

cleanair magazine

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Information from Zehnder Group Nordic AB · No. 1/2014

WELDING FUMES HAVE DISAPPEARED AT HERAS

Black dust threatened Ringnes

A dust-free environment at ATELCO

Better working conditions at Tuko Logistics

See
the film of
how Zehnder
solved the
problems at
Ringnes



Dear reader

Welcome to the first 2014 issue of Clean Air Magazine.

A great deal has happened in every respect since the last issue of the magazine was published.

We are still being commissioned by numerous customers in various business areas.

In this issue, some of our customers from the staple goods sector, the welding industry and IT logistics share their experiences with Zehnder Clean Air Solutions. It is wonderful to see that our ambition of providing the best possible service produces satisfied customers. Simply put, you get the reputation you deserve.

Much is being written at present about deteriorating air quality in the external environment – often with the spotlight on China. The American EPA (Environmental Protection Agency) has defined an air quality index used to classify the concentration of particles and their effect on people. We have compared this classification directly to an industrial working environment, which produces a rather scary perspective. To find out more about this, turn to pages 12–13.

While we are maintaining our focus on Europe, our Dutch customer Ahold – which was published in the previous issue – has been commissioned to carry out an initial installation in Pennsylvania in the United States. We hope to be able to report in more depth on this and on our ongoing expansion on the other side of the Atlantic Ocean in our next issue.

In the previous issue of the magazine, we presented the new version of our E3000 model. It is now the turn of the E12000 to undergo a makeover – to be followed over the coming year by the E6000 and E2000 models. By the end of the year, we will therefore have an ultra-modern family of products perfectly suited to cover the various needs of all our customers.

In order to meet the rising demands, we are delighted to welcome new staff in France, Germany, Great Britain and the Netherlands.

Enjoy!

Peter Krantz
CEO, Zehnder Clean Air Solutions



Kjetil Fredriksen, Foreman at Ringnes warehouse in Lilleström, Norway.

Black dust threatened the brand



When Foreman Kjetil Fredriksen and six of his colleagues at the drinks company Ringnes moved into the temporary warehouse in Lilleström in October 2012, they hardly expected problems caused by the air inside the facility. But they quickly learned the difference.

When Ringnes took the decision to remodel its bottling plants at various locations in Norway, the company needed a buffer warehouse to stock its mineral water products. Therefore Ringnes hired a warehouse in Lilleström, about 20 km from Oslo. The facility is located in an industrial area, served by heavy goods vehicles 24 hours a day.

"The quality of the roads around here is very poor, the asphalt is so worn that it crumbles under the weight of the heavy vehicles. The fine grain asphalt dust particles within the outdoor air enter the ware-

house while the bay doors are open for loading and unloading," explains Kjetil Fredriksen.

"When our forklifts drive around inside the facility, they stir up the dust distribute it everywhere! If you swipe with fingers over the bottles, they'll be covered with black dust," he recalls.

"And with 11,000 square metres containing 15,000 pallets of soft drinks and Farris bottles, we had to change this situation tremendously.





Risk of financial losses

The problem could have led to dire financial consequences for Ringnes, so the situation was serious for the Farris brand. Farris mineral water is well-known for its purity as well as its fresh taste – which is used as the consistent theme in all advertisements for the brand.

“Having to deliver dirty bottles would have been very inappropriate and extremely negative for the brand. The bottles from the buffer warehouse are delivered to all kind of customers – shops, restaurants, etc. – and it would have been unthinkable to deliver bottles covered in black asphalt dust.”

In other words, the dust problem risked to damage the

brand itself and the company's relations with its customers.

“We were facing a situation where we could have ended up throwing goods away. This would have caused financial losses. It would also have led to problems for our customers, who wouldn't be able to receive the products they'd ordered.”

It did not take long that the marketing department required a solution.

Clean bottles

The Ringnes factory in Gjelleråsen, which is the brewery's main site in Norway, had previously installed air cleaning systems



A total of 12 air cleaning systems were installed in the warehouse. Each system filters 6,000 m³ of air per hour.

from Zehnder and was very satisfied with them. Zehnder was therefore a simple and natural choice for the buffer warehouse in Lilleström. A total of 12 cleaning systems were installed in the warehouse. Each unit sucks up and filters 6,000 m³ of air per hour.

This means that together, they clean 72,000 m³ of air every hour. The result? Clean bottles. The dust is now captured before it enters the warehouse and settles on the bottles. Twelve E6000 air cleaning systems were installed to deal with the dust.

"They work like giant vacuum cleaners with an excellent filter," explains Kjetil Fredriksen.

Also the staff noticed a big difference of the air quality since Zehnder Clean Air Solutions is installed.

"We're really satisfied – everybody's happy!" says Kjetil Fredriksen with a smile.

Good working relationship

Kjetil Fredriksen relates that the process to choose a solution and decide on the size and number of air cleaning systems ran quickly and smoothly once the need had been clarified.

"I'm the one who had the most contact with Zehnder, and I must say that the working relationship was fantastic. It was easy to pin down solutions together and to agree on any necessary changes. Taking into account that only a few of us work here, it's great to have equipment that really does its job – and deals with the dust before it enters the warehouse," he states.

"There was asphalt dust everywhere"



Farris mineral water is well-known for its purity and fresh taste.



