clean Air Solutions.

But we won't stop there; we are also going to install the system in the Etos and Gall & Gall distribution centres."

Clean Air Solutions is also a boon for the machines. "There is an enormous number of forklift trucks driving around our distribution centre, all of which contain electrical components. Previously we had to blow out the components to get rid of the dust. We can clearly see that there is much less dust there now. That greatly reduces the risk of malfunctions," explains McMurray.



Installation of Zehnder air purifiers at Ahold.



Lower energy costs

Another positive result of Clean Air Solutions is that the energy costs go down. The warm air that normally stays at the top of the hall is now blown lower, so less energy is needed to heat a hall.

"That means lower energy consumption and lower energy costs. That's a win-win situation for Ahold!" declares McMurray.

"We are convinced that the Clean Air Solutions system reduces cleaning, electricity and maintenance costs. However, the biggest benefit is that it has significantly improved the working environment for our staff"

Heijs is also very enthusiastic; he's already recommended the system to other colleagues facing dust problems in their warehouses. "But companies will really only be convinced by coming here to see for themselves. Then they can really experience how the systems work and what they can deliver," explains Sourcing Manager Heijs.

McMurray is happy that he has already had that experience and reiterates where the profit in this system lies for Ahold. "With Clean Air Solutions, we are convinced of the savings in cleaning costs, energy costs and maintenance costs, but much more importantly, we have achieved a considerable improvement in the working climate for our employees.



"Everyone who works here at the Ahold central warehouse in Geldermalsen is delighted with the improvement in the working environment," explains Michael Keizer (left) seen here in conversation with Ronald McMurray, site manager at the central warehouse.

Facts

Company:	Ahold
Person interviewed:	Roy Heijs, European Sourcing Manager
Sector:	Distribution centers
Location:	Geldermalsen, Zaandam, Tilburg, Pijnakker, Zwolle, the Netherlands
Dust sources:	Dust from forklifts and warehouse operations
Dust reduction after installation:	90 %
Benefits:	Improved working environment, reduced need for cleaning and maintenance of machines, lower electricity costs
Machines installed:	Geldermalsen (14 x E3000, 27 x E12000), Zaandam (3 x E6000, 19 x E12000), Tilburg (3 x E6000, 17 x E12000), Pijnakker (1 x E6000, 20 x E12000), Zwolle (2 x E6000, 10 x E12000)

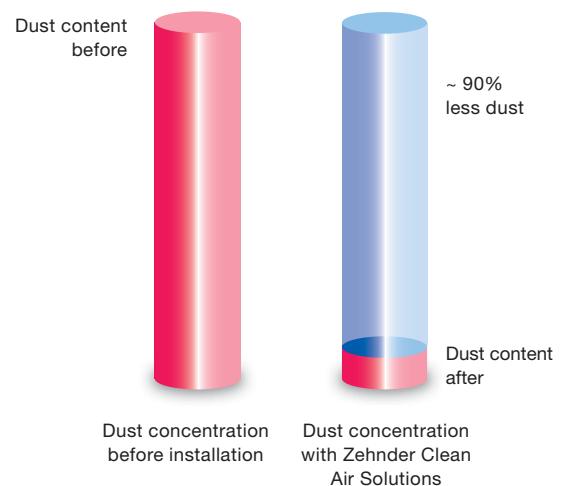




Photo: Svarteld

New generation air purifier

The next generation air purifier from Zehnder has arrived. The new E3000 is a completely new machine, developed from scratch, designed by leading industrial designers and equipped with cutting edge technology in the field of fan and control options.

The objective was to create a modern machine that is quieter, easier to use and less energy-intensive.

"The new E3000 has been developed and designed by leading design companies on the basis of our own specifications," explains Carry Turesson, Production Manager at Zehnder Group Motala AB. "We wanted to create a consistent line in our design – a line that is to apply to all the machines in our range in future. We have focused on industrial product design, and the result fully matches with the requirements we made. The new E3000 has a new motor and a new fan based on state-of-the-art technology. The E3000 model also features a new control box and a larger display, which makes it even easier to use. We are proud to be launching this new model, which is on schedule to be ready for delivery in 2013."





Zehnder clean-air solutions bring added competitive advantage for Swiss fruit import specialist



As part of their strategy to reinforce the company's position as Switzerland's premier fruit importer, Giovanelli AG knew that they had to deal with the perennial problem of airborne dust particles.

Founded over 80 years ago and still under the leadership of the same family, Giovanelli Fruchthand AG enjoys a hard-won reputation as Switzerland's leading importer and distributor of fresh fruit and speciality food products.

From the company's base in Frauenfeld, they dispatch a dazzling variety of produce to major wholesalers and retailers across the country – from everyday apples and bananas to the most exotic tropical fruits and luxury items like chanterelle mushrooms and fine green asparagus.

Sergio Giovanelli is the company's Chief Quality Officer. It is his task to ensure complete customer satisfaction in the notori-

ously tricky business of trading in delicate fresh produce:

"We have always been able to control the cultivation and content of the fruit we sell; now we can control the internal conditions of our warehouse and packing areas as well. Our investment in a clean-air environment was a significant part of our aim to strengthen our position as market leader."

Giovanelli AG chose to install a total of five Zehnder air purifiers in the company's warehouse and roasting plant. The goal was to permanently cleanse the air of both coarse and fine dust particles, which can directly affect product quality and longevity as well as staff and machinery.



