

Build for the future

Lindab **Solutions**

Customised indoor climate solutions that meet the demands for simplicity, energy efficiency and an optimal indoor climate





Photo: Courtesy of ELI-ALPS

We simplify construction

At Lindab we are driven by a strong desire to continuously generate improvements and to simplify construction. We do that by developing products and systems that are easy to use and energy efficient, together with industry-leading knowledge, support, logistics and efficient availability.

We want to simplify everything – from designing, ordering, delivery, goal achievement and installation to the entire way of doing business with us. By simplifying in every stage of the construction process, we also contribute to energy-efficiency.

A good thinking company

Good thinking is a deeply rooted philosophy that guides us in everything we do. We firmly believe that good thinking makes good solutions to the challenges we all face. Taking responsibility for what we do and how we do things is therefore important to us. Because good thinking is not only about making life easier and more comfortable for our customers and end users. It is also a matter of thinking in a global perspective, all the time. Knowing that we at Lindab are helping to make the world a better place.

Lindab Solutions makes it easier to build for the future

We live in a complex world where more and more has to be done within an ever shorter timeframe. By bringing the whole of our offering under one roof we can make the world a little less complex. With us as your partner you have access to our entire product offering and complete range of expertise in a smart, efficient, easily accessible way. Based on your needs, we help you to package a tailored solution that simplifies the construction of airtight, energy-efficient buildings.

Customised indoor climate and building solutions

This brochure is about our offering within customised indoor climate solutions. However, Lindab's solutions also include customised building solutions. We can help you to customise a complete package of building products, systems and solutions – and support you with useable IT software, knowledge and professional advice throughout the construction process. Read more about customised building solutions at lindab.com.



We provide the right indoor climate solution – tailored for your project



Lindab's solutions comprise all the parts needed to efficiently execute a project. You receive a complete combination of ventilation systems, products, knowledge and support – all in one package.

As your partner, we put together a solution that is tailored to meet your needs and those of the end user – while supporting you throughout the process. We help you to plan, dimension and optimise your project with our unique IT tools. We provide complete documentation about your systems and industry-leading products. And you can draw on the knowledge we have amassed over years of developing ventilation solutions to meet tomorrow's needs.

This means you can carry out your project more efficiently, and offer your customers a sustainable indoor climate.

Your all-round partner

We have the solution for your project

- We supply the right solution – tailored for your project
- We assist with consulting services and technical support in all phases of project implementation
- Proven quality products and systems that simplify design, installation, commissioning and operation

- The most energy-efficient and intelligent systems on the market
- IT tools that make both planning and purchasing easier
- We offer training on product information, installation, design and IT tools
- European production and distribution network enables short delivery times and a high service level



Simply the
best solutions
out there

World class R&D centres and laboratories

Lindab has world-leading laboratories and development centres in Sweden, Denmark, Slovenia and Italy. Applying our cutting-edge knowledge in areas such as fire safety, acoustics and air movement, we continuously develop quality-assured products and



ground-breaking innovations. Having our own development centres means we can offer our customers flexibility. We can swiftly customise solutions that meet the customer's needs. Over the years we have performed a string of special tests for our customers and developed special solutions, also when the customer has had a more specialised request.

Global presence

Lindab can currently be found on around 30 markets around the world, and has more than 150 branches and 2,000 retailers. We are always nearby, fast and accessible.

Complete product programme

Lindab boasts the market's most complete product portfolio in ventilation and indoor climate.

