

# Heating and Cooling Ceiling Systems References

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always  
around you

Heating

Cooling

Fresh Air

Clean Air





**Energy efficient and comfortable.** The principle of thermal radiation is just as simple as it is efficient: Because the perceived temperature is higher than the actual air temperature, more than 40 % energy savings can be achieved.

Zehnder radiant ceiling panels have been using this principle successfully for heating and cooling for decades; everywhere where other systems such as air heaters have proven themselves to be less economical – in large spaces with up to 50 m high ceilings – production and sports halls, showrooms, offices, schools and hospitals.

With over 50 years of experience, Zehnder is currently the largest manufacturer of radiant ceiling panels for heating and cooling in Europe. Tens of thousands of satisfied customers all over the world validate the quality of the systems built by Zehnder.

Zehnder radiant ceiling panels:

- Utilisation of the principle of thermal radiation
- Heating and cooling of larger spaces with ceilings up to 50 m in height
- More efficient than other systems
- More than 40 % energy savings
- Quality from Europe's largest manufacturer
- Satisfied customers worldwide



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## Office building

**Enhancing performance.** The best prerequisites for healthy and efficient office work are provided by Zehnder heating and cooling ceiling systems. Suitable for standard grid ceilings, but also for a multitude of special forms, colours and customisations, they ensure a tailor-made solution for every project.

# Komtur Pharmaceuticals

Germany

**Products:** Zehnder Como

The new company headquarters of Komtur Pharmaceuticals, an international wholesaler for pharmaceutical products, presents a facade which is completely glazed. A challenge for the heating system.



It was mastered through the use of Zehnder Como radiant ceiling panels: harmoniously integrated on all three floors in the modern geometric architecture, they also ensure that the cold air descending along the glass front panels is considerably reduced.

Multifunctional control devices make it possible to regulate temperatures at the workstations individually. The low convection of the panels keeps dust dispersal to a minimum – the best precaution for healthy, high-performing employees.



## Hydro Systems

Germany

**Products:** Zehnder Carboline,  
Zehnder Como

The headquarters of Hydro Systems – the world's leading manufacturer of aircraft ground support equipment – deliberately uses the architecture of the building to invoke the appearance of an airport terminal.



The climate control system: Zehnder Carboline in the open-plan offices and conference rooms, Zehnder Como in the foyer. Room thermostats regulate the ceiling sails automatically and by zone.

In contrast to convection heating systems, radiant ceiling panel systems operate extremely efficiently. This enables Hydro Systems to reduce annual CO<sub>2</sub> emissions by as much as 96t.



## Adidas global IT centre

Germany

**Products:** Zehnder Como

Up to 400 employees in each shift work in an open-plan office with different zones and levels at the data processing service centre of the sports equipment manufacturer. They are provided with constant climate control by Zehnder Como.



Areas where warm air collects in larger quantities must receive more cooling – and vice-versa. Thanks to the high radiation component of the flat panels, a comfortable indoor climate is achieved with high efficiency.

An additional advantage is the improved acoustics: thanks to integrated sound insulation, the noise which arises is absorbed and the noise level is considerably reduced.



# Trumpf

Germany

**Products:** Zehnder Carboline

Trumpf GmbH & Co. KG produces machine tools and is the world market leader in the technology of industrial laser systems. The new building complex is also “state-of-the-art” – visually as well as in terms of climate.



Despite the large glass front panels, Zehnder Carboline ceiling sails guarantee a comfortable indoor climate. At the same time, thanks to their noise-absorbing effect, they also ensure comfortable acoustics.

The “folded” roof on the top floor also poses no obstacle: the customised ceiling sails were suspended in accordance with the slope of the ceiling.





## Golf park

Germany

**Products:** Zehnder Carboline

Climate control specifications for the office complex were a combination of efficiency and aesthetics. Heating and cooling are provided by means of a radiant ceiling system for regenerative energy recovery using heat pumps and heat exchangers.



The climate in all of the office areas, including the cafeteria, is controlled with Zehnder Carboline. The lightweight panels with natural graphite ensure particularly rapid, even and efficient temperature distribution.

The solution impresses with its attractive appearance: the high-quality surfaces of the suspended ceiling sails are consistent with the architectural philosophy of “unseen technology”.

## Sports and multipurpose halls

**A potential record breaker:** comfortable climate conditions are called for where athletes, artists and the public assemble. Even temperature distribution and optimum comfort are also achieved in sports and multipurpose halls, thanks to the heating and cooling ceiling system.

