

**zehnder**

always the  
best climate

Always the best climate for

# PERFECT INTERACTION

Heating and cooling ceiling systems: the energy-efficient solutions  
with maximum design freedom

The brand with the best indoor climate solutions.

FOUR COMPLEMENTARY PRODUCT LINES

The broad and clearly structured portfolio from the Zehnder Group is split into four product lines. Consequently, we can provide the right product, the perfect system and the matching service for all types of projects – from new builds to renovations, single- or multiple-family homes, as well as commercial projects. This variety ensures that our wealth of experience is continuously expanding, providing tangible added value to our customers on a daily basis.



Decorative radiators

Our individual decorative radiators for living and bathrooms not only make a home warmer but also more attractive. Created by renowned designers, they impress with excellent functionality.

NUMBERS THAT SPEAK FOR THEMSELVES

MANUFACTURER OF THE

1<sup>ST</sup>

STEEL RADIATOR IN THE WORLD

121

YEARS OF INNOVATIVE TRADITION

AROUND

3,000

EMPLOYEES

FOUNDED IN

1895

REPRESENTED IN COUNTRIES

19

1,800,000

TONNES OF CO<sub>2</sub> SAVED SINCE 2005

BRANDS THAT OFFER VARIETY

**zehnder**

The Zehnder brand offers excellent indoor climate solutions within the sectors of decorative radiators, clean air solutions, comfortable indoor ventilation and heating and cooling ceiling systems.

**BISQUE**

The Bisque brand offers beautiful but practical radiators in the most exciting styles, colours and shapes for homes and more.



**Comfortable indoor ventilation**

Our comfortable indoor ventilation is energy-efficient and provides a healthy indoor climate. It promotes the well-being of the occupants and increases the value of the property.



**Heating and cooling ceiling systems**

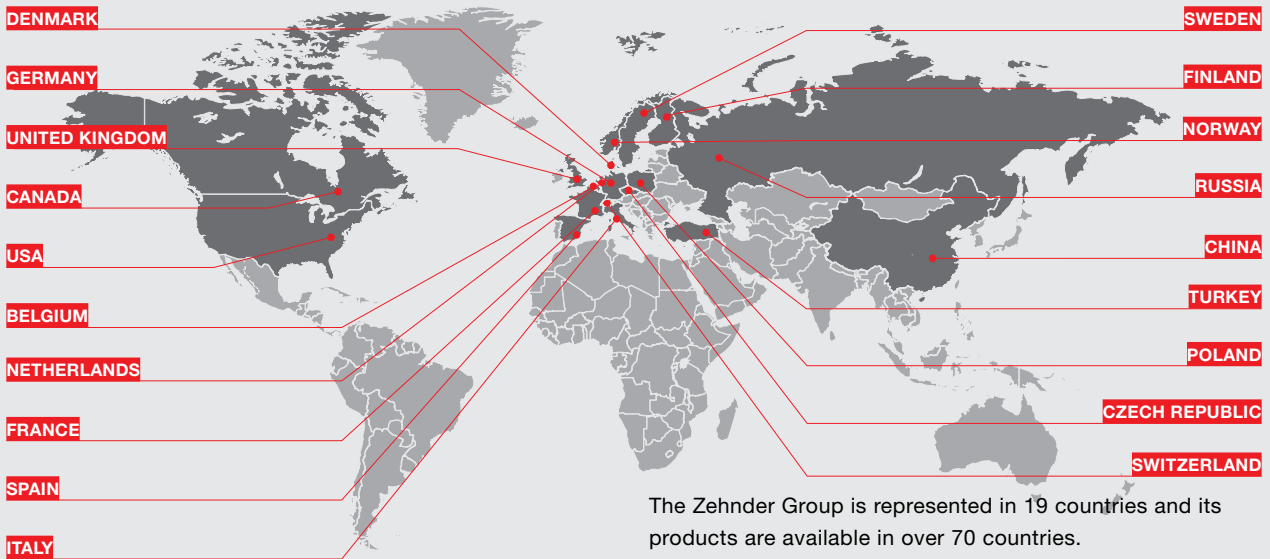
Zehnder heating and cooling ceiling systems are convenient and energy-efficient for heating and cooling. They are perfectly attuned to the relevant environment.



**Clean air solutions**

Clean air solutions from Zehnder reduce the level of dust in the air, create a healthier working climate and reduce the amount of cleaning required.

**BEST CLIMATE IN THE WORLD**



The Zehnder Group is represented in 19 countries and its products are available in over 70 countries.



The Greenwood Airvac brand offers a range of low energy, smart residential ventilation solutions from intermittent extract fans to whole house ventilation with heat recovery.

**CERTIFICATES**

The Zehnder Group has a long-standing tradition and extensive specialist knowledge in the field of design, which has been acknowledged by numerous awards.



## Comfortable and energy-efficient.

Compromises are often needed when a building needs to be heated or cooled: as energy costs rise, so do requirements for an optimum indoor climate. Zehnder heating and cooling ceiling systems offer a comfortable and energy-efficient solution.