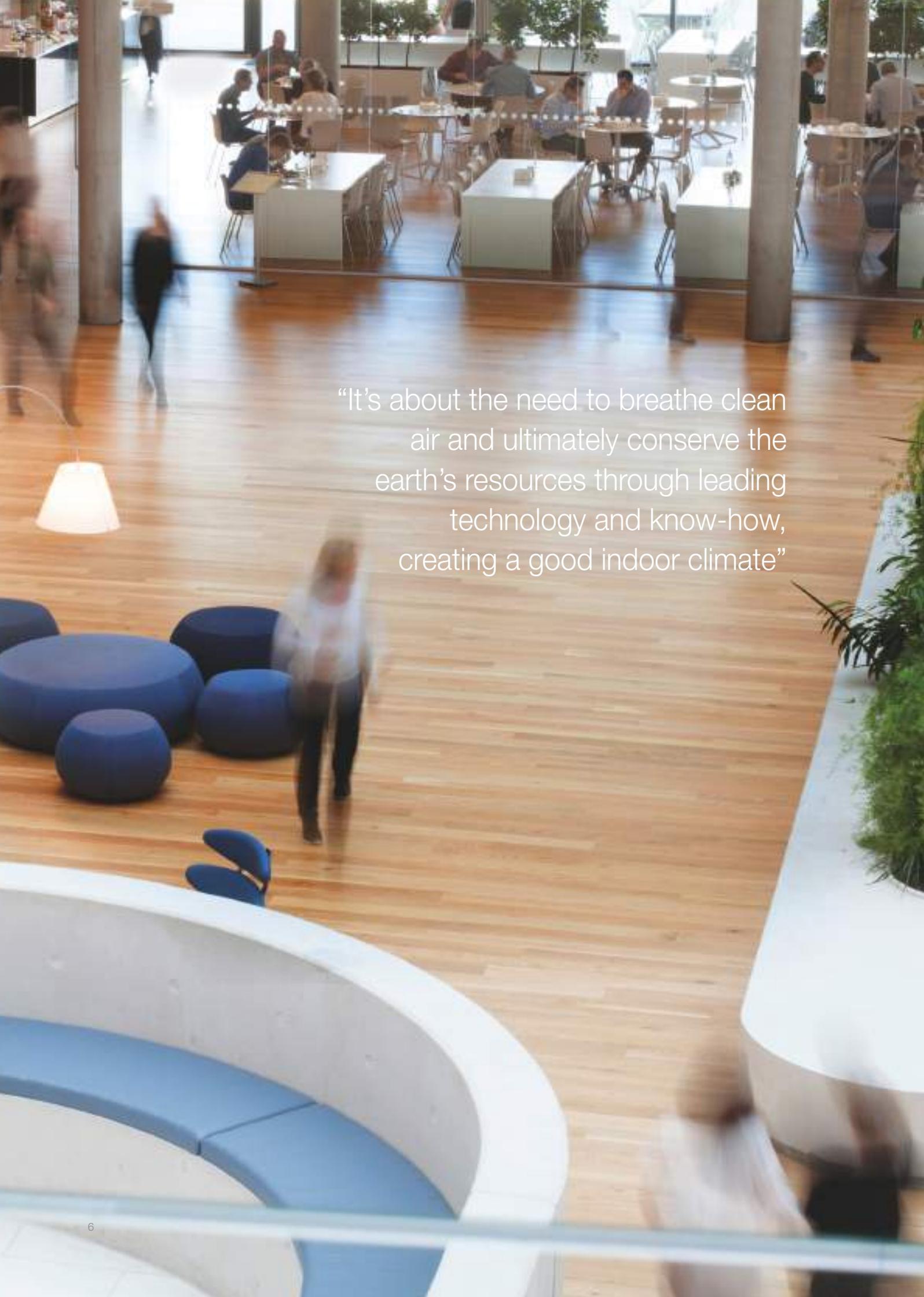
Our products are characterised by high quality, energy efficiency and ease of assembly, and are always well documented.

Industry-leading know-how and expertise

Lindab has expertise from all aspects of construction as well as leading know-how in air movement, acoustics, fire safety, as well as heating and cooling. This enables us to offer advanced advice, product choice support and personal service throughout the process.

Strong brand

Lindab is a leading, well-known brand, particularly across the whole of Europe, and can be summed up by three strong core values: Customer success, Down-to-earth, Neatness and order.



“It’s about the need to breathe clean air and ultimately conserve the earth’s resources through leading technology and know-how, creating a good indoor climate”



Residential Solutions

Lindab can supply a whole indoor climate package for a safe, comfortable and healthy indoor climate in all types of residential buildings.

Office Solutions

Lindab helps you to customise the right solution for a productive indoor climate and can meet requests for the most specialised solutions.

Hotel Solutions

Lindab's solutions help ensure that the guest has a perfect stay, at the lowest possible energy cost.

Hospital Solutions

Lindab can meet the very highest technical requirements where maximum hygiene safety needs to be assured, such as operating theatres, laboratories and intensive care wards.