## Athletics centre

Switzerland

**Products:** Zehnder ZIP,  
Zehnder ZBN

Located close to where the borders of Switzerland, Austria and Germany meet, St. Gallen is an ideal place to hold a competition. The Athletics centre offers the best conditions for this, visually, functionally and also – thanks to Zehnder – in terms of indoor climate.



Simply in formal terms, the hall impresses with its modern architecture. But with its 4160 m<sup>2</sup> of space for multipurpose uses, the building also sets standards in terms of functions which meet international standards for a number of sports competitions.

The Athletics centre is also way out in front in terms of heating and cooling: after all, Zehnder radiant ceiling panels ensure that both athletes and spectators are always able to enjoy a comfortable and healthy indoor climate.



## Sports forum

Germany

**Products:** Zehnder ZIP

The Sports forum in Berlin's Hohenschönhausen district, a combination of a total of six sports halls, also includes Germany's largest athletics hall. The heating system was also replaced as part of a renovation.



Because large glass front panels were used, the new heating system was required to guarantee year-round useability. The Zehnder ZIP radiant ceiling system met this challenge as well.

All aspects of the construction situation were overcome with ease, and training was resumed in the first winter after the renovation.



## Sports hall

Poland

**Products:** Zehnder ZBN

As a university city, Poznań is numbered among the cultural centres of Poland. Numerous sporting and other events can be watched in the new university sports and events hall, which was completed in 2009.



In order to heat the 5000 m<sup>2</sup> large hall evenly and efficiently, the decision was made to choose Zehnder ZBN. A total of 372 m<sup>2</sup> of perforated radiant panels for noise reduction were installed on the wooden structure which supports the roof of the hall.

Thanks to the efficient system, the operators of the hall save on energy and costs. Also, athletes, artists and the general public enjoy pleasant indoor climate conditions.



## Sports hall

Germany

**Products:** Zehnder ZBN

The new sports hall in Rosenheim - both ultramodern and extremely functional. The planners utilised a Zehnder brand radiant ceiling system to reflect the full scope of the project's form and function.



12 radiant ceiling panels from Zehnder were integrated flush with the ceiling along the entire length of the hall, fitted with precision down to the centimetre. Superimposed headers have also proven themselves since being installed, earning full marks for efficiency.

Which is equally true in terms of aesthetics: The lengthways installation of attractively shaped radiant ceiling panels emphasises the clean geometry of the architecture.



## Sports hall

France

**Products:** Zehnder Reverse

The L'Institut National des Sports is a sports hall – and also an architectural work of art combining wood, glass and distinctive geometry.



The 12,000 m<sup>2</sup> of the building have been fitted with Zehnder Reverse radiant ceiling panels which build a frame around the lighting. A total of 1836 m<sup>2</sup> blends perfectly into the idiosyncratic architecture.

Conditions of optimum comfort are therefore provided for the top athletes (gymnastics, fencing, taekwondo) who train here for the Olympics and other international competitions.



## Production and maintenance halls

**Energy-efficient:** Whether it be workers, machines or goods: In production and maintenance halls, everyone involved benefits from the utilisation of a Zehnder heating and cooling ceiling system. Even in halls with 30m high ceilings, the heating and cooling ceiling system proves itself to be powerful and energy-efficient, particularly in comparison with air heating systems.





## IAGB Airbus hall

Germany

**Products:** Zehnder ZBN

The building complex of IMA GmbH, an independent aviation service company, is located in the immediate vicinity of Dresden airport. Here, the gigantic Airbus 380 is subjected to the most exacting performance tests.



A challenge for the heating system as well. All of the planning specifications with respect to maximum space utilisation, performance and economic efficiency favoured a radiant ceiling system – a preference which the Zehnder radiant ceiling panels fulfilled most satisfactorily.

Unusually high temperatures are required, due to the extremely sensitive measuring processes on the Airbus 380. Even with a ceiling height of almost 30m, the system is able to provide a homogenous indoor climate while at the same time ensuring high efficiency in terms of both energy and costs.



## Pilatus aircraft hangar

Switzerland

**Products:** Zehnder ZBN

The 7200 m<sup>2</sup> large assembly hall of the world market leader for single-engine turboprop aircraft is the largest free-standing wooden structure in Switzerland. A building with superlative characteristics which demands a great deal from its heating system.



