

iQ Star by Fläkt Woods
Energy efficient climate for modern living



iQ
Star
by Fläkt Woods

FläktWoods



The right climate at the right time. Purposeful and energy efficient.



The modern office is dynamic. With laptops and mobiles we can work where we want and carry out our tasks wherever it's convenient. Success in business today also calls for flexibility to meet new demands, where rearrangements of people, walls and furniture should be realized with a minimum of effort.

Astra and Stella are the new chilled beams from Fläkt Woods with the high

quality required to easily adapt to new conditions. They are designed for the modern offices, with equal focus on the importance of a productive working climate and the need to care for the environment.

Attractive designs, smart functions, flexible construction and energy saving features make these chilled beams true iQ Stars.



Astra

Stella



Stella is our free-hanging multi-service Chilled Beam, characterized by modularity, flexibility, sustainability and energy efficiency. Thanks to pioneering nozzle technology and smart controls, the air flow is always sufficient and adapted to just-in-time need. Stella's modularity and the Flow Pattern Control and Comfort Control functions allow flexibility in the office layout. Good indoor air quality is possible despite organizational changes and renovations without the need to change the installation.

Design your own Stella

Sometimes design is just as important as capacity. Stella has a modern standard design, but it is possible to design your own Stella.

Boost, Normal or Energy Saving mode

The traditional office with rooms and cubicles that are occupied from 9 to 5 will soon be a distant memory. Most office space is hardly ever used, or sometimes it is overused. Stella's smart control panel with Normal, Energy Saving and Boost modes enables easy adjustment of the air flow. This means that whether an office or meeting room is empty or crowded, the Stella beam provides sufficient air flow. Not only does it save a lot of energy when the room is not in use, it also keeps the employees spry and alert. A good reason to have high indoor air quality.

Astra Flexibility, sustainability and energy efficiency also characterize our integrated Chilled Beam, Astra. Whereas Stella has an air flow adjustment option on its control panel, Astra has the ground-breaking Boost function. The air flow is adjusted automatically, depending on the level of CO₂ in a room, which is affected by people and computers.

Flexibility in the room

Modern offices not only have a fast turnover of occupancy during the day, their layout often changes in periods of 6-12 months. Fläkt Woods' range of chilled beams is totally unique with its Flow Pattern Control function that provides high flexibility in new buildings or refurbishments. The air flow can be directed up to 45 degrees through integrated vanes. When increased air flow is required, the vanes can be adjusted into different directions, to increase comfort.

More than cooling

Other functions such as a sprinkler system, smoke detectors and modern lighting increases comfort and flexibility.

> *Opportunity:*
**Increased productivity
 and low energy costs**

Today, most people spend over 90 percent of their time indoors e.g. at home, in schools, at hospitals and offices. Breathing fresh indoor air is vital for our health, performance and well-being.



Accessories

Flexibility is increased by the numerous accessories available for iQ Star.



Flow Pattern Control

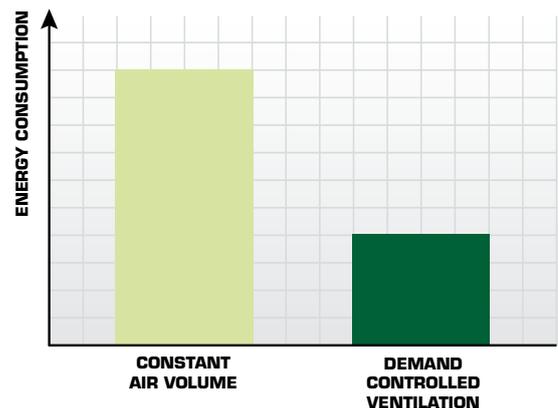
The unique Flow Pattern Control (FPC) can direct the airflow up to 45 degrees through integrated vanes. Different directions can be set at sections of 300 mm in the beam.

Variable Air Flow

Astra has Variable Air Flow function. The air flow is adjusted automatically, depending on the level of CO₂ in a room, affected by people and computers.

> *Solution:*
**Demand Controlled
 Ventilation**

Demand controlled ventilation provides desired ventilation based on the actual occupancy of the room. It increases indoor air quality and saves energy normally wasted in ventilating unoccupied spaces. That energy can be used in areas where there are frequent changes in occupancy, such as conference rooms, board rooms, cafeterias etc. Field experience indicates that the occupancy varies between 40 and 75%. This means that demand controlled ventilation can reduce ventilation as well as heating and cooling loads by 10%–30%.