Scan the QR code with your smartphone and watch the video of Sergio Giovanelli from Giovanelli Fruchtimport describing the solution in his own words. You can download apps for reading QR codes from Apple App store or Android Market.

Beating the dust challenge

Fine and coarse dust particles are a fact of life in all work-places and industrial installations. The business of handling and packaging many types of fruit creates a variety of dust types, all of which can have a greater or lesser impact on these delicate products, as well as on the people who work with them. Giovanelli AG faced three distinct issues:

- Reduced feelings of wellbeing among the company's staff, leading to reduced productivity
- Impairment of the physical appearance of the fruit and faster degradation as a result of dust inclusions
- Increased wear to machines and a greater need for maintenance

With our innovative and patented filter technology, Zehnder was able to offer Giovanelli AG proven solutions that could remove airborne dust particles before they are inhaled by staff or deposited on the valuable fruit and machinery.

We begin the process by making a detailed assessment of existing site conditions. This process is spread over several days to ensure accurate mean readings. Once we have established those parameters, we are in a position to design the optimal solution for the exact ambient conditions.

The solution we designed for Giovanelli AG was based on a combination of our proven Maxi E12000 and Maxi E3000 Flimmer® Filters. Once the system had been successfully installed – on time and on budget of course – the results were not slow in coming through.



Sergio Giovanelli is Quality Assurance Manager at Giovanelli Fruchtimport AG

Proven results for tangible added value

In a subsequent comparative study of the air quality pre- and post-installation, it was clear that our Flimmer® Filters were separating a huge proportion of the PM10 dust class. This is composed primarily of coarse dust, pollen and carbon particles. Airborne particles in the "nano" class have also been significantly reduced (laboratory values: on-site measurement was not possible).



Giovanelli Fruchtimport is the biggest importer of fresh fruit and speciality food in Switzerland.

Photo: Thomas Glauser



Overall, the results of the study revealed an 84% lower average particulate pollution level than before. Prior to installing our air cleaning solution, average values for airborne particulate matter were $77 \mu\text{g}/\text{m}^3$. After installation, that reading had improved to $12 \mu\text{g}/\text{m}^3$. Similarly, peak loads were reduced from $350 \mu\text{g}/\text{m}^3$ to $100 \mu\text{g}/\text{m}^3$. Interestingly, the current average load of $12 \mu\text{g}/\text{m}^3$ is actually less than a quarter of the normal $50 \mu\text{g}/\text{m}^3$ carried by the air outside the company's buildings!

The Flimmer® air-cleaning filters also capture larger dust particles than the PM10 class, although this was not measured by our testing equipment. The figures given above are average values for the entire period during which the study was run and include weekends.

Sergio Giovanelli is clearly delighted with the tangible benefits that the company has reaped from this project:

"After three years in operation, cleanliness has greatly im-

proved. The air is noticeably cleaner for our employees, while we have also seen a marked improvement of the shelf-life of our fruit. This has clearly strengthened our position as market leader, which was one of our chief aims at the outset of the installation project."

"The working environment for our employees is much better, and the shelf life of the products has improved significantly."



Facts

Company:	Giovanelli Fruchthimport AG
Person interviewed:	Sergio Giovanelli, Quality Assurance Manager
Sector:	Fruit and vegetable wholesaler
Location:	Frauenfeld, Switzerland
Dust sources:	Dust from product packaging, peanut roasting plant
Dust reduction after installation:	84 %
Benefits:	Improved working environment, longer shelf life for fruit and vegetables, reduced need for machine maintenance
Machines installed:	1 x E 12000 and 4 x E 3000

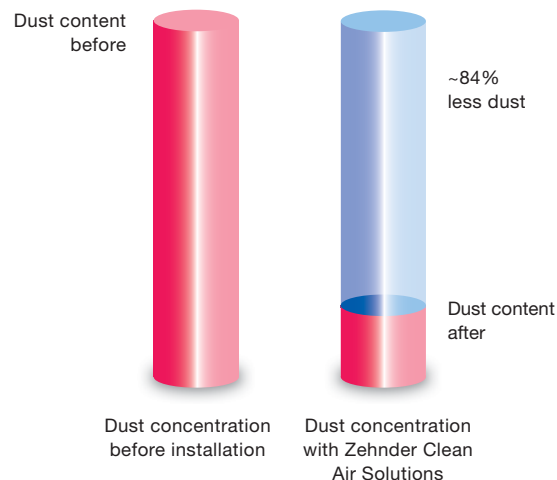




Photo: Per-Erik Jäderberg

It's the details that make all the difference. Brynäs' initiative brought Swedish Championship gold!



In the world of elite sport it is important to focus on all the tiny details if you want to succeed and win. One team that has proved this is Brynäs IF, which was crowned Swedish Ice Hockey Champion in 2012. The team uses Zehnder air purifiers to eliminate odours and purify the air in its changing rooms.

Brynäs, one of the classic Swedish ice hockey teams, has nurtured many great players over the years, from Inge Hammarström and Börje Salming to modern-day stars Jakob Silfverberg and Calle Järnkrok. The team was particularly successful in the 1960s and 1970s, when it won the Swedish Championship several times. However, in 2011/2012, it was 12 years since the team from Gävle last stood on top of the podium.