It only took two days to install the air cleaning systems, which he thinks is really impressive. The low noise level was another positive surprise.

"I'm impressed at how quiet the air cleaning systems are in relation to the high volume of filtered air," he says.

"The plan is to replace the filters once a quarter, and we've already done this once. The filters were full of dust, and we're really pleased that we didn't have to deal with this in the warehouse itself," says Kjetil.

"Furthermore, the units require an impressively low amount of electricity. When it was assured that we'll install Zehnder Clean Air Solutions, – it was a relief to find out that the energy consumption of the solution is so small!"



Scan the QR-code to how the Ringnes AS profited from Zehnder Clean Air Solutions.

QR-Code Scanner can either be downloaded via the Apple App Store or the Android Market.

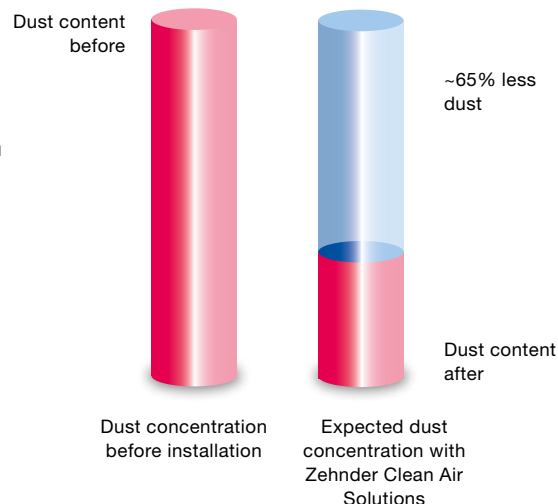


Ringnes

Ringnes AS is the largest brewery in Norway with approximately 1,400 employees. The company belongs to the Carlsberg Group, which is the fourth-largest brewery group in the world. Ringnes supplies beer, soft drinks and mineral water to the entire Norwegian market.

Facts

Company:	Ringnes
Person interviewed:	Kjetil Fredriksen, Foreman at the Ringnes buffer warehouse in Lilleström
Sector:	Brewery
Location:	Lilleström, Norway
Dust source:	Asphalt dust from outside enters the warehouse, which is stirred up by inside activities, e.g. by forklifts
Dust reduction after installation:	65 %
Benefits:	Clean products and improved working environment
Technical solution:	12 x E 6000





Zehnder launches new air cleaning system

New design, improved performance, lower energy consumption and lower noise level. These are just some of the improvements of Zehnder's new generation in air cleaning systems which will be launched during this year.

Last year, we introduced the new E3000, which was the first model from the new generation of Zehnder air cleaning systems.

The new model was very well received in the market.

"We want to present a uniform product family with the same design and the same technical specifications. Therefore we decided to adapt the concept to the other models and launch the updated versions during 2014," says Carry Turesson, Production Manager at Zehnder Group Motala AB.

The new air cleaning systems have been developed from scratch and designed by leading industrial designers.

"We received a lot of positive feedback regarding the new design as well as the setting variety of the new Zehnder Flimmer E3000. We furthermore want to transfer those demands to product colour and shape of the units."

The air cleaning systems contain the very latest technology regarding to fan and control options. The new fan, motor and control box means big improvements and an impressive performance.

"On account of the technical improvements, the new units provide much better performance and generate significantly less noise. Another big advantage of the new machines is that they are much easier to maintain."

"Our job is to make our potential clients understand the high value implementing Zehnder Clean Air Solutions"

In the last issue we interviewed the Sales Captain of Zehnder Clean Air Solutions in France. Now it is Germany's turn. Emanuel Kronauer (35 years of age) has extensive international experience, despite his young age. He has studied in the Netherlands, France and Spain (International Business & Management), and in addition to having held an international leading sales job in Germany he has worked for four years in Shanghai as a sales manager for a German engineering company. In January 2013 he joined Zehnder Clean Air Solutions as the German Sales Captain.



Emanuel Kronauer, Sales Captain for Zehnder Clean Air Solutions in Germany.

Hi Emanuel, could you please tell us a little about your role at Zehnder.

– In my role as the Sales Captain for CAS I am supported by my team with 3 sales people and 2 trade agents. With a clear focus and superb support from Zehnder Group, we are step by step building up the market for the company's latest division, Zehnder Clean Air Solutions.

At Zehnder you sell "clean air", could you please describe the sales process?

– We focus on solution selling. By analysing the potential customer's requirements, we provide clear value and benefits by reducing the dust load in their industrial environment. From a technical point of view, we provide air circulation systems with different capacities and different filter levels. Our solutions are all customised, and in cooperation with our clients we work out the best solution for them to ensure the success of the installation and at the same time satisfaction for the customer. We usually speak to the end-users directly, which are mainly Technical or Facility Managers, Site Managers up to General Management.

How is the interest and demand for air cleaning systems in Germany?

– There are two sides to this question. On the one hand, we have the advantage of being the first to present these types of Air Cleaning Systems to potential customers. This is positive, as the customers then realize that they have an urgent need to improve their environmental conditions. On the other hand, we still need to sensitize the market to understand the value and benefits of a clean working environment. We work hard to position ourselves as the leading supplier of Clean Air Solutions in Germany.

Could you please describe your target group? Is there a typical buyer of Zehnder Clean Air Solutions in Germany?