It is particularly on the floor that a comfortable temperature is required. In addition, air movement had to be minimal in the hall, because the precision electronics in the aeroplanes would respond very sensitively to even the smallest dust particles.

The white filigrane Zehnder strips proved to be the ideal solution: Heat distribution can be optimally controlled, with minimum convection.



## Cargolux hangar

Luxembourg

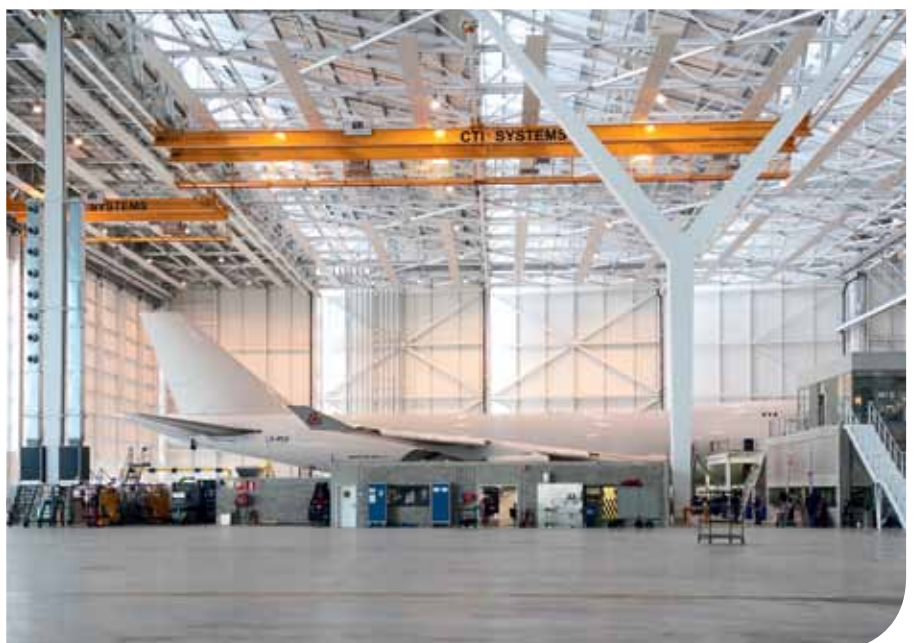
**Products:** Zehnder ZBN

Two football fields would fit in the huge hangar of the Cargolux aviation freight company in Luxembourg. Sufficient space, therefore, to perform maintenance on the big “birds” and to get them ready for their next flight.



17,000 m<sup>2</sup> floor space, and a ceiling height of up to 42 m: an enormous challenge for Zehnder ZBN. The principle of thermal radiation takes full effect here, particularly considering that the heat is required mainly in the lower area of the hall.

The fact that no dust particles are dispersed benefits not only the personnel but also the sensitive electronics in the aircraft.

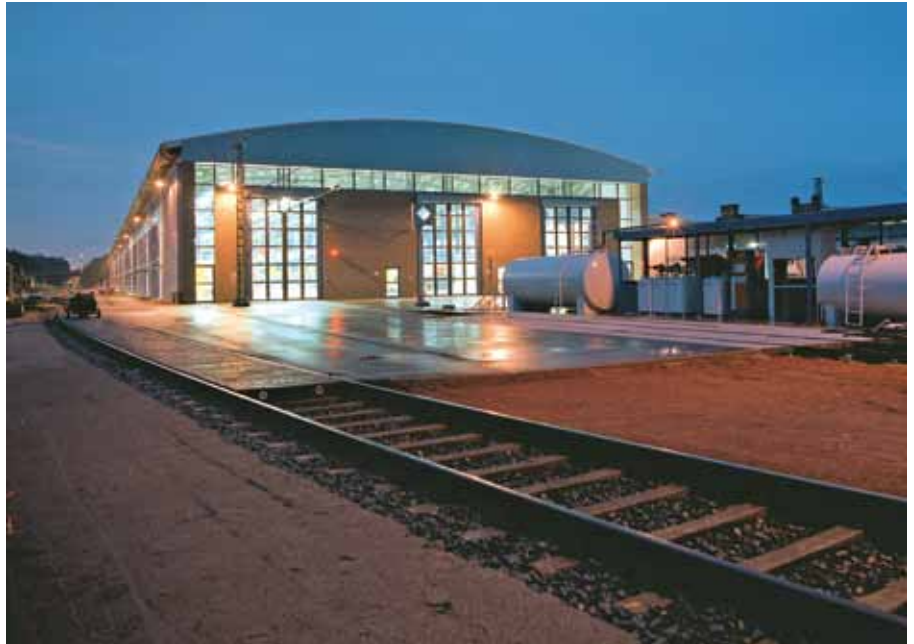


## ICE maintenance hall

Germany

**Products:** Zehnder ZIP,  
Zehnder ZBN

The ICE fleet of the German railway company, Deutsche Bahn, requires all kinds of different types of maintenance. A facility was built in Krefeld for this purpose in the record time of 12 months. Also on board: Zehnder radiant heating ceiling panels.



