

**Clean Air Solutions
Systems for Cleaner Air**

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For a healthier and cleaner working environment

Dust is a problem and it's everywhere, including where products are manufactured, packaged, stored and where people work. Zehnder Clean Air Solutions are able to provide cost effective control measures which, in turn, can resolve and reduce high concentrations of dust.

The industrial air cleaning systems from Zehnder Clean Air Solutions protect your products, your employees and your machines from dust, more effectively and efficiently using new technology. This is because, with the innovative Zehnder Flimmer® Filtration System, the dust is "filtered from the air" by thousands of the finest Flimmer® fibres using the electrostatic principle. Operating quietly and without frequent filter changing, as is the case with conventional systems, the units provide prolonged periods of operation without changing the filter. Zehnder Clean Air Solutions provides an intelligent, efficient and, last but not least, an economic alternative.

Numerous internationally operating companies from the most diverse industries endorse Zehnder Clean Air Solutions. Now you can benefit by using the same technology.

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Advantages

Zehnder Clean Air Solutions are advantageous in every respect. Once the particles of dust have been removed from the air, the newly optimized clean air is beneficial for staff, machinery and material. The employees feel happier at the workplace, are able to increase their productivity and the level of sickness-related absenteeism will also be reduced. Production machines are subject to less wear and tear, there is far less downtime which is also beneficial where productivity is concerned. Last, but not least, all the merchandise stays clean and visually attractive due to the clean-filtered air.

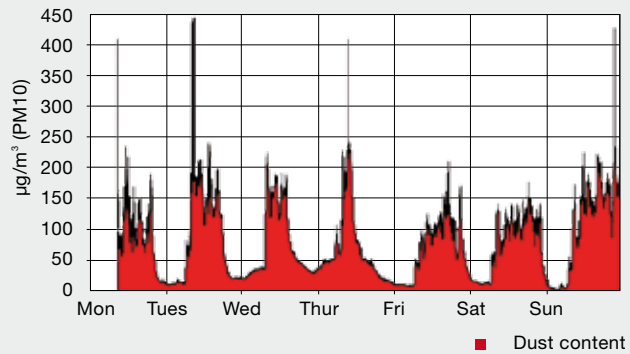


Less dust...

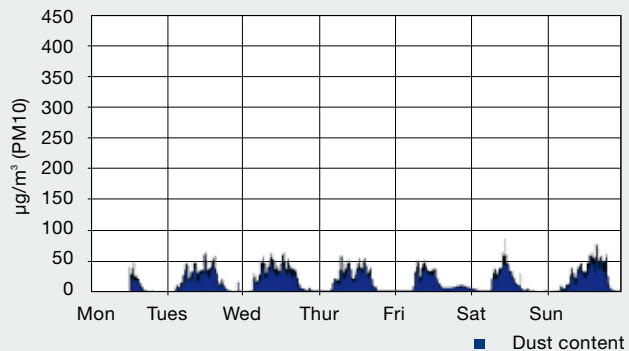
With Zehnder Clean Air Solutions, the dust content of the area is effectively reduced. This provides many advantages including:

- Cleaner air at the workplace
- Reduced machine wear, less downtime
- Improvements in the health and productivity of employees
- Merchandise remains clean and attractive

Dust concentration before installation



Dust concentration after installation

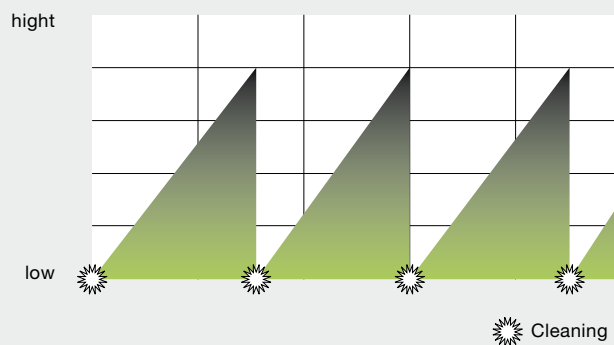


...reduced costs

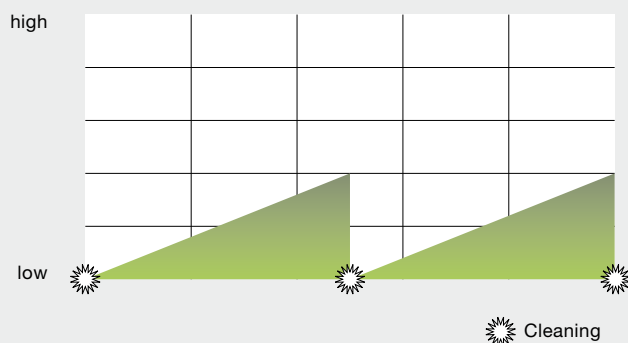
Where there is less dust, there is also less need to clean. This reduces costs. Possible savings (on an annual basis):