– Our range of potential customers is very wide. All companies that have dust issues are potential clients. In recent years the logistics industry has somehow distanced themselves from other industries as the most successful target industry for Zehnder Clean Air Solutions. Despite this logistics focus in Germany we realise more and more projects in industrial environment, such as Recycling, Automotive and Manufacturing. Let's put it this way: the typical buyer of Zehnder's products has realized the need for improvements within their facilities and ultimately sees clear value and benefits from installing our systems.

What are the main benefits for your clients that make them decide to invest in Zehnder's air cleaning systems?

– There are huge benefits for the customer, including reduction of cleaning costs, longer lifetime for machines and computers, better image from their customer's perspective – and healthy and motivated staff. Many customers realise the financial value of having cleaner facilities. The actual cost savings can be higher than the monthly service fee for Zehnder Clean Air Solutions. Furthermore Zehnder is already well-known as a brand in other fields and clients value the good quality and service.

What are your plans for the near future?

– The German sales team is constantly growing and our customers can benefit from the best on-site service at any time. We keep up the hard work, as our job is to make our potential clients understand the high value implementing Zehnder Clean Air Solutions. We have a professional sales and technical team with years of experience and our customers benefit from that. We are looking forward to upcoming challenges and move on to a successful future of Zehnder Clean Air Solutions in Germany.



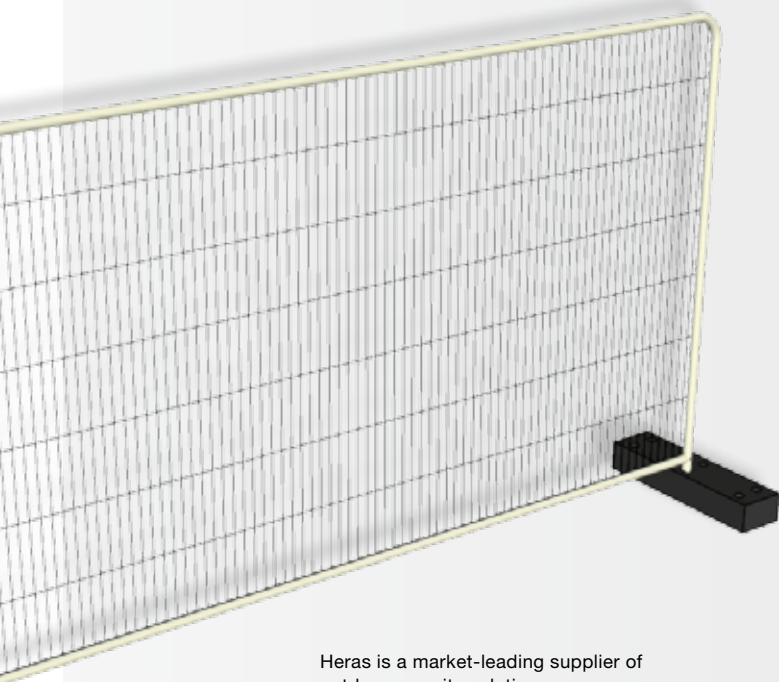
Zehnder Clean Air Solutions are easy to install and user-friendly. They efficiently remove dust and welding fumes from the air.

“The welding smoke has disappeared. It’s really a much cleaner working environment.”



Heras is the undisputed market leader in outside security. Day in, day out, this company welds a lot of fences. The resultant welding smoke had always been a serious problem. It was time for a more efficient and effective solution.





Heras is a market-leading supplier of outdoor security solutions.



"I've worked at Heras for a year and a half, but this has been a problem for years", explains Harm Evers. As Health & Safety Officer, he wanted to address the negative consequences of welding smoke. "Published studies show what products are available for reducing welding smoke. You come across so many things," explains Evers. "We tried mobile units with a sort of 'extraction hose' next to the workers, but these had an adverse effect on productivity. And the use of a welding helmet with overpressure, to protect the welder with a mask of air, did not solve the problem of welding smoke in the halls."

The figures speak for themselves

The search ended when Harm met Dick Stoorvogel of Zehnder Clean Air Solutions. "I immediately had a good feeling about it," Harm recalls with enthusiasm. "We had a zero measurement carried out by both Arbo Unie and Zehnder. The threshold value of welding smoke during a spatial measurement, carried out by the Arbo, must legally be within 1.0 mg/m³. Before the installation of Zehnder Clean Air Solutions, we measured 4.0 to 5.0 mg/m³. After installing the units, the levels dropped to 0.78 and 0.80 mg/m³. The measurements were very important in the decision by Heras to permanently install the Clean Air Solutions units. The new measurements taken four months later recorded a reduction of around 85%.

The units have now been in place for around five months. Heras has experienced such a good improvement in the air quality and working conditions that the units now hang in two

welding halls. And as a further sign of their success, they have now also been installed in the coating line.

A lot of dust is produced in the coating line when sanding and removing the dust (blow cleaning) from the fences, which is then powder coated. There are now a total of 14 air cleaning units at Heras.