39 radiant panel modules were installed, with a length of 117 m. Placement of the panels required a large amount of skill in order not to be in the way of the crane rails running the entire length of the hall over the three sets of tracks.

Thanks to the differential between perceived and actual room temperatures, which is a specific feature of radiant heat, energy consumption is reduced in comparison with other systems.



## Claas assembly halls

Germany

**Products:** Zehnder ZBN

Claas is an internationally leading supplier of innovative agricultural machinery. When the company built its new plant, the question of a suitable heating system needed to be addressed. The answer: Zehnder ZBN.



A total of 419 Zehnder radiant ceiling panel elements were installed in the new assembly halls. Their suspension was integrated without difficulty in the complex production lines of the fully automated paint shop.

The efficient and low-maintenance system is suitable for both heating and cooling. And what is more: thanks to zone-specific thermal radiation, temperatures in the various production levels can be controlled both individually and in accordance with ambient conditions.



## Rittling

USA

**Products:** Zehnder ZIP

With headquarters in Buffalo, New York, the Rittling Company produces heating and cooling systems for industry, commerce and other sectors. It is thus only logical that this Zehnder subsidiary has outfitted its plant with Zehnder radiant ceiling panels.



Zehnder ZIP radiant panels were used. An overall length of approximately 1800 m was installed in 13,000 m<sup>2</sup> of plant area and 1850 m<sup>2</sup> of office space, with ceilings ranging up to 30 m in height.

Efficient detail: most of the energy used to operate the radiant ceiling system comes from the waste heat of the plant's own painting bay. This means that the radiant panels heat and cool up to 98 % of the time with cost-free heat.



## Ohnhäuser

Germany

**Products:** Zehnder ZIP,  
Zehnder Como

Ohnhäuser GmbH moved into its new site in 2006. When it came to climate control, a deliberate decision was made in favour of the advantages of a radiant ceiling system – comfort, flexibility, efficiency.



Zehnder ZIP or Zehnder Como products were utilised, depending on the individual department and its particular requirements. Ventilation outlets and lighting elements were integrated into the enclosed Zehnder Como ceiling sails.

Attractive side effect: requirements for acoustic emission reductions were able to be fulfilled simply by installing the perforated cooling and heating elements.





## Exhibition rooms and showrooms

**Space-saving:** space is precious where a wide variety of goods are presented. The heating and cooling ceiling system does not occupy valuable floor space because it is installed on the ceiling. In addition to this, the fact that, in contrast to air heating systems, no dust is dispersed pays off, particularly in the food industry.



## Migros

Switzerland

**Products:** Zehnder ZBN

The Tivoli is the largest shopping and adventure centre of the Migros national supermarket chain in Switzerland. 22 different businesses provide a huge variety of offerings in terms of services, gastronomy and recreation on 12,317 m<sup>2</sup> of floor area.



A mixture of people, equipment, goods and foodstuffs for which suitable climate conditions were provided: with a Zehnder radiant ceiling system, efficiently functioning, individually controlled and attractively integrated into the surrounding architecture.

An advantage of low-convection radiant heat: the dispersal of dust particles is minimised, which is good in terms of both health and the presentation of goods.



## Völklingen ironworks museum

Germany

**Products:** Zehnder ZBN

From an ironworks to a visitor attraction: The Völklinger ironworks now attracts around 100,000 guests to its events every year. Zehnder radiant ceiling panels ensure comfortable temperatures.



The project was packed with challenges: The extensive array of halls. The requirements for preserving listed buildings. The large, cold masses of steel in the machinery...

These were solved with Zehnder ZBN ceiling panels with surfaces made of untreated steel. They blend inconspicuously with the general appearance of the site; therefore the view of the roofs of the steel construction is retained.



## Dauphin event hall

Germany

**Products:** Zehnder ZBN

Dauphin is not only one of the leading European office furniture manufacturers. The family also owns a prized private collection of vintage cars, which are cosseted by the best possible temperatures thanks to Zehnder ZBN.