"Before the start of the season, we set ourselves a very high goal: to bring home the Swedish Championship," relates Tommy

Jonsson, Coach of Brynäs IF. "We knew that with our current squad, we had every chance to go all the way. But it was not enough just to have a good team – we also had to 'leave no stone unturned' and work hard on every little detail in our preparations if we were to be all we could be. This meant focusing on everything from motivation and training to diet, sleep and rest. We also looked at optimising the environment in the changing room, where we spend a lot of time. For example, it is important to have good lighting and good air quality here."





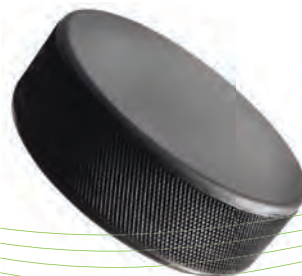
Fresh air important to performance

In the run-up to the 2011/2012 season, Brynäs renovated its changing rooms to let more daylight in, for instance. The club also invested in a Zehnder air purifier for the facility.

"If we are to turn in our best performance, it is important that the air in the changing room is clean and that we eliminate as much of the unpleasant odour as possible. It goes without saying that the team spends a lot of time in the changing room in connection with training and games. Personally, I spend around 70 hours a week there, eight months of the year," relates Mattias Pettersson, Equipment Manager for Brynäs IF. He continues:

"We previously had a different air purifier, which we had to replace at the start of last season. We got in touch with Zehnder, and the company proposed what looked to be a good, versatile solution. So we decided to install Zehnder air purifiers in both the first team's and the J20-team's changing rooms."

"If we are to turn in our best performance, it is important that the air in the changing room is clean and that we eliminate as much of the unpleasant odour as possible"



Mattias Pettersson, Equipment Manager, and Tommy Jonsson, Coach of Brynäs, really appreciate a breath of fresh air in the changing room.



High standard in the changing room

The first team changing room covers around 150 m² and since August 2011 it has been fitted with a Zehnder E3000 air purifier. It is a floor-mounted unit equipped with a charcoal filter to eliminate odours and a flimmer filter to remove dust particles.

"We are really satisfied," says Mattias Pettersson. "The air in the changing room is clean and fresh; generally speaking, you can say that our changing room maintains a very high standard today. For the J20 team, it has made a huge differ-

ence as regards both air quality and odours as this team has never had an air purifier in its changing room before. As all Sweden knows, Brynäs accomplished its plan for the 2011/2012 season with aplomb. After a tough, evenly matched final series against Skellefteå, Brynäs emerged victorious.

So how are things looking for the coming season?

"We've had to say goodbye to a couple of players, but we have replaced them with players who are just as skilled – so conditions are about the same as they were before last season. And our goal is – of course – to defend our national title," concludes Tommy Jonsson.

Facts

Company:	Brynäs IF
People interviewed:	Tommy Jonsson, Coach and Mattias Pettersson, Equipment Manager
Sector:	Changing room
Location:	Gävle, Sweden
Dust reduction after installation:	Dust measurement not performed
Benefits:	Fresher air and reduction in odours
Machines installed:	2 x E 3000



How good is the air in our working environment?

On an almost daily basis, it seems that we are bombarded with information about how bad the air in our big cities really is. The message often communicated is that the environment is hazardous and that it has been proved that more people die on account of bad air than in traffic accidents. In periods of high concentrations of particles in the outside air, the number of people admitted to hospital with acute heart and lung problems rises sharply.

The EU and the WHO have drawn up a set of regulations for air quality in outdoor and public environments. Since 2010, all EU Member States have been obliged to abide by these regulations. The limit value has been set to 50 $\mu\text{g}/\text{m}^3$ of PM10 size particles (i.e. particles up to 10 μm in diameter). This value must not be exceeded more than seven times per year. Measuring stations have been set up in most big cities in Europe to check particle concentrations continuously. It is often possible to track the concentrations in real time via the Internet. One of the graphics on the facing page is taken from the Net and presents particle concentrations on a central street in a big city in

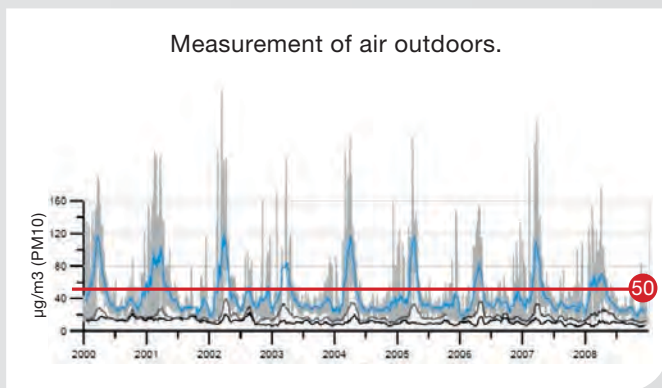
Western Europe. Failure to comply with the requirements results in an obligation to implement measures to bring the concentrations down below the limit value. Failure to implement such measures leads to fines from the EU.

In many cases, however, it has proved difficult to reduce concentration levels to below the stated limits. Measures adopted to combat the issue include attempts to allow only cars with registration plates ending in odd or even numbers to drive in central Milan. In Stockholm, it is prohibited to use studded tyres on those streets with the highest particle concentrations.