"It is a very clever, effective system: no reconstruction of the walls is required and production can continue unimpeded. If you had built in an extensive, integrated air filter system instead, you would have to interrupt the production. Furthermore, it is questionable whether such a system would have the same effect. Zehnder Clean Air Solutions, on the other hand, are easily installed only using a fork-lift truck and a crane. It is then just a question of plugging them into the sockets. It's as simple as that: plug and play. This gives it real added value. The system has proven being extremely effective in greatly reducing welding fumes and dust. It is also user-friendly and we almost forget it's there."

Cleaner and healthier air

The employees benefit considerably from the system of Zehnder Clean Air Solutions. "They find the working conditions more pleasant. We think that is very important. The welders no longer stand in a draught. The Clean Air Solutions units do not blow down at full blast. The airstreams circulate above the workplace to benefit the employees even more. And, what's more important, is that the cloud of blue smoke has now disappeared. It's a much cleaner and healthier working environment."

The fact that the Heras factory was constructed back in



Harms Evers, Health & Safety Officer at Heras in Oirschot.



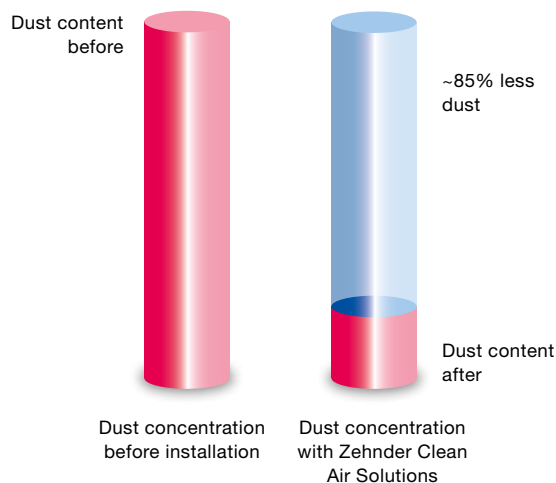
The level of welding fumes in the air in Heras' welding halls has been cut by 85%.

1965 means there are certain restrictions on the use of new technology. There are plans for a new building. In the meantime, however, Harm Evers found a system that is easy to install, easy to remove, and a financially attractive investment. "Zehnder Clean Air Solutions are very affordable. If you have to

adapt the building to integrate a complex system, the costs can be high. These units simply save an enormous amount of money. Added to all the other advantages, we at Heras can recommend Zehnder Clean Air Solutions to any company that has to deal with welding smoke."

Facts

Company:	Heras
Person interviewed:	Harms Evers, Health & Safety Officer
Sector:	Market leader in the field of outside security solutions. From fences to complete security of grounds.
Location:	Oirschot, Noord-Brabant
Dust source:	Welding smoke, particulate that is released when welding fences
Dust reduction after installation:	85%
Benefits:	Cost-cutting, cleaner and healthier air and user-friendliness
Technical solution:	14 x E3000, in two welding halls and along the coating line





Reduction in welding fumes and smells with Zehnder Clean Air Solutions

Measurements of the air in a Swedish industrial facility that works primarily with welding stainless steel revealed that the air quality was worse than the outdoor air in Beijing. The solution was to install purifiers from Zehnder Clean Air Solutions.

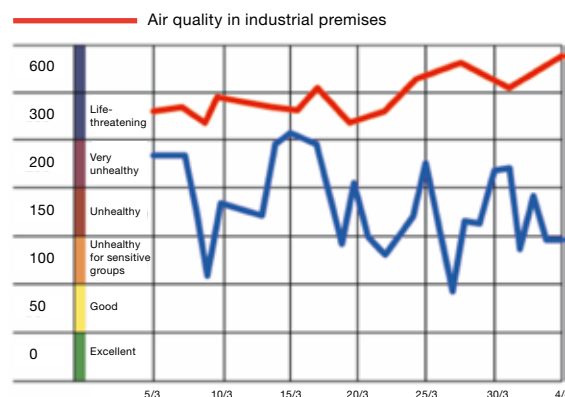
The fact that many of the biggest cities of the world suffer from poor air quality is no news. Many articles have been published about the issue, intensive researches have informed about the risks, and organisations such as the EU, WHO and EPA have introduced new limit values.

One of the regions most affected by the problem is Asia – principally China, where the reverse side of the boom in economic development is a steadily worsening environment. The American EPA takes daily particle measurements at the American embassy in Beijing, and then compares the results with the air quality index.



In this graph, concentrations below $50 \mu\text{g}/\text{m}^3$ are classed as “excellent”. As the graph reveals, concentrations during this 30-day period (5 March–4 April) never even come close to the “excellent” zone. The media regularly run stories about how the residents of Beijing check these values daily and then adopt measures such as keeping their children indoors when the values are above a certain level.

So it is interesting to apply the levels and recommendations regarding our external environment to the situation at our workplaces. In the graph to the right, we have entered the values for a standard manufacturing workplace where one of the main tasks is welding stainless steel. The measurements were taken to question background levels in the working environment.