- A good ventilation system removes and dilutes warm, humid air and provides air movement which gives a sense of freshness without causing a draught. In office spaces this is necessary for good health and productivity.
- There is a correlation between levels of CO₂ and well being of occupants. When levels of CO₂ rise, the health complaints, tiredness and lack of concentration also rise. Even if it is difficult to set absolute figures on the economical impact, the conclusion is undoubtedly that poor indoor air quality will have impact costs through sick leaves and decreased productivity and quality.
- Improved thermal comfort, reduction in indoor pollutants, and enhanced ventilation rates and effectiveness can increase productivity by 5 to 10%.
- The space temperature has also a great impact on the well-being and performance. The ideal temperature for maximum performance varies between individuals and only a couple of degrees deviation decreases the performance. There is a decrease in performance by 2 % for each degree increase of space temperature between 25°C and 32°C.
- The average occupancy rate vary between 35 and 55% during normal office hours. Assuming that the ventilation system has been designed according to peak load with a static, constant air volume system (CAV), potential savings from Demand Controlled Ventilation would be 45-65%.
- With Stella the energy consumption is reduced by 50%.

50% energy saving with iQ Star

Building energy consumption, building located i Stockholm, Sweden

Load	Cost sharing	Basic beam CAV/ Traditional ductwork/ utilasation rate = 50%		iQ Star beam VAV Oversized ductwork/ utilasation rate = 50%	
		MWh	€	MWh	€
Domestic hot water	Facility	25,8	1 097	25,8	1 097
Heating, spaces	Facility	171,5	7 289	148,9	6 330
Heating, AC system	Facility	48,3	2 052	33,8	1 437
HVAC, cooling electricity	Facility	32,9	2 800	35,6	3 027
HVAC, fans	Facility	69,7	5 927	28,9	2 457
HVAC, other electricity	Facility	2,6	223	2,6	223
Equipment electricity	Facility	18,2	1 549	18,2	1 549
Lighting electricity	Facility	9,1	777	9,1	777
Equipment electricity	User	58,4	4 967	58,4	4 967
Lighting electricity	User	85,8	7 294	85,8	7 294
Electricity total		277	23 537	239	20 294
Heating		246	10 438	209	8 863
Total		523	33 975	447	29 157

Basic information

Geometry model area: 4392,5 m²
 Geometry model volume: 14 313,7998 m³
 Heating energy: 42,5 EUR/MWh (VAT not incl.)
 Electric energy: 85 EUR/MWh (VAT not incl.)

> *Opportunity:* **Flexibility and comfort**

The large variety of functions makes it possible to change the office layout without the need to reinstall the Chilled Beams. Refurbishing, setting up or cutting down walls can be done without decreasing the indoor air quality.