The showroom, which is located in a former factory, was equipped with radiant ceiling panels across the entire installation length of just under 400 m. This perfectly meets the particular climate requirements of a museum.

As a result, both visitors and exhibits can enjoy a comfortable climate without any signs of draughts. The inlaid insulation considerably reduces sound reverberation within the high-ceilinged exhibition areas.



## Kodin Terra DIY superstore

Finland

**Products:** Zehnder ZIP

The branches of Kodin Terra, Finland's best-known DIY chain, are the obvious choice in the country for construction materials, gardening and interior decoration. This also applies to Tuusula, located north of Helsinki.



Zehnder ZIP radiant ceiling panels took on the enormous task of providing sufficient heating and cooling in retail and warehouse areas with a floor area of 15,255 m<sup>2</sup> and a total volume of 126,960 m<sup>3</sup>.

Thanks to minimum convection, the goods and the plants remain dust-free, the employees healthy and the thousands of daily visitors enjoy comfortable temperatures all year round, despite outside temperatures which can reach -30°C in wintertime.



## BMW dealership

Russia

**Products:** Zehnder ZBN

The BMW dealership in St. Petersburg is noteworthy not only for its product range but also for its architecture: The largest showroom in the city is also unique in the country.



The Zehnder ZBN radiant ceiling system was selected in order to enable the best possible indoor climate conditions to be achieved in both the showroom and the workshop. A total of 150 m<sup>2</sup> of individual modules were installed.

These provide not only comfortable temperatures, but also, thanks to low convection and the absence of dust dispersal, gleaming showroom models.





## Schools and hospitals

**Healthy and hygienic:** Optimum climate without dust dispersal is particularly important in the education and health sector: The improved indoor climate increases the capability of students and their ability to concentrate. The heating and cooling ceiling system is an especially hygienic alternative in the hospital and nursing home sector.

## University

France

**Products:** Zehnder Carboline

The Pierre and Marie Curie University in Paris enjoys an outstanding reputation: it attracts more than 30,000 students from all over the world. The existing buildings have now undergone a complete modernisation.



The building complex extends over a total area of 70,000 m<sup>2</sup>. 12,000 modules of the Zehnder Carboline radiant ceiling system were installed over 7275 m<sup>2</sup>.

The form and surface of the radiant panels were selected in such a way that they fit in perfectly with the overall architectural concept. Lighting elements were also integrated into some of the panels.



## Grammar school

Germany

**Products:** Zehnder Como

At the grammar school in Wertingen, it is not only in chemistry classes that experiments are performed. Zehnder Como was installed in one of the classrooms without the knowledge of either pupils or teachers. The comfortable indoor climate which resulted convinced everyone.



And the result was a lesson to all: the system was also installed in the chemistry area, in combination with a ventilation system. Inlets and outlets were integrated flush in the ceiling sails; the lighting was fitted on the sails.

Tailored production: Since 90° angles are practically non-existent in the school, the ceiling sails were simply tailored to the angular room geometry.





## Oasis Academy

Great Britain

**Products:** Zehnder Flatline

Specialising in the visual and performing arts, the Oasis Academy in south west England is a good example of how an educational vision can find its way into the architecture of the school building.



In the modern, inviting rooms to be found here, around 1000 pupils ranging in age from 11 to 19 learn how to unleash their artistic potential. This works better with optimum indoor climate conditions.

Using a Zehnder radiant ceiling system with integrated lighting and smoke detectors ensures comfortable temperatures without convection and dust dispersal – and saves up to 40 % on energy costs.



## St. James Hospital

Great Britain

**Products:** Zehnder Como

In Portsmouth, located on the small Portsea Island off the south coast of Britain, stands St. James Hospital, which dates back to 1879 and was originally used as a psychiatric facility. Nowadays it is administered by the National Health Service.



The Victorian brick building with its gorgeous stained glass windows is also used to some extent for cultural events. This “Entertainments Hall” has also been furnished with the Zehnder Como radiant ceiling system.

This blends in discretely with the time-honoured architecture and enables comfortable temperatures throughout the year – a small but not inconsiderable contribution to the success of the events.



## ZBZ research centre

Germany

**Products:** Zehnder Como

The dental medicine and life sciences research and development centre, referred to as ZBZ for short, is the only project of its kind to date in Europe. This means that exceptionally high requirements were also placed on its indoor climate.