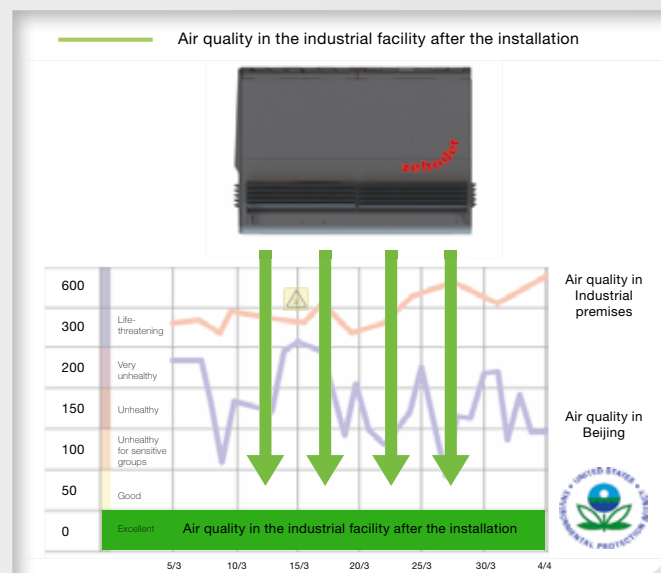
The graph clearly demonstrates that during the same 30-day period, air quality at the workplace was considerably worse than the air quality in Beijing.

The company with these results decided to do something about this issue. The problem for the operators who were directly exposed to the welding fumes had already been solved by introducing equipment such as extractor fans, breathing equipment and fresh-air masks. What the company now wanted was a background environment good enough to ensure that people could spend eight hours a day in it without having to wear breathing equipment or something similar.

“The operators noted a considerable improvement in the working environment”

The suggestions the company looked at included installing a new ventilation system with heat recovery. However, they could not be sure that this would solve the problem completely. This uncertainty, combined with the high investment and operating costs, left the decision-makers in doubt. At that point, Zehnder Clean Air Solutions got in touch with the company.

“Together, we decided to carry out a pilot project to make sure that we could solve the problem. An external expert was called in to perform all particle measurements,” relates Peter Krantz, CEO of Zehnder Group Nordic AB. “The measurements revealed an extremely successful result. Using Zehnder Clean Air Solutions, we had succeeded in reducing the background level to a level below $50 \mu\text{g}/\text{m}^3$ that the EPA defines as ‘excellent’. In addition, the operators noted an considerable improvement in the working environment – see the graph below. The facility was no longer filled with visible welding fumes, and the smell was not as aggressive as previously.” The fact that the cost of achieving this result was only a fraction of what the other potential solutions would have cost is hardly a drawback, either.





The outgoing delivery department at ATELCO is a difficult area in regards to dust. In this location all the products are repackaged before they're shipped to the company's shops and customers. Fitting Zehnder air cleaning systems to the ceiling above the workstations cut the dust concentration in the air by 80%.

A dust-free environment ...



Modern air purification technology has helped reduce the dust problem at ATELCO Computer significantly

ATELCO Computer AG is a German supplier of computers, software and domestic appliances. The company's head office is located in Möhnesee (Nordrhein-Westfalen). ATELCO sells its products through 22 stores all over Germany and via four self-owned Webshops. ATELCO employs 500 people, of whom more than 100 work at the company's central warehouse facility in Möhnesee, which supplies goods to all the outlets in the entire chain. In recent years, ATELCO has been battling bigger and bigger problems with dust at its central warehouse. These problems are primarily related to opening and closing cardboard boxes when receiving and shipping goods. ATELCO finally found a solution in the form of air cleaning systems from Zehnder Clean Air Solutions, which cut the dust concentration in the air by more than 80 per cent.



“Constantly opening boxes and cutting up cardboard generates huge volumes of dust”

ATELCO Computer AG, a leading German supplier of computers, software and domestic appliances chose an air cleaning system from Zehnder for its central warehouse facility.

The dimensions of ATELCO's central are impressive: in the 5,000 m² warehouse, there is storage space for both large and small goods and components. Around half of the floor space is devoted to shelving, while the rest is used as an area for incoming and outgoing deliveries as well as a packaging line.

“In this working area of the warehouse, is so much of the dust in generated,” explains Marco Becker, Logistics Supervisor at ATELCO. “In particular, it is the handling of cardboard boxes in the goods reception area that generates dust. In contrast to an industrial warehouse, we order the goods as they're required for specific projects.”

“We receive many individual items from different suppliers on the same pallet, and every incoming delivery looks different. Therefore, we have to cut and open all the cardboard boxes so we can check the content against the relevant order. Constantly opening boxes and cutting up cardboard generates huge volumes of cardboard dust.” The situation is similar in the outgoing delivery department, where the orders for the different stores are repackaged.



Now that the Zehnder air cleaning systems have been in operation for 18 months, Marco Becker, Logistics Supervisor at ATELCO, is in no doubt that the investment has been extremely successful.

Dust on the warehouse shelves

The fine dust spread all over the ATELCO warehouse and settled on all the items on the shelves. When the central warehouse was built in 2007, it was decided to use shelving made of fibreboard rather than lattice shelving – which exacerbated the dust problem. Lattice shelving would have allowed much of the dust to fall to the floor, so it would have been possible to mop up most of it.

“Our retail sector system made the dust problem even more serious. The goods are unpacked and stored on the shelves in their sales packaging,” relates Marco Becker.