- Up to 30 % when using floor care appliances to clean the building, since less dust collects on the floors
- Up to 70 % when cleaning by hand and for other cleaning work, since the necessity to clean decreases with cleaner air
- Up to 30 % of staffing costs, since there are less stoppages due to sickness related absenteeism

**Cleaning frequency/
dust concentration before installation**



**Cleaning frequency/
dust concentration after installation**



Advantages of the Flimmer® filter

By comparison to standard filters, the dust is recovered not by deposition on a fibrous fabric but along extremely fine polypropylene hairs. These are electrostatically charged by the passing air and can thus keep hold of the dust particles in a natural manner.

Effective solutions for reducing particulate emissions are demanded by legislation and experts. Objective of the WHO and EU: A reduction in particulate emissions, preferably to less than $50 \mu\text{g}/\text{m}^3$ over a 24 hour period. Actual levels in warehouses, factories and on the shop floor: 200-500 $\mu\text{g}/\text{m}^3$ on average.

Advantages of the Flimmer® filter:

- Extremely high level of dust and particulate removal
- No clogging of the filters due to an extremely large surface capture area
- Long periods of operation without changing the filter
- Minimal loss of pressure throughout the period of operation
- Low noise emission
- Low energy and operating costs

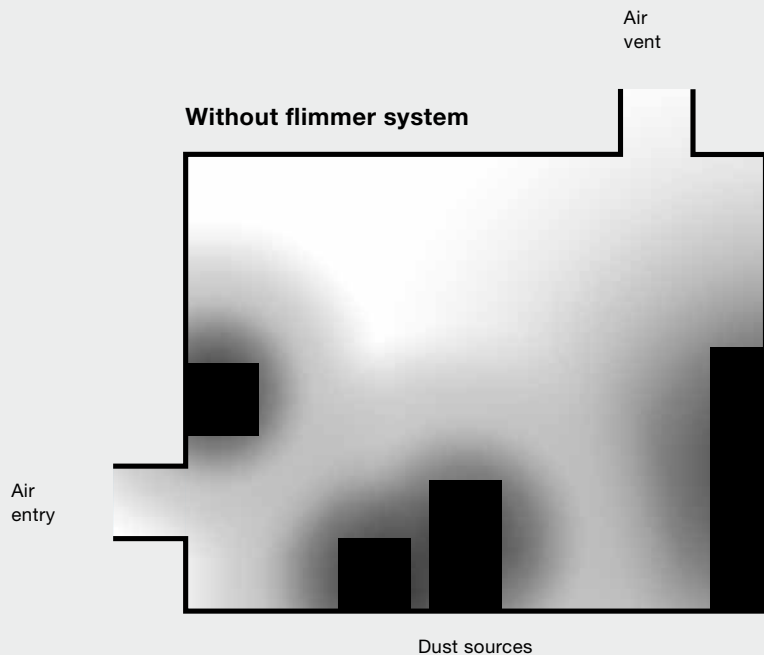


Functional principle

Without Zehnder Clean Air

Solutions: Particles of dust are produced during working processes. Through air movement (air entering through doors and windows, air outlets) and when disturbed by thermal effects, the dust is distributed virtually throughout the room by the air.

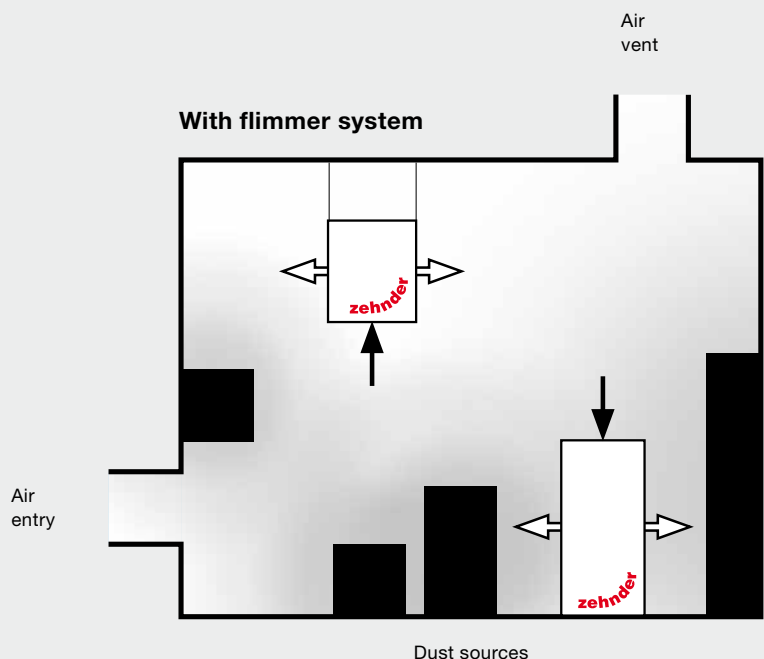
Typical dust concentration in a room with and without a Zehnder Flimmer® System