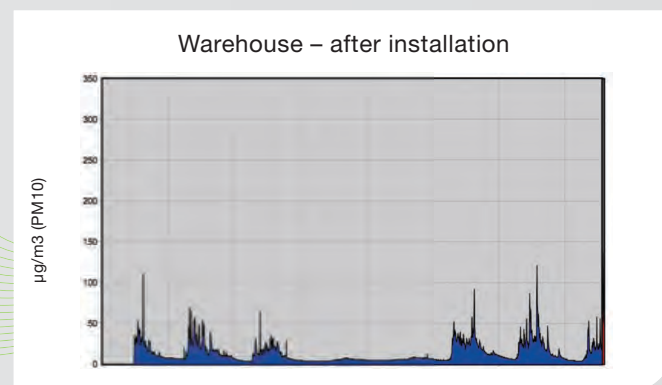
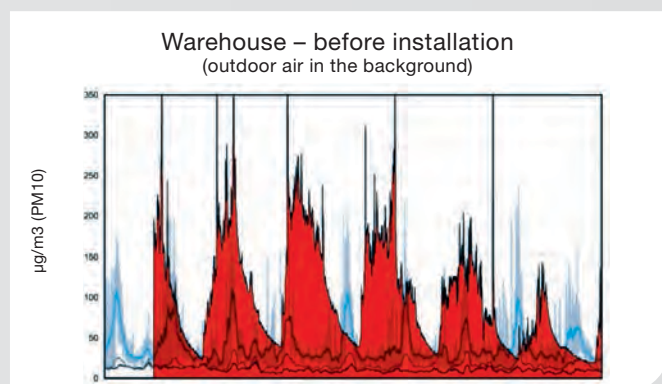
“In a normal warehouse environment, the particle content levels are – frighteningly – three times higher than the most heavily impacted street in a West European metropolis!”

One question that is being asked directly is: “What’s the situation indoors and at our workplaces?”

Generally speaking, you can say that the air in our homes is usually under the limit value – as long as we don’t live on one of the most severely affected streets. In contrast, things look a lot worse at our workplaces. We at Zehnder have conducted tens of thousands of PM10 measurements in most sectors. In most cases, the measurements show that the concentrations are a long way over the permitted values during the hours when work is carried out at the facilities. One of the graphs on the facing page illustrates a PM10 measurement from a standard warehouse environment. Alarming, the concentrations shown here are three times higher than those in the most heavily affected street in a West European metropolis – despite the fact that a great deal of time and money is spent on cleaning. Our ambition is to change this and to work with our customers to create better working environments, where people feel better and where both they and their machines work to their full potential. Don’t wait around – let us help you improve your environment!



The EU limit for breathable particles in outdoor air has been set at max. 50 micrograms per cubic metre.



A usual “before and after” measurement performed by Zehnder on the air inside a warehouse.

EU LIMIT VALUES

In a directive from 1999, the EU has set limit values for breathable particles (PM). These values to be met in 2010 are:

- **Mean day value:** 50 micrograms per cubic metre; must not be exceeded more than seven times per year.
- **Mean annual value:** not to exceed 20 micrograms per cubic metre. This is an absolute requirement for outdoor air. Unfortunately, the levels in many working environments are much higher than this. As we Western Europeans spend the majority of our lives (>79%) indoors (at work, at home, etc.) this means that these environments almost certainly have a much bigger impact on our health. It is likely that the PM requirement will also apply to indoor environments in the future.



The clean room on the final assembly line features two entry airlocks: one for the panel and one for the glass front. A Zehnder Flimmer E3000 unit keeps the air clean.

Clean room quality at Loewe



Innovative air purification technology keeps production processes dust-free at the German consumer electronics manufacturer.

The consumer electronics company Loewe was founded in Berlin almost 90 years ago. It is famous for its high-class TV sets and other leading products. The company has recorded a number of noteworthy milestones. For example, Loewe completed the world's first completely electronic TV transmission in 1931, developed the first cassette tape in the world in 1950, and launched the first TV with Internet connection in 1998. Today, Loewe is positioned as the leading premium brand in the European consumer electronics sector. At the factory in Kronach, Germany, the 1,000 staff send up to 1,200 fully assembled TV sets rolling off the production line every day. Loewe is now proving its elevated level of innovation and its pioneering spirit once more by installing an ultra-modern air purification system in the extra-sensitive production facilities for the final assembly of TV sets.

"The reason why we needed to optimise air purification was not working environment issues or an excessive level of dust in the air for our employees. Instead, it was a question of our having to adapt the environment to suit the increasingly sensitive technology in the products themselves. Specifically, it had to do with pre-cleaning the air, keeping the air clean and controlling the airflow so as to create what is known as a 'clean zone'. The creation of this zone was the goal of a comprehensive air purification project that was launched in 2010. We are now expanding this product by setting up actual clean rooms," explains Hermann Zeuss, Director of Production Preparation and Technology at Loewe.

Production of the "Connect" designer TV range

What finally triggered the need for air purification in Loewe's production facilities was the development of the "Connect" designer TV range, which features a glass panel in front of the picture screen for the sake of the design. This panel must be united seamlessly with the picture screen using an adhesive which, in principle, cannot be removed once it has been applied. And if visible dust particles enter the space between the panel of



After 18 months of operating the solution, Hermann Zeuss, Director of Production Preparation and Technology at Loewe Opta, is delighted with the choice of the Zehnder air purification system.

Photo: Zehnder Group Deutschland GmbH, Lahr.



Measurements taken at Loewe's final assembly line 7 revealed that the content of particles in the air fell by an average of 54 per cent following the installation of Zehnder air purifiers with Flimmer® technology.

▷ glass and the picture panel during the adhesion process, the resulting defect will be very expensive to deal with. The problem became even more pronounced when Loewe switched from smoke grey decorative glass to mirror glass.