Leisure Solutions

Lindab has delivered indoor climate solutions for a long list of different buildings in the leisure industry – many with exceptional requirements and highly specialised requests.



Residential Solutions

Every day we breathe in around 20,000 litres of air. A good indoor climate in residential buildings is therefore essential for people to feel well in their homes. Altered living habits also entail an increasing need for better air and greater comfort. Intelligent homes that make their own smart decisions is becoming more common and demand-controlled indoor climate solutions meet this increasing needs, and also fulfil an important function in the environmental conversion.

Feeling safe in our homes, where we cook, sleep and spend time with our family, is another requirement.

And in apartment blocks, which are home to several families, these requirements occur in tandem. Fire resistant and smoke control systems that help to restrict and obstruct the spread of fire and smoke can be an instrumental part of the solution.

Lindab can supply a whole package for a safe, comfortable, healthy indoor climate in all types of apartment buildings.





Palazzo San Carlo

“The aim was to create first-class accommodation with an extremely energy-efficient ventilation system”

Extending throughout the heart of Turin’s historic and cultural centre is Via Roma, the city’s principal shopping street and address for cultural heritage buildings such as the Palazzo San Carlo. However, at the beginning of 2013, parts of the large Palazzo San Carlo building were converted into apartments. As part of the project, Lindab supplied a solution for the project using the Lindab Inside concept.

Simple with Lindab Inside

The French property company Nexity specialises in luxurious property developments in top locations in French and Italian cities, of which New Palazzo San Carlo is a typical example. In conjunction with the designer, AI Engineering, and the installation contractors, Tecno Engineering, Lindab supplied a customised indoor climate solution that could be simply integrated in the building.

The challenge was to supply a system that would surpass even the most stringent EU energy standards but which would also be possible to install simply

and discreetly in the sensitive building. Positioning vent shafts behind an extended facade created new options for effective ventilation in the existing buildings.

“*With our technical expertise and Lindab Inside we were able to tackle it with no major problem*”

– Claudia Guardini

Quality solution enabled quality living

The aim was to create first-class accommodation with an extremely energy-efficient ventilation system, while retaining the form of this historically important building.

“In light of Lindab’s high-level technical expertise, we were convinced that they would deliver a complete and quiet solution that meets all the requirements,” explains Andrea Chierogato of Tecno Engineering.