ATELCO considered simply increasing the cleaning budget to

deal with the dust. One of the suggestions was to wash down all the shelves in the warehouse every day. However, the company management immediately saw that this was completely unrealistic, and that it would be far too expensive to clean almost 4 km of shelving in that way. For this reason, the company started to look for a solution based on technology. Having examined the systems available on the market, ATELCO decided to work with Zehnder and its Clean Air Solutions air cleaning system. As an initial step, Zehnder specialists carried out comprehensive measurements at particularly exposed areas in the central warehouse in August 2011. They placed measurement equipment in relevant locations in the goods reception and outgoing delivery ►



The goods reception department at ATELCO is particularly exposed to dust because to open the boxes they are cut with knives. A strategically positioned air cleaning system from Zehnder efficiently captures the cardboard dust before it can disburse through the warehouse and settle on goods and on shelves. ➤



Following the installation of Zehnder Clean Air Solutions, the working environment at ATECO has improved significantly. The maximum dust concentration on the warehouse shelves has been reduced by 60%, and on average, the level of dust in the facilities has fallen by fully 90% to just 20 μm^3 .

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areas and recorded the dust concentration in the air over an eight-day period. They then installed air cleaning systems from Zehnder in appropriate places.

90% reduction of dust concentration

New measurements were taken in spring 2012, and the results were extremely positive: the dust content had been reduced significantly. Before the air cleaning systems were installed in the goods reception department, the max. value was 750 μm^3 and the average value for the eight days was 124 μm^3 .

Following installation of the Zehnder filters, the max. value had fallen to 250 μm^3 and the average value to just 25 μm^3 . This corresponds to a reduction in the max. value of 67%, and an 80% cut in the average value. This means that the dust concentration in the air at ATECO is actually lower than the value stated in the international guidelines for outdoor air (average value of 50 μm^3 over a 24-hour period).

The comparison measurements revealed that the amount of dust had been reduced significantly everywhere – even on the tall shelf sections. Here, the max. value had been cut by

approx. 60 per cent, and the average value – i.e. the normal volume of dust during working hours and meal breaks – had fallen by fully 90 per cent to 20 μm^3 .

This huge reduction in the dust content was achieved using the extremely efficient and innovative flimmer filters that form the heart of Zehnder's filter technology. In contrast to ordinary filters, the dust is not removed by capturing it in a trap filter; instead, the dust is lead along extremely thin, 200 mm-long polypropylene fibres. These are statically charged by the air flowing over them, and thus attract both fine and coarse dust particles.

Six air cleaning systems operating 24/7

In spring 2012, against the background of the very positive measurement results, ATECO decided to have a total of six Zehnder air cleaning systems installed: three big units (Zehnder Flimmer E12000 models with a processing capacity of 12,000 m^3/h) are now installed in the goods reception department and in the packaging area of the goods delivery unit, and three smaller units (Zehnder Flimmer E3000 models with a processing capacity of 3,000 m^3/h) have been installed near the tall shelving units.

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"We killed two birds with one stone:
The goods we deliver to the end
users are now clean, and the working
environment is much better"

The air cleaning systems operate 24/7 and feature an automatic control system. This means that ATELCO does not need to adjust any settings itself. Zehnder has preset the performance levels for the filtering system on the basis of the measurements taken in the different zones.

"Because of this, we can be sure that the units perform at their optimum at all times – and the setup helps ensure that we don't waste energy," says Marco Becker, Logistics Supervisor. ATELCO has no need to worry about maintaining the equipment either: "The flimmer filters are replaced once a year, and the pre-filters every six months. Zehnder takes care of all this, so in principle we don't have to worry about the maintenance at all," adds Marco Becker.

Improved working environment

The installation of the air cleaning system on the ceiling was carried out quickly and professionally. Each filter unit was fitted in just two hours, using a forklift truck and a suspension system involving chains. The large units were fitted to the ceiling in the warehouse hall, and the smaller units were placed on the shelving beams.

After 18 months, Marco Becker has no hesitation in concluding that the air cleaning systems from Zehnder have proven to be a very successful investment: "Our employees immediately noted the improvement in the air quality.

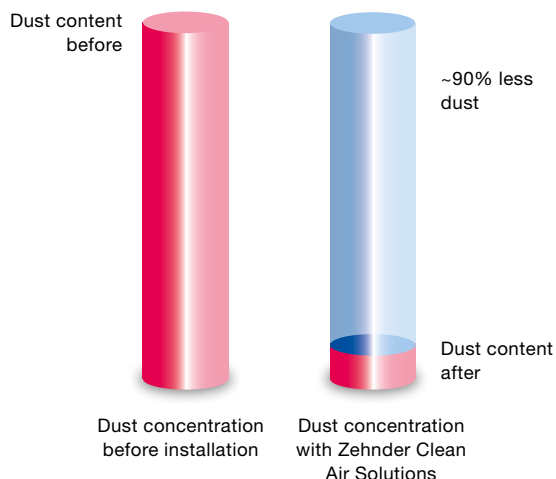
We killed two birds with one stone: The goods we deliver to the end users are now clean, and the working environment is much better."



Several of the air cleaning systems were installed directly on the tall shelving units to capture the fine dust from the cardboard processing as efficiently as possible.

Facts

Company:	ATELCO Computer
Person interviewed:	Marco Becker, Logistics Supervisor
Sector:	Central warehouse for computers, software and domestic appliances
Location:	Möhnesee (Nordrhein-Westfalen), Germany
Dust source:	Dust from handling cardboard boxes
Dust reduction after installation:	90%
Benefits:	Clean products in the warehouse and improved air quality for the staff
Technical solution:	Goods reception and goods delivery: 3 x E12000 Warehouse shelves: 3 x E3000



Improved working environment in giant warehouse



Since the food wholesaler Tuko Logistics installed air cleaning systems in its central warehouse facility in Kervo, 30 km north-east of Helsinki, the working environment has improved considerably.