"All of a sudden, you could see a number of dust particles on the front of the TV. These had previously been concealed by the smoke grey glass. That was when we decided to move the manufacture of our new TV sets to a clean room department," explains Hermann Zeuss.

Clean room – extremely significant in the electronics industry

Clean room environments are becoming more and more important in the electronics industry, and regulations about clean rooms have long been administrated by the German Electrical and Electronic Manufacturers' Association (ZVEI). As a supplement to the existing definitions for the different clean room categories, the organisation has established norms for cleanliness in the clean room. Previously there were set criteria for how to measure particle cleanliness, but not for how to achieve this level of cleanliness. Loewe has been a member of the group at ZVEI that is working with cleanliness and will contribute its experience in the field of innovative air purification technology to help specify the requirements for clean rooms in the electronics industry even

further. Cleanliness in the production process is of great importance to Loewe, taking into account the continued miniaturisation of products at circuit board level, and the expansion of production in the Electronic Manufacturing Services (EMS) sector.

Having taken the decision to introduce the new air purification technology, Loewe soon found a suitable supplier in Zehnder and the Clean Air Solutions system. One of the reasons for choosing Zehnder was the company's offer to perform dust measurements free of charge. Most companies find it too expensive to carry out their own dust measurements, as not only does this involve investing in expensive measurement equipment, but it also entails paying the (often) high fees charged by international test institutes to perform dust measurements according to VDA 19.2. In August 2010, Zehnder carried out fine particle measurements for the final assembly of TV sets at Loewe. The measurements were taken at two assembly lines

(1 and 7) during a period of eight days each. The measurements on assembly line 1 revealed peak values of up to $750 \mu\text{g}/\text{m}^3$ and a mean value for the measurement period of $53 \mu\text{g}/\text{m}^3$.

A second round of measurements was completed in March 2011 following installation of the Zehnder air purifiers. The peak values had now fallen to $450 \mu\text{g}/\text{m}^3$ and the mean value for the period was just $26 \mu\text{g}/\text{m}^3$. This corresponds to huge reductions: the peak values had been reduced by approx. 40% and the mean value by 51%. Similar improvements were measured at assembly line 7: the peak values for particle incidence here were reduced by 33%, and the mean value for the measurement peri-

od was cut by 54%. The biggest source of microparticles in Loewe's manufacturing facilities is cardboard packaging.

Despite the fact that in recent years, there has been a partial "gate ban" on cardboard boxes in the manufacturing facilities – in the new clean rooms, for example – it is impossible to eliminate the problem entirely.

"For reasons of transport and storage costs, our suppliers in South-East Europe or Asia, for example, often ship electronic components to us packed in cardboard. Another cause of dust build-up is the low ceiling height in the halls where the final assembly is carried out. When windows are opened on hot summer days, the halls can quickly fill with pollen dust from the nearby rapeseed fields," explains Hermann Zeuss.

Six air purifiers

In all, Zehnder installed six Flimmer E3000 air purifiers in the final assembly area for the TV sets, where the above-mentioned glass panel is fitted to the picture screens. This production phase is carried out in a clean room, where the Zehnder air purifiers are used in combination with what are known as flow boxes. Loewe has been using these flow boxes since the end of the 1990s, but they are only intended for very limited work areas (1,600 mm high x 600 mm wide) that are 100% particle free. All six air purifiers are intended for ceiling installation on the hall roof trusses, and they each have an airflow capacity of 3,000 m³/h. Each unit is fitted with an EC fan (state-of-the-art technology with regard to low-energy air circulation) and features a very compact format: 670 x 670 x 1,490 mm (L x B x H). The flimmer filter is fitted as standard with a reminder function which indicates when it is time to replace the filter (controlled by measuring pressure drop) and with automatic motor protection.

At the heart of the Zehnder air purification system is a particle ►



The air in the clean room environment on the assembly line for large sets (TV sets up to 70") is filtered by a horizontally fitted Zehnder Flimmer E3000 unit.

"Specifically, it had to do with pre-cleaning the air, keeping the air clean and controlling the airflow so as to create what is known as a 'clean zone'"



The high demands from the dust-sensitive final assembly facility for Loewe's famous TV sets were the reason why the company decided to install the innovative air purification system.



filter that functions according to the innovative Flimmer® principle. In contrast to conventional filters, filtration in the Flimmer® takes place through the particles being captured not by a fibre mat but along very thin polypropylene fibres measuring 200 mm in length. These fibres are electrostatically charged by the air flowing over them, and it is this that allows them to bind even the smallest particles in the micro and nano-ranges. Moreover, the Clean Air Solutions air purification system runs almost completely automatically, without the need for any user adjustment. This was another important reason why Loewe chose Zehnder as its supplier. After the initial measurements, the company clearly defined the intensity – i.e. the airflow through the unit – required, and this value met Loewe's stringent requirements for energy efficiency. Hermann Zeuss explains that as the requirement was for the air purifiers to operate 24/7, the units have been set up to provide sufficient effect while consuming as little electricity as possible so as to protect the environment.

18 months of operation

After around 18 months of operation, the units have lived up to Loewe's high expectations concerning Zehnder's air filter technology.