Flow Pattern Control

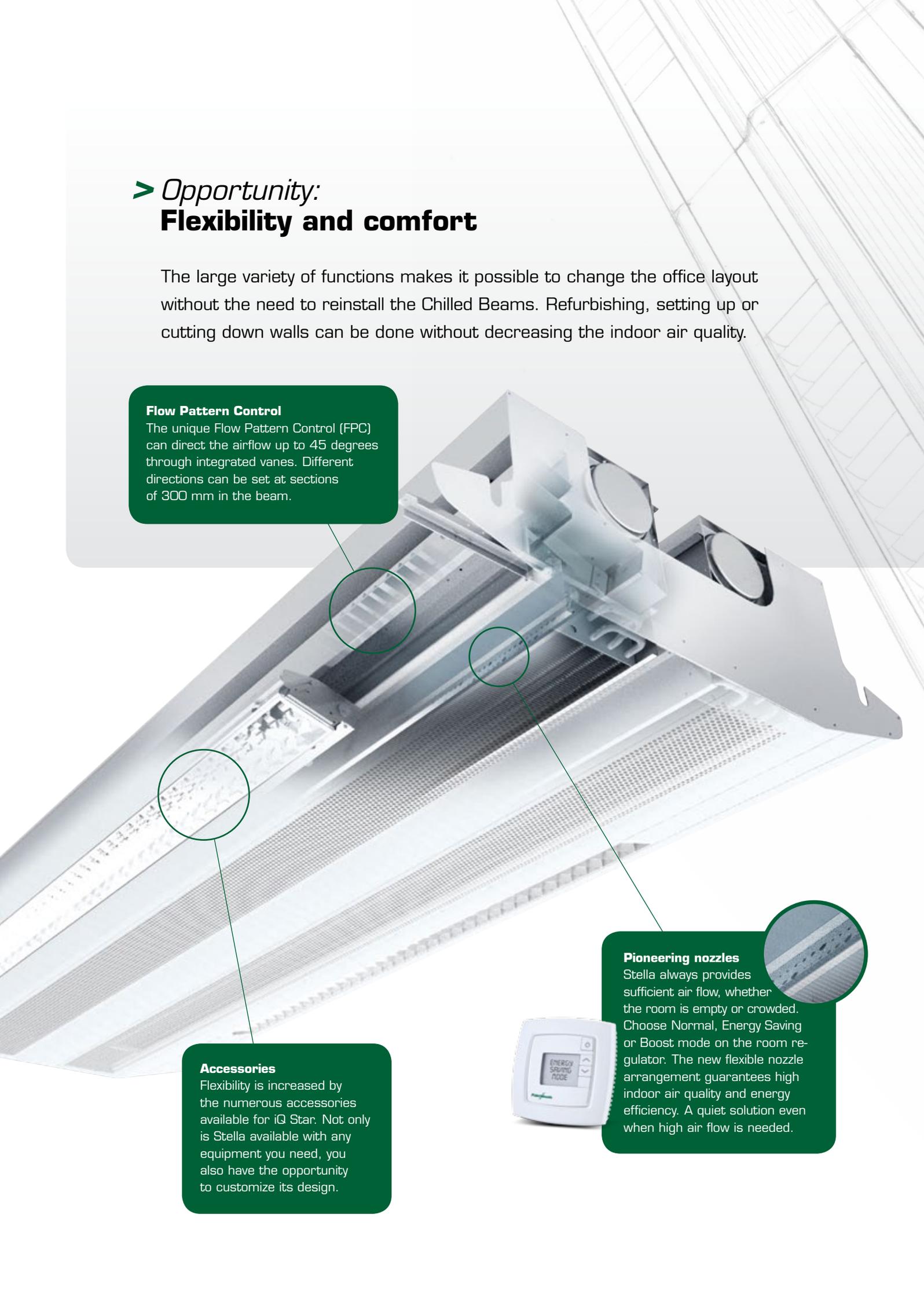
The unique Flow Pattern Control (FPC) can direct the airflow up to 45 degrees through integrated vanes. Different directions can be set at sections of 300 mm in the beam.

Accessories

Flexibility is increased by the numerous accessories available for iQ Star. Not only is Stella available with any equipment you need, you also have the opportunity to customize its design.

Pioneering nozzles

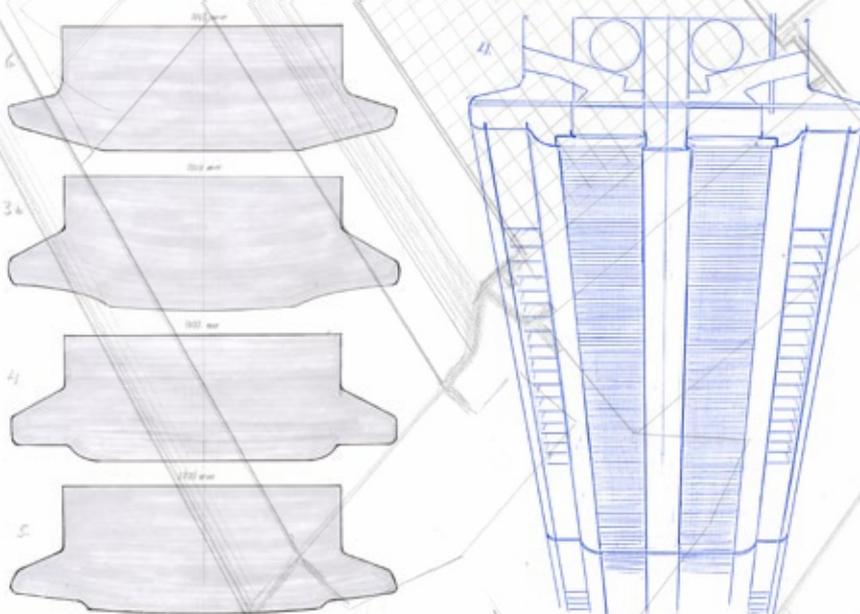
Stella always provides sufficient air flow, whether the room is empty or crowded. Choose Normal, Energy Saving or Boost mode on the room regulator. The new flexible nozzle arrangement guarantees high indoor air quality and energy efficiency. A quiet solution even when high air flow is needed.