Radiant heat creates a pleasant, draught-free indoor climate where the perceived temperature is higher than the air temperature. When compared with other systems, over 40% of the energy can be saved through this effect.

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





## CONTENTS

PAGE 6	ENERGY SAVING
PAGE 7	FUNCTIONAL PRINCIPLE
PAGE 8	COMFORTABLE INDOOR CLIMATE
PAGE 9	THE ONE-STOP CUSTOM SOLUTION
PAGE 10-11	VERSATILE APPLICATIONS
PAGE 12-13	OVERVIEW OF HEATING AND COOLING CEILING SYSTEMS

# An energy saving of over 40%

The most important consideration when choosing a heating and cooling ceiling system is energy efficiency. Zehnder heating and cooling ceiling systems can save more than 40% of energy compared to other systems, whilst ensuring a pleasant indoor climate.

Benefits at a glance:

- Potential energy saving of over 40% with the same perceived temperature
- Even temperature distribution across the full height of the room (Fig. 2)
- High heating and cooling performance (according to EN 14037 or based on EN 14240)
- Short heating and cooling response time
- Free choice of energy carrier; alternative energy sources, heat pumps, condensing appliance technology or waste process heat can also be used
- No additional electricity costs for driving energy

## Air temperature and perceived temperature

When heating with radiant ceiling panels, the room air temperature is lower than with a conventional air heating system but the perceived temperature is the same.

The result: The smaller difference between the temperature of the indoor and outdoor air means lower heat losses. (Fig. 1)

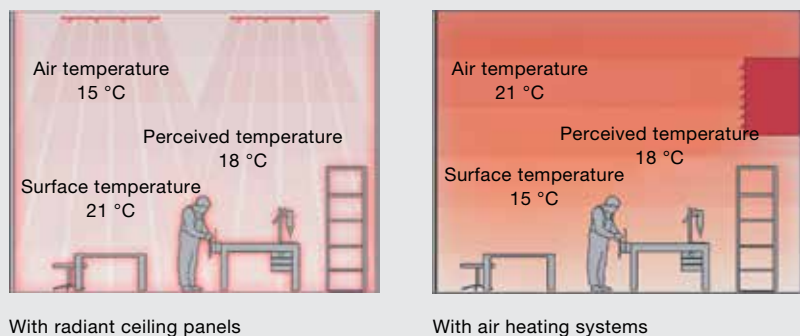


Fig. 1: Air temperature and perceived temperature

## Heat distribution up to the height of a building

When using radiant ceiling panels, radiant heat acts upon the objects it meets (the floor), rather than the effect of hot air rising as in the case of air heating systems, for example. This results in an even temperature distribution over the entire height of the room, and thus a considerably lower energy consumption. (Fig. 2)

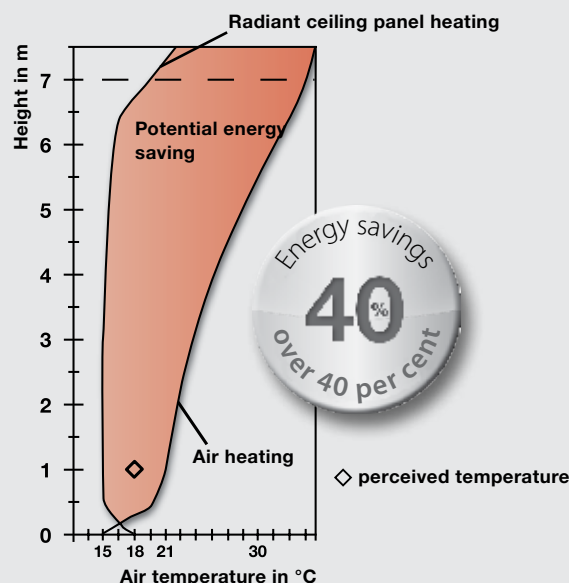


Fig. 2: Potential savings with radiant ceiling panel heating compared with conventional air heating system with the same perceived temperature.

# Functional principle – following nature's example

Zehnder heating and cooling ceiling systems work on a fundamentally natural principle that is identical to the way in which the sun produces warmth: Direct sunlight on a cold winter's day makes us feel warm and is perceived as comfortable, despite the cold ambient air. The heating effect of the sun is produced by electromagnetic waves that penetrate the air without losing energy. This energy is only converted into heat when it comes into contact with the human body.

Zehnder radiant ceiling panels copy this natural principle. Radiant panels fitted even at a height of 30 metres can still ensure pleasant and comfortable heat on the ground. They do so with unique efficiency, since the radiant heat does away with the need to directly heat up the air and thus also incorporates a considerable savings potential.

## ■ HEATING EFFECT



The heating method is as simple as it is effective: The radiant ceiling panels are heated by hot water and give off energy to the room. This energy only converts into heat when it comes into contact with a surface.

## ■ COOLING EFFECT



The same method of heating buildings cheaply and efficiently can also be used to cool them: Cold water flows through the cooling ceiling. Because people and objects in the room have a higher temperature, they radiate their heat to the ceiling. At the same time, warm air inside the room also rises and it gives off its heat to the cooling ceiling. The cooled air flows back down into the room.