"To date, we are extremely satisfied with Zehnder's technology," says Hermann Zeuss. "The simple installation has proved to be another great benefit, because we have had to move the air purifiers several times on account of changes in our production setup. The low weight of the filter boxes (approx. 90 kg) does not cause any problems with overloading the roof construction, and the filters can simply be fitted directly to the roof trusses. Thanks to efficient control of the airflows, the flow from the unit is concentrated on the appropriate production section, so the staff are not subjected to draughts. Last but not least, the air purifiers have long service intervals, and we can change the filters ourselves. The pre-filter only needs replacing once every seven months, and the flimmer filter once a year. And the whole process has been made very simple for us: Zehnder automatically sends us the appropriate filters when it is time to change them. This is an optimal procedure for ensuring efficient air purification at all times," concludes Hermann Zeuss enthusiastically.



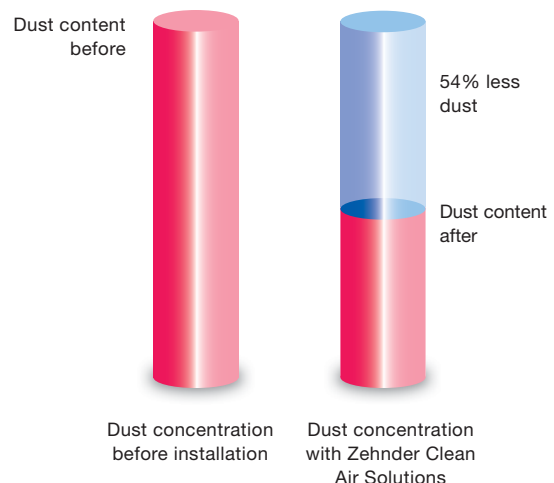
The internationally recognised Hi-Fi specialist Loewe manufactures its entire range of consumer electronics products at its factory in Germany.



The clean room concept is becoming increasingly important in the electronics industry. Loewe is involved in the work of the German Electrical and Electronic Manufacturers' Association (ZVEI) to prepare the best possible regulations. Loewe's final assembly lines are fitted with flow boxes and Zehnder air purifiers that feature innovative Flimmer® technology.

Facts

Company:	Loewe
Person interviewed:	Hermann Zeuss, Director of Production Preparation and Technology
Sector:	Consumer electronics
Location:	Kronach, Germany
Dust sources:	Dust from packaging and pollen
Dust reduction after installation:	54 %
Benefits:	Dust-free production process
Machines installed:	6 x E3000



“People want to breathe fresh air at work”

We heartily agree. Clean Air Magazine has talked to Jean Francois Lecoq, who has been Zehnder's Sales Manager in France since September last year.

What is your background?

After completing my degree in business economics in 1988, I lived in the United States for nine months, as I was keen to explore the American lifestyle. I then returned to France and settled down in Paris, where I tried working as a sales representative for the first time. In 1991, I was appointed sales manager for the German company Loading Systems International, which develops loading door and bay solutions for warehouses, for example. My task was to boost sales and help the company achieve its goal: to become the market leader in France. After eight successful years as sales manager, I started to work for the Swedish company Crawford – also as sales manager, but with a larger team and responsibility for the entire French market.

So how did you start working for Zehnder?

Having worked in the “loading door sector” for almost 15 years, I felt it was time to move onto something new. When I got in touch with Zehnder Clean Air Solutions in 2011, I spotted a chance to work with something that really interest me – the idea of opening up a new market and building up a sales team with the full weight of an international group backing me up was really exciting. I jumped aboard in September 2011 and I'm having a great time here.

How much interest in air purifiers is there in France?

There can be no doubt that the French market is very interested in our products. I always meet with very positive reactions when I visit potential customers and explain the benefits they can achieve. Our sales strategy – we measure the dust concentrations before and after installation and perform financial calculations – boosts our customers' confidence and illustrates that our Clean Air Solutions concept is an efficient system.

Who makes up your key target group?

I am convinced that interest in Clean Air Solutions will rise among companies that need to cut their operating costs. In the logistics industry, for example, it is very important to keep an eye on the costs for heating and cooling. Warehouse facilities are generally large, which naturally translates into high electricity bills. The costs for heating and cooling in the logistics industry amount to millions of euros every year.

What are the biggest benefits of Clean Air Solutions?

The air purifiers press the warm air down from ceiling level to floor level, which reduces the need for separate heating. This, in turn, cuts costs and improves the working environment for the people working in the warehouse. In other words, the Clean Air Solutions system solves two problems at the same time.

What plans does Zehnder have for the future?

The Zehnder management is sure that the demand for air purifiers is set to rise in the immediate future. Therefore, the company is investing heavily in expanding the sales organisation. Zehnder's international team under the management of Peter Krantz is excellent, and we all believe that air purification will become one of the most rapidly expanding sectors in Europe over the coming 15 years. In the Nordic countries, people have long been well aware of the importance of high quality air at the workplace. This awareness is spreading slowly but surely southwards through Europe to countries including France. Quite simply, people want to breathe fresh air at work.



Jean Francois Lecoq, Sales Manager for Zehnder in France.



Peter Hasbak, Head of Department at Berendsen in Hillerød, Denmark.

Zehnder is helping Berendsen in Hillerød to keep things clean from floor to ceiling.



The textile fibres at the ultra-modern laundry company settled high up under the ceiling in the production hall and demanded extensive cleaning. Thanks to Zehnder Clean Air Solutions, the company can now concentrate on cleaning its customers' laundry instead.