Tuko Logistics is one of the biggest staple goods wholesalers in Finland.

From its central warehouse in Kervo, the company delivers foods and other staple goods directly to around 1,000 retail outlets and 5,000 catering and big-kitchen customers including restaurants, schools, nursing homes and hospitals.

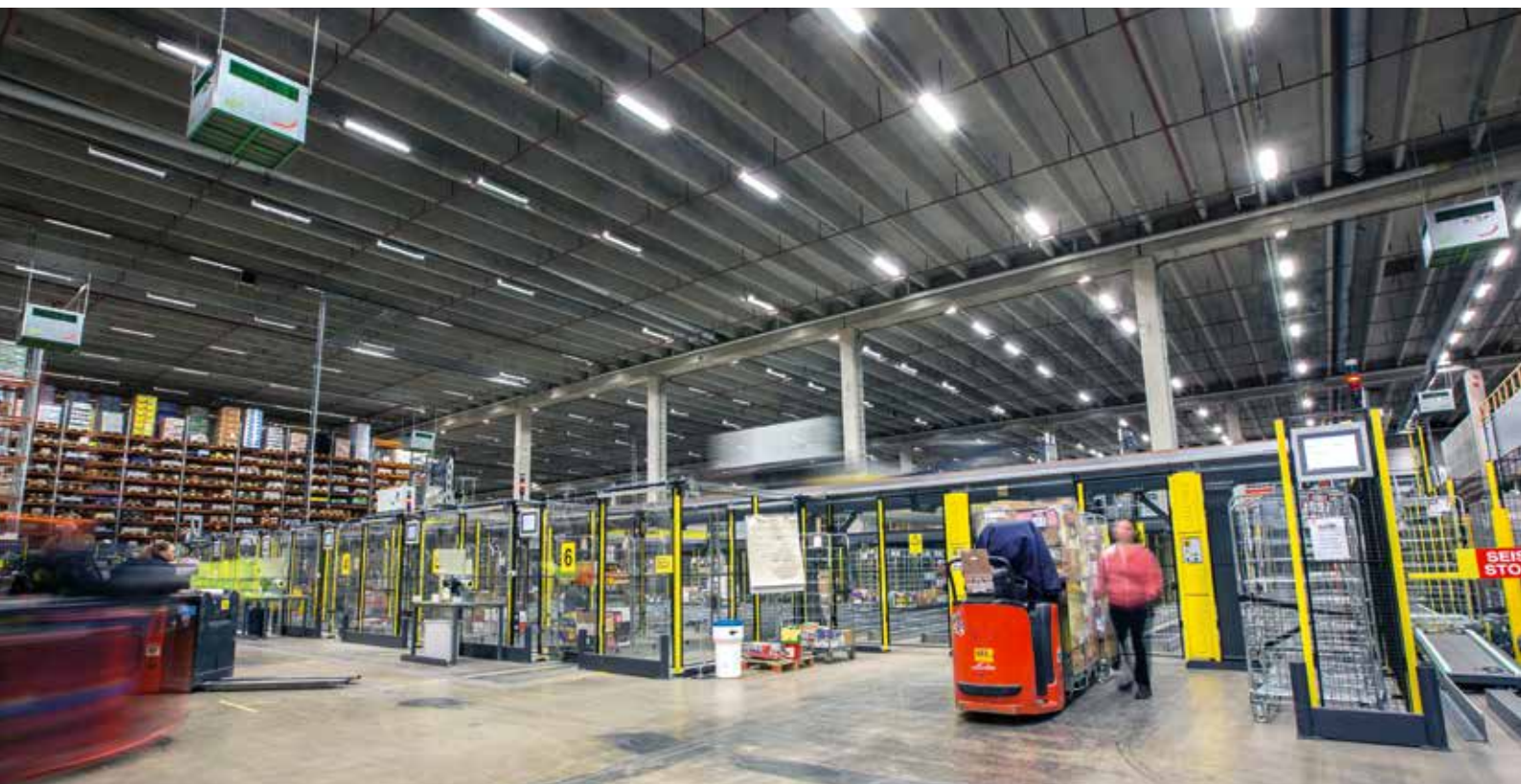
However, the quality of the air in the 70,000 m² warehouse was far from optimal. Floor dust from the forklifts, road dust from outside, and dust from pallets and cardboard boxes spread through the air and settled on the goods.

"You could still feel the dust, even though the areas were cleaned regularly," relates Pasi Joronen, Production Manager at Tuko Logistics.

The dust produced some unfortunate effects: customers complained that the goods were dusty – particularly products with slow turnaround times – and a report from the corporate health organisation highlighted the health risks to employees from warehouse dust. The staff were not at all satisfied with the working conditions either.



Pasi Joronen, Production Manager at Tuko Logistics, is delighted with the working relationship with Zehnder



The forklift trucks are one of the main sources of dust in a busy warehouse.

“Absence due to illness attributable to upper airway infections fell by 50 days in autumn 2012”



From its central warehouse in Kervo, Tuko Logistics delivers foods and other staples directly to around 1,000 retail outlets and 5,000 catering and big kitchen customers.