## Comfortable indoor climate has a major influence on well-being

We spend almost three quarters of our lives indoors: at home, at work, during our leisure time. The indoor climate itself (temperature, air movement and air humidity) has a big influence on our general well-being. Comfort is mainly achieved by the way in which heat is transferred: for example, the radiant heat of the sun on a cold winter's day is perceived as pleasant and natural, because it warms the body directly. This principle of heat transfer is used by Zehnder heating and cooling ceiling systems.

In comparison to conventional air heaters, heating and cooling ceiling systems are also a totally clean entity, since the heat that they produce is draught-free and does not disperse any dust. This is a considerable advantage not only for allergy sufferers, but also for people who need to be in dust-laden rooms.

### Benefits at a glance:

- Natural principle of radiant heat
- Uniform, comfortable heat distribution throughout the room
- Heating and cooling effect immediately noticeable
- The system runs absolutely silently
- No dust dispersal – advantage for allergy sufferers
- Lower cleaning costs for your building





# The one-stop custom solution

Zehnder's heating and cooling ceiling systems are customer-friendly, complete solutions for heating and cooling commercial premises. The service package covers the full process from consulting and planning to production, installation and commissioning. You will have one Zehnder contact throughout the whole project – your guarantee for planning reliability, cost transparency and a smooth, highly efficient construction process.

## 1 Advice

Our technical contacts can offer you professional advice on an individual basis.



## 2 Planning

Engineers, technicians and designers in our in-house planning department design top-grade heating and cooling ceilings tailored down to the last detail.



## 3 Production

We produce environmentally-friendly, top-quality customised heating and cooling ceilings in a state-of-the-art production plant.



## 4 Installation

If required, experienced fitters install the heating and cooling ceiling systems efficiently, to schedule, and tailor-made to match the particular room design.



## 5 Commissioning

We also offer a thermograph certification test that enables customers to visualise the consultation and installation quality.



## Versatile applications

The principle of heating and cooling ceiling systems can be used for a wide variety of rooms and buildings. Zehnder heating and cooling ceiling systems have been used for decades to heat and cool rooms up to 30 metres in height. Their applications cover all areas of use. They have proven to be particularly effective for the heating and cooling of production and sports halls, showrooms, offices and public buildings, such as schools and hospitals. It has long been impossible to imagine innovative building projects without them.

### ■ FACTORIES AND WAREHOUSES



**Energy-efficient:** By using Zehnder heating and cooling ceiling systems, large and high hangars can be heated in an energy-saving manner.

### ■ SPORTS HALLS



**A potential record breaker:** Zehnder heating and cooling ceiling systems achieve an optimum level of comfort thanks to the even temperature distribution over the entire height of the building.

## ■ DISPLAY AREAS AND SHOWROOMS



**Space-saving:** Zehnder heating and cooling ceiling systems do not occupy valuable floor space because they are installed on the ceiling.

## ■ OFFICES



**Optimally matched for buildings and people:** The numerous special shapes and colours, combined with tailor-made production of Zehnder heating and cooling ceiling systems, simplify use and do not involve costly, special solutions.

## ■ SCHOOLS AND HOSPITALS



**Enhancing performance and hygiene:** The improved indoor climate is beneficial to students and increases their ability to concentrate. Zehnder heating and cooling ceiling systems are an especially hygienic alternative in the hospital and care home sector.



# Heating and cooling ceiling systems overview

The products from Zehnder are as comprehensive as your requirements for perfect heating or cooling. Regardless of the desired climate conditions, Zehnder has the solution and decades of experience in the development of heating and cooling ceiling systems. With Zehnder, you can choose from a wide range of high-grade, maintenance-free products with a long service life. At the same time you are choosing a proven, reliable and tailor-made match for your project that meets latest industry standards!



1



2

## Radiant ceiling panels

- Possible energy savings over 40%
- Free choice of energy carrier
- Optimum heat distribution matched to the room geometry
- Suitable for individual architecture – different versions possible
- Many special solutions: angled, perforated for sound absorption, light cut-outs, ball guards, etc.

Versions:

- Zehnder ZBN
- Zehnder ZIP

1 Zehnder ZBN

2 Zehnder ZIP





## Ceiling sails

- Can be individually adapted
- Available in numerous colours
- Suitable for low room heights
- Easy and quick to install
- Very high sound absorption

Versions:

- Metal ceiling sail
- Plasterboard ceiling sail

1 Metal ceiling sail



## Closed ceilings

- High energy savings, thanks to the rapid response of the system
- Extremely quick reaction time to temperature changes in the room
- Lower investment and operating costs
- Comfortable indoor climate due to the high proportion of radiation
- Even heat distribution
- Perforated design for sound absorption
- Ceiling void can be accessed quickly and can be used as an installation level

Versions:

- Metal ceiling: C-Channel grid, clip-in, lay-in and hook-on system
- Plasterboard ceiling



1 C-Channel grid system

2 Lay-in system





**B**

**C**

For more information and  
tender specifications:  
[www.zehnder-systems.com](http://www.zehnder-systems.com)





Küssnacht ice rink, Switzerland