The Berendsen plant in Hillerød, Denmark, is one of the most modern laundry companies in Scandinavia. At this facility, 130 employees deal with four tons of dirty laundry every hour: sheets, pillow cases, terrycloth towels and other textiles from hotels on Zealand and from cruise ships, airlines, etc. Once the laundry has been sorted, it passes through an automated process where it is washed, ironed, folded and packed ready for delivery. However, the problem is that heating the textiles releases cotton and polyester fibres which then whirl around in the air in the production hall. "Previously we had to clean the ceiling regularly on account of all the fibres that are released from the hot textiles and whirl around in the air above the tumble-dryers and mangles. The fluff accumulates under the ceiling, covering the ceiling beams. This means that we had to clean the ceiling once a month, blowing the fibres off the beams and vacuuming them up," relates Peter Hasbak, Head of Department. "The sheer height of the ceiling, 7–8 metres, makes it difficult to keep the ceiling clean, but this is far from the only reason why we would rather not have to clean all the way up there. We have all kinds of rails for the laundry sacks under the ceiling, which makes it very difficult to reach all areas. In addition, we have to clear the hall of all containers so that we can bring in a scissor lift," he continues. "And to cap it off, we had to do the cleaning over a weekend because we work 18-hour shifts. Quite simply, we cannot manage to do all the cleaning as we have so much laundry to deal with."



"Previously we had to clean the ceiling regularly on account of all the fibres that are released from the hot textiles and whirl around in the air above the tumble-dryers and mangles"

Clean air – clean under the ceiling

The solution to the problem of fluff under the ceiling appeared in the mail in the form of a report from the Berendsen facility in Karlslunde, Denmark, where a solution from Zehnder had generated very good results. Peter Hasbak explains:

"It was a report on the measurements taken before and after the project, and the difference was enormous. The results were so convincing that we contacted Zehnder, who then carried out a range of different measurements of the particle concentrations in the production hall. Zehnder recommended a solution comprising of four E12000 purifiers – Zehnder's biggest model – above the biggest mangles, and two E3000 models over the two tumble-dryers.

"Zehnder's supplier showed us where to install the air purifiers. He walked around in the hall and was skilled at measuring where the draft came from so we could see where we needed to install the filter boxes. The hot steam from the mangles carries the fibres up into the air: straight into the filters, which is a real benefit for us. In other facilities – in the stock rooms, for example – the dust whirls around in the air and settles everywhere, but here it went straight up to the ceiling."

"The positive aspect of this is that the employees working on the floor were spared from the worst effects of the particles, which meant that it was not unpleasant or actually dangerous to work in the facility. Nevertheless, the people working here have certainly noticed a big difference since the Zehnder air purifiers were installed."



▷ The air in the production hall is not as foggy now," relates Peter, "so the staff are very satisfied. The figures from the subsequent measurements speak for themselves: after the installation of the Zehnder air purifiers, the particle concentration has been halved."

Zehnder follows up

To make it as simple as possible for the customer to keep the air and the ceilings clean, Zehnder visits the company to replace the air purifier pre-filters six times a year and the flimmer

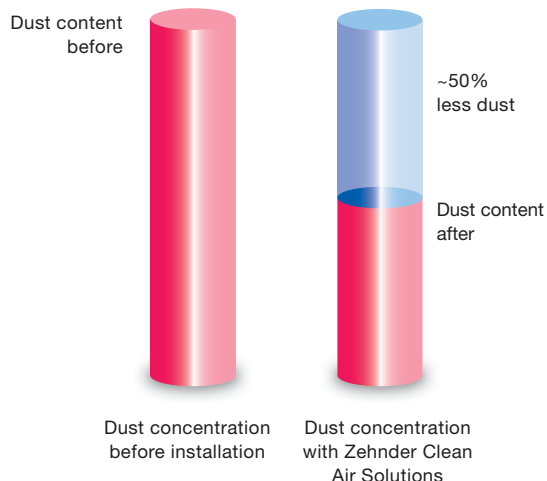
filter twice a year. This means that the Berendsen staff can concentrate on dealing with the huge volumes of laundry. Peter Hasbak also appreciates no longer having to work weekends as often to deal with the textile fibres.

"The solution works really well, and you can clearly see how much fluff the filter collects. It is now enough for us to clean the ceiling once or twice a year rather than at least once a month, as we had to previously. It's absolute luxury," he says delightedly. On the basis of the good experience from Hillerød, Berendsen has now installed a solution from Zehnder Clean Air Solutions at its facility in Malmö, Sweden.



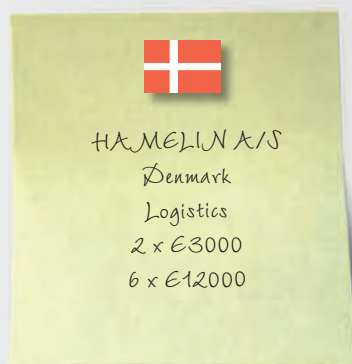
Facts

Company:	Berendsen Textil Service A/S
Person interviewed:	Peter Hasbak, Head of Department
Sector:	Laundry – textiles from hotels in the Copenhagen area, cruise ships, etc.
Location:	Hillerød, Denmark
Dust sources:	Cotton and polyester fibres from textiles
Dust reduction after installation:	Approx. 50%
Benefits:	Significant reduction in the need to clean the ceiling in the production hall, and visibly cleaner air
Machines installed:	4 x E12000 and 2 x E3000, with pre-filter and flimmer filter



New commissions in Europe

Here is a small selection of companies that have recently chosen air purification systems from Zehnder Clean Air Solutions.



Zehnder on display – Come and meet us!