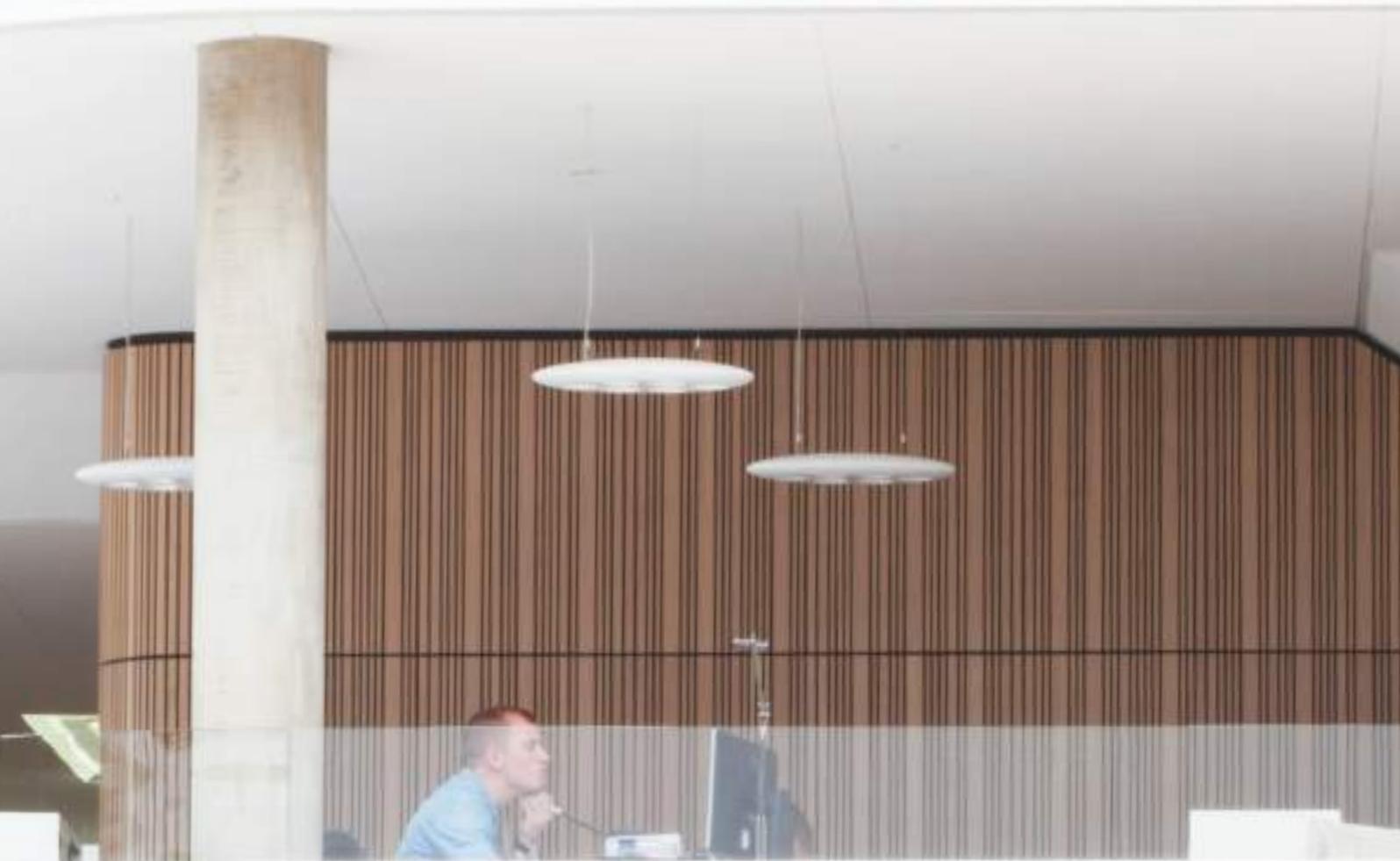
Office solutions

Air flow, air quality, temperature and sound levels are all factors that affect our performance in an office environment. There is also a link between the air change rate and sick leave. In other words, a good indoor climate in office buildings is very important to productivity, comfort and – above all – people's well-being. Demand-controlled ventilation and cooling is an intelligent way of saving energy while also ensuring an optimal

indoor climate.

The building's architecture, location and the nature of the activities in the building are just some of the factors that influence requirements relating to the solution's quality, aesthetics and functionality.

Lindab helps you to customise the right solution for a productive indoor climate and can meet requests for the most specialised solutions.



DSV

“Delivering solutions that completely meet the customers’ requirements on function, quality and aesthetics”



DSV is a global supplier of transport and logistics services with around 22,000 employees and its own offices in more than 75 countries. Lindab has delivered the indoor climate solution tailored to the group’s newly built headquarters in Hedehusene, outside Copenhagen. One of the specifications was active chilled beams with built-in LED lighting.

“Lindab delivered an excellent solution which both the architect and the ordering client are delighted with. Lindab has also, as usual, delivered the right product at the right time, given us fast, effective support and been there for us throughout the project”

– Susanne Brumé Haacks, construction manager at ventilation installers JT3 Klima who installed the system

The solution is another example of how function, aesthetics and high quality can be united in a modern, energy-efficient indoor climate solution.

Customised supply air beam Premum with built-in LED lighting

Visible from the stunning atrium are the countless Premum active chilled beams delivered by Lindab and furnished with specially designed LED light fittings. PLH Architects alongside consultants Moe A/S and light makers Philips designed a supply beam prototype with integrated LED lighting. Lindab adapted its existing Premum chilled beam for LED to meet the special requirements.