With Zehnder Clean Air Solutions:

Using the Zehnder Flimmer® System, the particles of dust are filtered out of the air in close proximity to the source of the dust. Distribution within the room is thus effectively reduced.

Typical dust concentration in a room with and without a Zehnder Flimmer® System



⇨ Direction of flow of filtered air
➔ Direction of flow of dust-laden air

Applications

Production, processing, packaging, storage ... Zehnder Clean Air Solutions can be used in virtually all sectors of industry. Due to individual requirements, a complete range of products are available to include mobile units, along with equipment suspended from ceilings and wall/

shelf mounted systems. Zehnder Clean Air Solutions is available as an economic complement to existing ventilation systems.

Logistics

Successfully employed by:

The Swedish Post, Bring, DHL, Schenker Logistics, ICA, COOP, Albert Hein, Air Truck, SAS Cargo, Fuller Logistics



Industrial production

Successfully employed by:

Volvo, Ericsson, Akzo Nobel, Morgan Motors, Neoplan, DAGAB, Tibnor, Skanska, Rexam, Globen Arena, Stora Enso, EJOT, LeMonde



Cold storage

Successfully employed by:

DOLE, Everfresh, SABA, Martin Olsson, ICA



Recycling industry

Successfully employed by:

SITA, Returpappercentralen, Ragnsells, Volvo Logistics, Cannon Confidential



Warehouses

Successfully employed by:

Schenker, ICA, Albert Hein, Green Cargo, IKEA, Dairy Crest, KD, Logwin Solutions Austria



Retailing

Successfully employed by:

IKEA, Coop, Volvo, ICA, Bilia, Svenska Bil







Food industry

Successfully employed by:

Coop, Nestlé, Kraft Foods, Carlsberg, Cerealía, Spendrups, ICA, Arla, Ica Meny, Axfood, Van der Bergh Food, Matsäljarna, Kron Ost, V & S Group, Saba, Reinwalls, ColdSped, Scanlog AB, Paul Kempowski, Möwe, Dairy Crest, Walkers Crisps



Product overview

Products		Fitting	Accessories	Applications
zehnder flimmer E12000	without prefilter 	Ceiling installation	<ul style="list-style-type: none"> ■ Timer switch ■ Variable volumetric flow control ■ Adjustable air control directions ■ Customized installation options ■ Various types of filters 	<ul style="list-style-type: none"> ■ Logistics ■ Retail ■ Recycling ■ Food production ■ Industry ■ Public institution
	with prefilter 	Ceiling installation	<ul style="list-style-type: none"> ■ Timer switch ■ Variable volumetric flow control ■ Adjustable air control directions ■ Customized installation options ■ Various types of filters ■ ATEX certified 	<ul style="list-style-type: none"> ■ Logistics ■ Retail ■ Recycling ■ Food production ■ Industry ■ Public institution
zehnder flimmer E3000	without prefilter 	Fixed or mobile development Mount on wall, ceiling or shelf (optional with roles)	<ul style="list-style-type: none"> ■ Timer switch ■ Variable volumetric flow control ■ Adjustable air control directions ■ Customized installation options ■ Various types of filters 	<ul style="list-style-type: none"> ■ Logistics ■ Retail ■ Recycling ■ Food production ■ Industry ■ Public institution
	with prefilter 	Fixed or mobile development Mount on wall, ceiling or shelf (optional with roles)	<ul style="list-style-type: none"> ■ Timer switch ■ Variable volumetric flow control ■ Adjustable air control directions ■ Customized installation options ■ Various types of filters ■ ATEX certified 	<ul style="list-style-type: none"> ■ Logistics ■ Retail ■ Recycling ■ Food production ■ Industry ■ Public institution