A solution using radiant ceiling panels was the obvious choice: Zehnder Como guarantees patients, physicians and clinic personnel can experience comfortable room temperatures and acoustics during work and treatment, with high energy efficiency.

The aesthetic challenge: the imposing cylindrical shape of the building presented no problems for the ceiling sails, they were tailor-made at the factory to match the outline of the ceiling.



## Warehouses and high-bay warehouses

**Energy-efficient:** By using radiant ceiling panels, large and high halls can also be heated in an energy-saving manner. It is particularly in buildings with extremely high ceilings of up to 50 m that the heating and cooling ceiling system – in comparison with air heating systems – proves itself to be an especially energy-efficient solution.

## Letter sorting centre

Switzerland

**Products:** Zehnder ZBN

Performance is given special emphasis as the letter sorting centre in Härkingen. No wonder: after all, no fewer than 5,900,000 letters must be processed here each day on 38,000m<sup>2</sup> of indoor space. It takes 780 employees in three shifts to accomplish this.



It is only logical that emphasis is also placed on having a high-performance system in the area of climate-control technology: With Zehnder radiant ceiling panels, the planners of the modern logistics centre opted for pure efficiency.

Ideally suitable for high-ceiling spaces, e.g. the Härkingen high-bay warehouse, the system provides optimum and efficient heating and cooling, in line with the season.



## KiK logistics centre

Germany

**Products:** Zehnder ZIP

Good quality at reasonable prices: This is the simple but successful concept behind the textiles and non-food supplier KIK. It is only logical that cool calculations are applied to heating costs at the company's logistics centre.



Zehnder ZIP radiant ceiling panels have shown themselves to have been a good choice: with extremely low convection and high energy efficiency, they represent the optimum solution in the 38,626 m<sup>2</sup> warehouse.

A total of 266 individual modules with a total length of 2628 m were mounted. The great advantage: the panels no longer need to be welded, but can now be pressed or screwed into place instead.



## Kaufland central warehouse

Poland

**Products:** Zehnder ZBN

The German supermarket chain Kaufland is also active in Eastern Europe. A gigantic central warehouse has been constructed for this purpose in the Polish city of Wola Krzysztoporska – representing an equally gigantic task for Zehnder ZBN.



The building is divided into two areas – 5205 m<sup>2</sup> and 8040 m<sup>2</sup> in size – and was outfitted in two stages. Because the second construction stage took place in the winter, the radiant panels which were already installed were able to be used as a source of heat.

This resulted in a tour de force in terms of construction – and the largest logistics installation in the world equipped with Zehnder ZBN.

## Anttila logistics centre

Finland

**Products:** Zehnder ZIP, Zehnder ZBN

Anttila is one of the largest department store chains in Finland, the nationwide branches and online stores of which are visited annually by millions of people – and where millions of articles are sold.



An enormous logistical task, for which a huge logistics centre was built in the vicinity of Helsinki: 21,000 m<sup>2</sup> of floor area, 330,000 m<sup>3</sup> in volume, 35 m in height – and all heated by Zehnder ZIP and ZBN.

In order to ensure that construction could continue through the winter, the radiant ceiling panels were installed at an early stage of construction in order to defy the icy outdoor temperatures which drop as low as -30°C.





## Striebig logistics centre

France

**Products:** Zehnder ZIP

Hatten is a small community in Alsace. Even so, one also finds largeness of scale here – such as the Striebig logistics hall, in which logistical tours de force are accomplished every day.



Emphasis is also placed on performance and efficiency in the area of climate-control technology, in the form of a Zehnder radiant ceiling system. 19 km of Zehnder ZIP radiant panels were installed.

These proved to be the ideal choice for both people and material at the logistics centre – and guarantee high performance values, low energy consumption and comfortable temperatures.



# Zehnder – everything you need to create a comfortable, healthy and energy-efficient indoor climate

Heating, cooling, fresh and clean air: at Zehnder, you will find everything you need to create a comfortable, healthy and energy-efficient indoor climate. Zehnder's wide and clearly structured portfolio can offer the right product for any project, be it private, public or commercial, new build or refurbishment. 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 heating solutions in all shapes and sizes, from radiant ceiling panels to heat pumps with integrated ventilation devices.

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



Zehnder designer 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 particularly prone to dust. In residential applications, the comfortable indoor ventilation provided by Zehnder Comfosystems filters external pollutants out of the air.

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



Zehnder Clean Air Solutions

**zehnder**

always around you