A comprehensive solution delivery

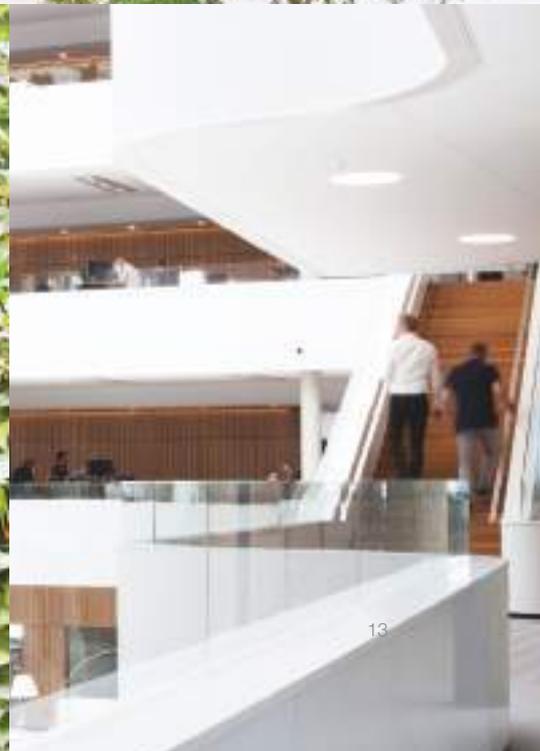
The 350 Premum beams are in the open-plan office spaces and common areas, while the LCP diffusers and MBBV plenum boxes are in the large, light canteen on the ground floor, and in large and small conference rooms with temperature and CO₂-controlled VAV systems. The entire building has low energy consumption and is classified as a low-energy building.

Lindab’s expertise, resources and solutions have the primary aim of bringing our customers success, by delivering solutions that completely meet their customers’ requirements on function, quality and aesthetics. If, as in this case, we can also be involved at an early stage, we can put forward some great ideas to ensure the best possible solution.



Solution in short:

Lindab delivered 350 Premum chilled beams, specially adapted for LED lighting from Philips, along with 160 LCP diffusers with accompanying MBBV plenum boxes, 50 VRU variable flow regulators and 200 supply air grilles. As well as these indoor climate products, Lindab also supplied the complete duct system for the whole building including ducting, fittings, silencers etc.





Hotel solutions

The most important financial key ratio in the hotel industry is the occupancy rate. Needless to say, the occupancy rate is directly linked to the guest's well-being. Important requirements relating to comfort include fresh air and a pleasant, quiet room.

The indoor climate solution must meet, and ideally exceed, the guest's requirements.

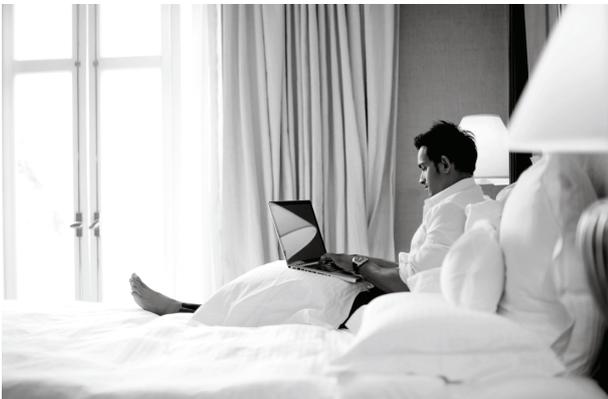
Since everyone is different, with individual needs and requirements relating to comfort, a demand-controlled

indoor climate is often the optimal solution. Aside from the quality of the system, other important aspects include high energy efficiency and low operating cost, along with minimal maintenance.

Lindab's solutions help ensure that the guest has a perfect stay, at the lowest possible energy cost.

The Conrad Algarve Hotel

“Providing an optimal solution for the project”



The Conrad Algarve, part of the Hilton hotel chain, is located in one of the most exclusive parts of the Algarve coastal region in the south of Portugal, named the Palacio da Quinta. As the first Conrad hotel in Portugal, it not only boasts a beautiful location – the prestigious complex with 158 guest rooms also features two luxury restaurants, a cocktail bar with a terrace, and two swimming pools as well as other water-related attractions. The hotel’s extensive offering also includes a wellness centre and separate fitness centre.

Details make perfection

The hotel is one of the most modern five star hotels in the region. This contemporary luxury hotel is uniquely styled, from the five individual restaurant and private balconies to the guest rooms. With contemporary design and technology flowing throughout the luxurious accommodation in harmony with beautiful natural surroundings, every detail plays an important part in

achieving perfection. Not least the tailor-made indoor climate solution.