Advantages	Technical data						
	Volumetric flow rate	Mains voltage	Power consumption	Filter *(optional)	Flimmer® Filter	Weight	Dimension (L x B x H)
<ul style="list-style-type: none"> ■ Reduced cost for cleaning ■ Longer intervals between high level cleaning ■ Equipment and machinery protection ■ Products remain clean and attractive ■ Healthier working environment ■ Improved well-being at the workplace ■ Higher productivity of staff and machines ■ Reduced energy costs 	0-12000m³/h	230 VAC, 50-60 Hz, 6,8 A	450 W at 7500m³/h	G3-H10	comparable F9	210 kg	1380 x 1380 x 1000 mm
<ul style="list-style-type: none"> ■ Reduced cost for cleaning ■ Longer intervals between high level cleaning ■ Equipment and machinery protection ■ Products remain clean and attractive ■ Healthier working environment ■ Improved well-being at the workplace ■ Higher productivity of staff and machines ■ Reduced energy costs 	0-12000m³/h	230 VAC, 50-60 Hz, 6,8 A	450 W at 7500m³/h	G3-H10	comparable F9	278 kg	1380 x 1380 x 1600 mm
<ul style="list-style-type: none"> ■ Reduced cost for cleaning ■ Longer intervals between high level cleaning ■ Equipment and machinery protection ■ Products remain clean and attractive ■ Healthier working environment ■ Improved well-being at the workplace ■ Higher productivity of staff and machines ■ Reduced energy costs 	0-3000 m³/h	230 VAC, 50 Hz, 2,5 A	160 W at 2000m³/h	G3-H10	comparable F9	90 kg	670 x 670 x 970 mm
<ul style="list-style-type: none"> ■ Reduced cost for cleaning ■ Longer intervals between high level cleaning ■ Equipment and machinery protection ■ Products remain clean and attractive ■ Healthier working environment ■ Improved well-being at the workplace ■ Higher productivity of staff and machines ■ Reduced energy costs 	0-3000 m³/h	230 VAC, 50 Hz, 2,5 A	160 W at 2000m³/h	G3-H10	comparable F9	113 kg	670 x 670 x 1490 mm

*for untis with prefilter box

Tailor-made service

Four are free:

Premises Surveying, Dust-level Monitoring, Specifying and Advice are all part of the free-of-charge service, without obligation from Zehnder.

1

Premises Surveying

The on site activity and working environment are precisely analyzed and the specific demands of the customer are noted by experienced Zehnder's representatives.

2

Dust-level Monitoring

Using the latest technology, a precise measurement of the airborne particulate content is carried out, professionally evaluated and plotted on a graph detailing working trends.

3

Specifying

Based on the dust-level monitoring results and taking into account the requirement and local features, the solution consisting of Zehnder Flimmer® units is determined.

4

Installation

The individual units are fitted on the ceiling, wall or shelving quickly, precisely and without major disruption to the operating processes. Without pipes, without ducts – only a single-phase mains power supply is required.

5

Evaluation

To precisely document the efficiency and effect of the filter system, a further measurement of the airborne particulate is carried out, where requested, several months later.

6

Service

Zehnder offers not just contractually arranged services, but also provides free-of-charge advice on adapting the Clean Air Solution System where structural or other alterations are required.



Heating Cooling Air Filtration

At Zehnder, you will find the best heating and ventilation technology for your construction project: Radiators from Zehnder are effective, economical and visually attractive for any project.

Natural radiation heat is the basis of the systems for radiant heating and cooling, which must ensure comfortable heat or pleasant cooling especially in office buildings as well as in sports and events arenas and factories. All of this with maximum economy and without maintenance costs.

Proper and healthy heating and cooling go hand in hand with clean and fresh air. Comfosystems from Zehnder ensure that heat is not achieved at the expense of the air we breathe. Fresh air is provided, the used air together with odours and moisture is removed and the energy is recovered.

The Zehnder Clean Air Solutions air filtration units are used in buildings with a particular dust problem, such as factories. Using the electrostatic principle, specially innovative filters collect the finest particles and thus protect the staff and materials.

Whether it be heating, cooling, or clean and healthy air the systems from Zehnder create a perfect indoor climate.

For further information please go to **www.zehnder.co.uk**

Radiators



Systems for radiant heating and cooling



Comfosystems for fresh room air



Clean Air Solutions for dust-free air





Zehnder solutions



Radiators



**Systems for
radiant heating and
cooling**



Comfosystems

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