Design your own customized Stella

Design is important for the indoor environment. Stella has a modern standard design, but offers the opportunity to create a unique design depending on room use and personal taste. Design and colour - you decide!



Chilled beams

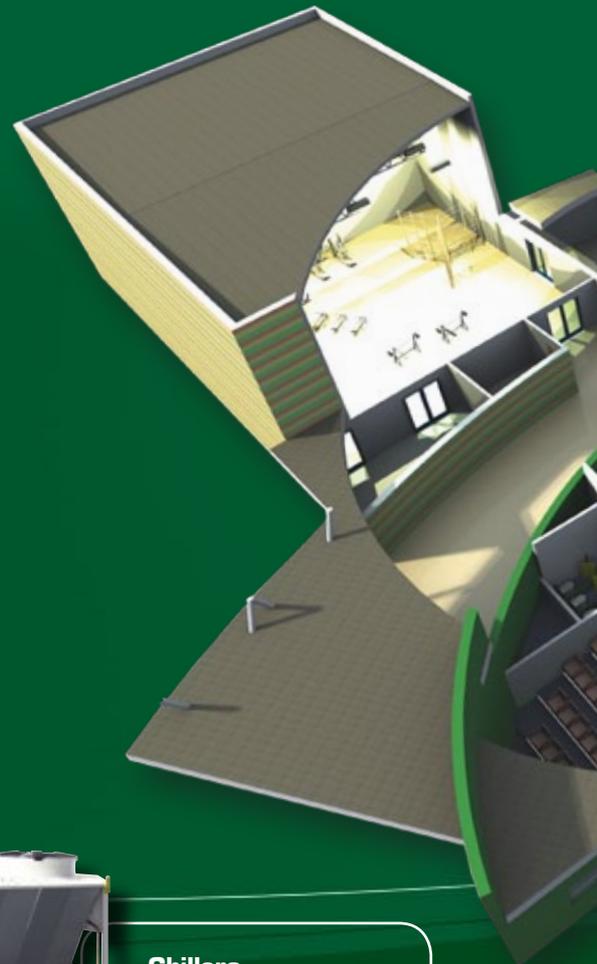
In systems with chilled beams, the indoor air is cooled by means of cold water. Chilled beams create a stable and comfortable environment by supplying draught free cooling. By using chilled beams up to 75% of the total cooling capacity will be handled by the water. Apart from the energy saving it also means less ductwork for air, smaller air handling units and lower noise.



> Opportunity: Integrated advantages and energy saving

A carefully designed system can achieve more than the sum of the integral parts. High-performing components are an obvious starting point. But it is by combining products into a system, utilizing smart controls, one can achieve the best energy solutions. This strategy requires that the systems and individual components are designed together. It takes thorough knowledge of the individual products impact on each other and the ultimate combined effect to reach perfection.

Fläkt Woods develop and produce components as well as design systems. That's why we can combine the parts into harmonic overall solutions.



Chillers

The Fläkt Woods range of chillers are designed to minimise the overall annual energy consumption in all types of buildings.



Air Handling Units

The comprehensive range of Air Handling Units that we offer allows us to deliver the best individual solution for any customer. Our R&D work focuses on reducing energy consumption and creating factory complete air handling system solutions with controls.



Air Volume Control

Flow variators are products for the control and adaptation of airflows in VAV (Variable Air Volume) systems. The system saves costs and energy because the flow and cooling effects are adapted to the actual demand in the room, with the result that the total flow for the air treatment units is reduced.



Integrated Controls

The heart of the Demand Control Ventilation system is the controls. Flakt Woods has adapted the thinking into our control package. This strategy provides a way to create maximum indoor air quality to minimum energy cost.