Zehnder Clean Air Solutions participates in the leading trade fairs in Europe. The list below presents a selection of the events we will be attending. Come and visit us at our stand!



Switzerland

Clean Tec City 2013

19–21 March, Berne

A trade fair that focuses on solutions in the fields of renewable energy, energy efficiency, environmental technology and infrastructure.



Germany

BAU 2013

14–19 January, Munich

Hall B2, Stand 336

The leading trade fair in the world for architecture, materials and systems-



ISH

12–16 March, Frankfurt

Hall 8, Stand D53, D55

The leading professional trade fair in the world for bathrooms, construction, energy and air conditioning technology, and renewable sources of energy.

Zehnder Clean Air Solutions is growing

The demand for Zehnder Clean Air Solutions is rising all over Europe. This has resulted in a number of new appointments, including:

Germany

Emanuel Kronauer

Sales captain

Switzerland

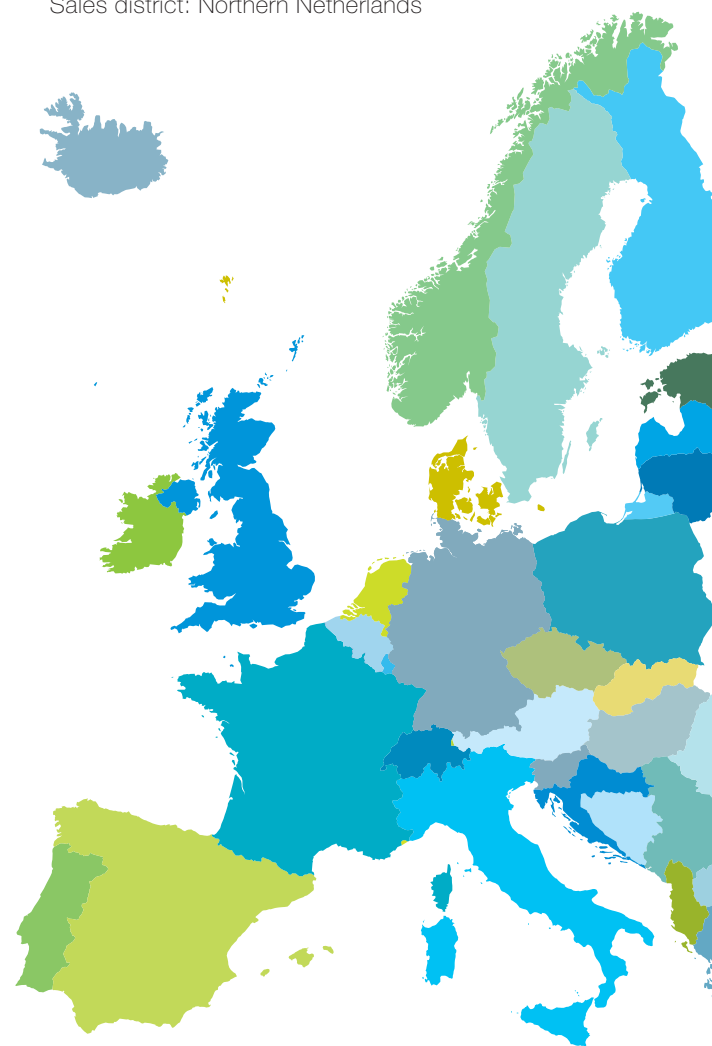
Kurt Schluep

Sales district: The west of the country

The Netherlands

Freek de Vroet

Sales district: Northern Netherlands



Zehnder – everything
you need for comfortable,
healthy and energy-
efficient indoor living

Heating, cooling, fresh and clean air:
at Zehnder, you will find everything you
need for comfortable, healthy and ener-
gy- efficient indoor living. Zehnder's
wide and clearly structured portfolio can
offer the right product for any project,
be it private, public or commercial, new
build or renovation. And where service
is also concerned, you'll find that
Zehnder is "always around you"

Heating

At Zehnder, **heating** doesn't just
come in the form of designer radi-
ators. We offer solutions in all shapes
and sizes, from radiant ceiling pan-
els to heat pumps with integrated
ventilation devices.

- Design radiators
- Compact energy station with
integrated heat pump
- Heating and cooling ceiling
systems
- Comfortable indoor ventilation
with heat recovery



Zehnder design radiators

Cooling

Zehnder also offers sophisticated
solutions for indoor **cooling**. These
range from cooling ceiling systems
to comfortable indoor ventilation
with a supply of pre-cooled fresh
air.

- Heating and cooling ceiling
systems
- Compact energy station with
heat pump and brine pipe
- Comfortable indoor ventilation
with geothermal heat exchanger
for fresh air pre-cooling



Zehnder heating and cooling ceiling systems

Fresh Air

Fresh air – a product range with a
long tradition at Zehnder. Zehnder
Comfosystems provides products
and solutions for comfortable
indoor ventilation with heat recovery
for houses and apartments, for new
builds and for renovation projects.

- Comfortable indoor ventilation
- Compact energy station with
integrated ventilation device



Zehnder Comfosystems

Clean Air

Zehnder Clean Air Solutions pro-
vide **clean air** in buildings which
are particularly prone to dust. In
residential applications, the com-
fortable indoor ventilation provided
by Zehnder Comfo-systems filters
external pollutants out of the air.

- Comfortable indoor ventilation
with integrated fresh-air filter
- Compact energy station with
integrated fresh-air filter



Zehnder Clean Air Solutions

zehnder

always
around you