Fire safety included

Lindab played an important part in the construction of the hotel, providing a tailored package including 40 air handling units for central air preparation, while also supplying 300 round and square fire dampers for fire safety. As an optimal solution for the distribution of air for this project, ventilating grilles and over 500 diffusers with varying dimensions were chosen.



Hospital solutions

Preventing the spread of contagions is an important task for ventilation in hospitals. In some types of care, low levels of contagions in the air are absolutely crucial to the outcome, for example in transplants and patients with burn injuries. The reliability of each component is therefore absolutely crucial in ensuring the ventilation system is completely safe. Operating theatres and laboratories are complex systems with extreme hygiene requirements on materials and equipment. At the same

time, all of these rooms are individual projects that require the utmost precision and flexibility – both as regards design and adaptation to the project's specific needs.

Lindab can meet the very highest technical requirements in places where maximum hygiene safety has to be assured, such as operating theatres, laboratories and intensive care wards.

“Tailored turnkey solution for demanding clean room”

Lindab's turnkey solutions for clean rooms, which include supply of air filtration, distribution and volume control systems, as well as the supply and installation of special walls, doors and lighting elements, are meeting with a great response in different markets. One of the projects where Lindab provided a complete solution for clean room and supplied the HVAC system, a building management system and carried out all mechanical installations, is the headquarters of the company RLS in Komenda, Slovenia.

“*Lindab provided a complete solution for clean room and supplied the HVAC system, a building management system and carried out all mechanical installations.*”



Hazardous areas

Another project was Krka KRC, a chemical R&D centre within the Slovenian pharmaceutical company Krka in Novo Mesto, designed to develop new pharmaceutical products. For this demanding facility, which requires a high level of air purity, the air is supplied through AFV-8G diffusers for hazardous areas (category 2 and 3G), while air extraction is fulfilled by air handling units for hazardous areas (category 3G). Firstly the exhaust air passes through FR filter grilles and, additionally, in order to protect the environment from potentially hazardous dust particles, also through duct units with HEPA filters in an explosion-proof version.

A safe solution

For this purpose, a special AKF Ex unit of category 3G for hazardous areas was developed, with a safe filter replacement system (bag-in/bag-out) with pre-filter, two consecutive HEPA filters and a by-pass with filters containing activated carbon.

This by-pass is activated via airtight dampers (airtightness class 2 according to EN 1751) and NC drives for hazardous areas in case of handling hazardous compounds. The filter with activated carbon eliminates these compounds (via chemical reaction) and the thus purified air can be released into the environment.



Leisure solutions

Leisure facilities such as sports arenas, cinemas, concert halls and opera houses are often extremely complex. Many activities often have to take place at the same time, without disturbing each other. All of these types of buildings bring different challenges regarding indoor climate solutions. In addition to a comfortable indoor climate, the sound requirements are often strict.

Another common denominator is a strong focus on solutions with high energy efficiency.

Lindab has delivered indoor climate solutions for a long list of different buildings in the leisure industry – many with exceptional requirements and highly specialised requests.



Copenhagen Opera House

“Tailor-made solution to meet the demanding needs of an exciting building”



Foto: Race Furniture



Copenhagen's new Opera House opened on 15 January 2005 and has a total area of 41,000 square metres, spread over 1,000 rooms and 14 storeys, five of which are subterranean. It was designed by Danish architect Henning Larsen and has two stages: the Main Stage and Takkelloftet. The Main Stage auditorium has capacity for an audience of up to 1,703, an orchestra pit for 110 musicians, and such technical and spatial possibilities that it undoubtedly ranks as one of the world's most modern opera houses.

Extremely complicated project

Nordic consultant Rambøll and Henning Larsen Architects were jointly responsible for project planning of the opera house, and for consultancy services regarding the project's extensive technical installations. Master of Engineering Jørn Trelidal of Rambøll was responsible for all the HVAC installations.