> *Opportunity:* **Saving energy and money**

We spend approximately 90% of our time indoors. The indoor environment is becoming more and more important. A lot of energy resources are consumed to maintain the right temperature and air quality. Normally we say that 30% of the energy is spent on ventilation, another 30% on cooling and 30% on heating. (The remaining 10% is for the lighting and technical installations.) With ventilation representing a third of the consumption we have a lot to work with. But we can also affect both heating and cooling through the ventilation system. Together, that means you can make an impact on about half of a building's total energy consumption when designing your ventilation system. That's something worth considering!

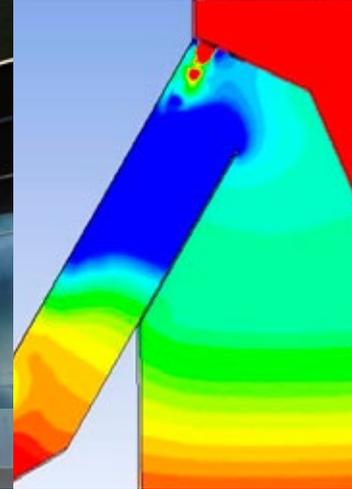
The need to save energy must not impact negatively on the indoor air quality. iQ Star adjusts the air flow to the air flow requirements. For example, during meetings, the air flow needs to be boosted to keep all the participants focused. But it would be a waste of energy to maintain the same air flow when the meeting room is empty, That is why iQ Star has a saving mode, which saves energy and costs. In general, Demand Controlled Ventilation systems are more advantageous in rooms that are subject to frequent variation or intermittent occupancy. However, rooms with static occupancy patterns also benefit from the optimized ventilation provided by this concept.



Research & Development

We have one of Europe's most extensive laboratories for testing ventilation products. This enables us to continually test new and existing products. Our laboratory is unique in that it is equipped with all components required for an entire ventilation system. The products are tested in testing rooms designed to simulate real life environments such as offices or conference rooms. We are able to study sound levels, air flow/balancing, exhaust risks, comfort and control strategies in the laboratory. We can also study how the products perform in real life situations.

We also carry out full scale tests with adjustment of room dimensions and loads. The CFD calculation tool (Computer Fluid Dynamics) is used to optimize interior design, coil selection and total beam efficiency in order to maximize performance with a minimum of energy consumption.



New product selection tool for chilled beams and diffusers

www.flaktwoods.com/exselair



ExSelAir contains:

- 3D presentation of all products
- 3D presentations of the flow patterns in selected rooms
- A calculation and dimensioning tool
- Installation and maintenance manuals

We Bring Air to Life

Fläkt Woods is a global leader in air management. We specialise in the design and manufacture of a wide range of air climate and air movement solutions. And our collective experience is unrivalled.

Our constant aim is to provide systems that precisely deliver required function and performance, as well as maximise energy efficiency.

Solutions for all your air climate and air movement needs

Fläkt Woods is providing solutions for ventilation and air climate for buildings as well as fan solutions for Industry and Infrastructure.

Air Handling Units (AHUs)

Modular, compact and small AHU units. Designed to ensure optimisation of indoor air quality, operational performance and service life.

Air Terminal Devices and Ducts

Supply and exhaust diffusers and valves for installation on walls, ceiling or floor are all included in our large range and fit all types of applications.

Chilled Beams

Active induction beams for ventilation, cooling and heating, and passive convection beams for cooling. For suspended or flush-mounted ceiling installation – and multi-service configuration. With unique Comfort Control and Flow Pattern Control features.

Residential ventilation

A complete range of products for residential ventilation. Consists of ventilation units, exhaust air fans and cooker hoods designed to optimise indoor comfort and save energy.

Energy recovery

Dessicant-based product and systems that recover energy, increase ventilation and control humidity.

Fans

Advanced axial, centrifugal and boxed fans for general and specialist applications. Comprehensive range including high temperature and ATEX compliant options. Engineered for energy efficiency and minimised life cycle cost.

Chillers

Air-cooled and water-cooled chillers with cooling capacity up to 1800kW. Designed to minimise annual energy consumption in all types of buildings.

Controls and drives

Variable speed drives and control systems, all tested to ensure total compatibility with our products. Specialist team can advise on energy saving and overall system integration.

Acoustical Products

A complete line of sound attenuating products, including rectangular and round silencers, Media Free silencers, custom silencers and acoustic enclosure panels.

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See global website for international sales offices www.flaktwoods.com

The logo for Fläkt Woods, featuring the company name in a bold, green, sans-serif font. A stylized green swoosh underline is positioned beneath the 't' in 'Woods'.