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High concentration of particles

Janne Sokajärvi, the new logistics manager at Tuko Logistics, had a suggestion for how to deal with the problem. At his previous workplace, very good results had been achieved by installing air cleaning systems from Zehnder. Tuko Logistics therefore contacted Zehnder, which responded rapidly and took measurements on site. The first readings showed that the particle concentration in the warehouse was 66–77 $\mu\text{g}/\text{m}^3$.

“The measurements confirmed what the employees and corporate health organisation reports had already revealed. Zehnder didn't have to work hard to convince us of the need for an air cleaning system,” emphasises Pasi Joronen.

Tailor-made solution

In April 2012, a total of fifteen Zehnder flimmer E3000 units, eight Zehnder flimmer E6000 units and fourteen Zehnder flimmer E12000 units were installed in warehouse halls 1 and 2. The control measurements showed that the particle concentration had been cut to 33 $\mu\text{g}/\text{m}^3$, corresponding to a reduction of more than 50%. When a cohesive automation system was installed in hall 3 in February 2013, Zehnder added additional 15 Zehnder flimmer E12000 units.

Tuko Logistics is delighted with the working relationship. The installation and service work has run without a hitch in the hectic environment at the central warehouse.

“We work at a high pace at our company, and Zehnder has shown a lot of flexibility with the installation work, service and filter replacement. “They always notify us in good time, and on those occasions when the timing of the visit is inconvenient, Zehnder is quick to suggest a new timetable,” relates Pasi Joronen.



Zehnder's air cleaning systems take care of the dust before it settles on the goods.



A total of 52 air cleaning systems from Zehnder keep the air clean in the Tuko Logistics' three warehouse halls, of Tuko Logistics which comprise a total of 70,000 m².

"It's easy to work with the Zehnder team, and there were no problems taking care of assignments with Jaakko Nevalainen. We are really satisfied. I'd give Zehnder ten out of ten," says a clearly delighted Pasi Joronen.

Zehnder also has a positive impression of the working relationship:

"Tuko Logistics is a knowledgeable and significant operator, and the working relationship with them has run very smoothly," says Jaakko Nevalainen, Sales Representative at Zehnder.

Good response and benefits to health

The fall in dust levels at the Tuko Logistics central warehouse has been noted by both customers and representatives of several transport companies – but the people who are most satisfied are almost certainly the warehouse staff.

"Finns are not known for spontaneously giving positive feedback, but in this case a number of employees have come forward on their own initiative to say how pleased they are with the improved indoor climate. That means a great deal," says Pasi Joronen happily.

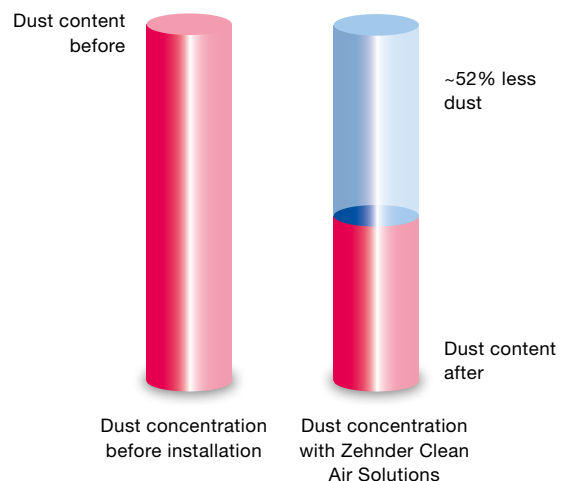
The corporate health organisation has also stated that the need for medication among employees with asthma symptoms has decreased, and that absence due to illness attributable to upper airway infections fell by 50 days in autumn 2012.

Tuko Logistics

Tuko Logistics provides services in field of purchasing and distributing staple goods. The company is owned by Wihuri Oy, Suomen Lähikauppa Oy, Stockmann Abp and Heinin Tukku Oy, employs 600 people and generates a turnover of approx. EUR 800 million. The range comprises 25,000 products from 1,600 suppliers: fruit and vegetables, groceries and fresh produce, tobacco products and consumables. Tuko Logistics' mission is to provide its customers with cost-efficient logistics and a competitive and comprehensive range of goods, and to support them in their business development.

Facts

Company:	Tuko Logistics Andelslag
Person interviewed:	Pasi Joronen, Production Manager
Sector:	Staple goods wholesaler
Location:	Kervo, Finland
Dust sources:	Floor dust from forklifts, road dust, loading pallets and packaging
Dust reduction after installation:	52%
Benefits:	Improved working conditions, reduced absence due to illness, cleaner products
Technical solution:	15 x E3000 8 x E6000 29 x E12000



New commissions in Europe

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



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:

The Netherlands

Claudi Lette
Sales district:
North-Western Netherlands

France

Cindy da Costa
Sales district: Paris

Germany

Emanuel Kronauer
Sales Captain

Alexander Beran
Sales district: Central and Western Germany

Great Britain

Graham Mckinzie
Sales district:
Southern England



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 energy-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 radiators. We offer solutions in all shapes and sizes, from radiant ceiling panels 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 provide **clean air** in buildings which are particularly prone to dust. In residential applications, the comfortable 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