“A project of this kind is based on a lot of unique, fundamentally different solutions. The architectural ambitions were very high, and this in turn placed correspondingly high demands on all the technical solutions – from the facade cladding to the supply air system in the main auditorium”

– Jørn Trelidal

Extreme acoustic standards

The noise requirement was set at a full PNC 15, which places very strict requirements on silencing, especially in the low frequency bands. In fact this is such a low sound level that it is inaudible to the human ear. Even measurement can cause problems. Since diffusers themselves always generate sound, this was one of the sound-critical products. Not only should PNC 15 be met, but it should also be combined with the architect's firm ideas about the design and appearance of the actual diffusers.

Full-scale test in Lindab's own laboratory

In order to measure and develop the supply air solution for Copenhagen Opera House, Lindab built two complete full-scale models for both the stalls and balcony with a total of 24 diffusers. This gave us every opportunity to measure and document air streams, sound pressure and required output in an efficient, true-to-life way, so that we could then present a finished solution to the owner, consultant and architect.

Solution in short:

Full-scale testing at the Farum laboratory, together with the ingenuity and experience of the Lindab sound specialist, presented solutions that catered to all the air diffusion needs of this exciting building. Over 1,700 Lindab diffusers, many with grilles tailor-made to the building's curvature, now distribute fresh air to the 41,000 m² building's 1,000 rooms.

All the diffusers in the main auditorium receive supply air from large pressure chambers beneath the seats, which are linked to the fan unit via duct systems and silencers. Placing the supply air beneath the seats is now common practice in auditoriums of this type. Over 1,700 Lindab diffusers, many of which have customised grilles for the building's curvature, supply the building's 41,000 square metres with fresh air.



Lindab in brief

Lindab is a supplier of products and system solutions for simplified construction and improved indoor climate, and our main market is Europe. Through close dialogue with our customers, a flat organisation, knowledgeable employees and a strong corporate culture, we develop solutions that have a lower environmental impact and offer increased customer value.

A culture of innovation

There are three core values behind the drive and the culture of innovation that permeate our entire organisation; to continuously generate improvements for our customers and users.

1. Customer Success

The way we see it, success for our customers breeds success for us. Our endeavour to simplify construction for our customers helps to make their operations more efficient. We do this by leading the development of solutions in our main areas.



2. Down to earth

We strive for long-term relations based on uncomplicated, trustworthy conduct and an attitude of humility. Important factors are cost-consciousness and fast, efficient decision-making that avoids unnecessary bureaucracy.

3. Neatness and order

Good orderliness everywhere has a positive impact on efficiency as well as the overall image of the company, and also contributes to a feeling of pride when presenting Lindab.

More than 150 branches

A large proportion of Lindab's sales are made through our own branches, selling ventilation and/or building products.

Approximately 5000 employees

At the end of the year, of Lindab's employees, 78% were employed outside of Sweden. After Sweden, the Czech Republic is the country with the highest number of Lindab employees.ww

More than 3,000 distributors

Lindab has a broad network of nearly 300 building contractors and more than 3,000 distributors in total.

www.lindab.com

The Lindab website provides extensive information about our offering. It also has contact details and addresses for all our companies worldwide.



Our focus areas



Market Excellence

Through the strong distribution network and broad product offering along with numerous and close customer relationships, Lindab's market positions will advance even further.



Efficient Availability

The supply chain that comprises purchasing, production, logistics and distribution will generate higher value based on an overall customer-focused approach through simplification, rationalisation and innovation.



Solutions

By utilising the strength of our ventilation and indoor climate product portfolio comprising strong R&D and customised manufacture, complete solutions will be offered to new customer segments.



Innovation

Enhance a long-term, innovative culture in order to generate ideas, both ground-breaking and incremental improvements, in all areas will assure future growth and profitability.



People

Strong leadership, employer brand, culture and investment in staff development will create the right conditions to ensure that Lindab has the best team for its business.



Good Thinking

At Lindab, good thinking is a philosophy that guides us in everything we do. We have made it our mission to create a healthy indoor climate – and to simplify the construction of sustainable buildings. We do that by designing innovative products and solutions that are easy to use, as well as offering efficient availability and logistics. We are also working on ways to reduce our impact on our environment and climate. We do that by developing methods to produce our solutions using a minimum of energy and natural resources, and by reducing negative effects on the environment. We use steel in our products. It's one of few materials that can be recycled an infinite number of times without losing any of its properties. That means less carbon emissions in nature and less energy wasted.

We simplify construction

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