



No installations on the roof



# Smart ventilation design creates living roof surfaces

Development of our towns and cities is constantly increasing. The lack of surface area for land and building space is becoming more and more obvious, which results in higher prices for both land and buildings.

This trend has resulted in the emergence of what those in architectural circles call the fifth facade. The roof – the fifth facade – has become the place for the green areas, terraces and other areas for socialising. This assumes, however, that the roof area is free from installations.

## What can the ventilation industry contribute in this respect?

When IV Produkt develops its products, we try to imagine the full life-cycle chain of the air handling unit. Why not change the installation design and integrate cooling and heating installations in the air handling unit instead?

By adding smart functions to the unit, we can remove the need for frost coils, pump sets or dry coolers in most cases.

Following this new installation design, the new ThermoCooler HP creates free surfaces, both in the plantroom and on the roof. Read more about how this is managed on the next page.

## IV Produkt wants to contribute to an increased level of knowledge within the industry

At IV Produkt, we will show future generations that ventilation is an industry to invest in. Through training, product development and an informative website, we will become a knowledge company and drive the industry forwards.

At IV Produkt we are happy to share the knowledge we have accumulated. This is published online, through the newspaper you are holding in your hand and through our employees. IV Produkt Competence Center is also a natural meeting place for knowledge, conferences and training.

## New ways of controlling the unit

In the newspaper, you can also read about the latest tool for controlling and monitoring the air handling units. You will automatically receive the latest technology through updates, and as an entrepreneur and installer you can save a lot of valuable time and avoid unnecessary call outs.

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# ThermoCooler HP cooling and heating pump facilitates installation



Since it was founded in 1969, IV Produkt has produced more than 90,000 energy efficient air handling units. During the 1980s new products began to emerge, such as integrated cooling units, heat pumps and cooling/heating pumps. Throughout the years, IV Produkt has accumulated long experience of these integrated products, which have seen great success with 10,000 supplied units.

Since the demand for heat pumps is growing, and the need for energy efficiency is increasing, it was time for IV Produkt to develop a new product.

The most important factors for the new product were high reliability, long service life, low operating costs, a constant temperature of air entering the building and stepless control of this.

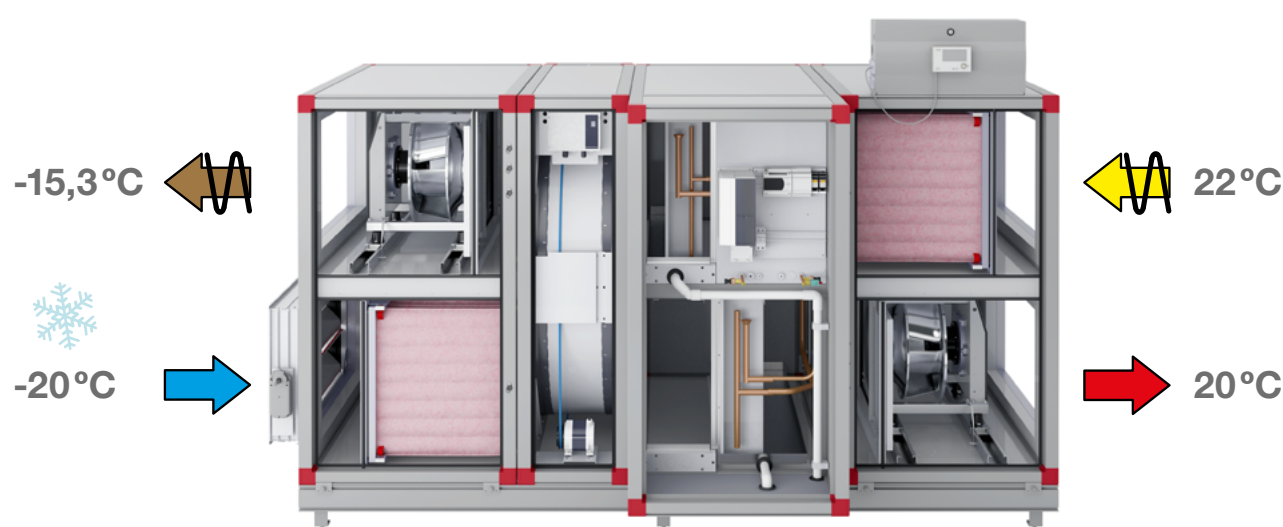
After many calculations, intense research, comprehensive field tests and careful measurements in our Innovation Center, IV Produkt is now ready to launch its new product – ThermoCooler HP.

ThermoCooler HP is a cooling/heating pump that is integrated in the Envistar Flex AHU series. All parts of the cooling/heating pump are incorporated in a module section, which is located in the

air handling unit. This produces a total solution for heating ventilation air and comfort cooling in one unit. Since everything is integrated in the air handling unit, there is no need for frost coils, pump sets or dry coolers.

ThermoCooler HP is extremely energy efficient, both in cooling at warm temperatures, and when the temperatures begin to fall below zero.

The range of the air flow for ThermoCooler HP is 0.25–10 m<sup>3</sup>/s, and it is available in 11 sizes.



On a cold winter's day at -20 °C, IV Produkt's unit with ThermoCooler HP can blow in a supply air temperature of 20 °C with a return air temperature of 22 °C without any additional preheating.

If the rotor has an efficiency of 83 %, the ThermoCooler HP heating/cooling pump together with the rotor can achieve a dry temperature efficiency over 90 %, excluding the electricity from the compressor.

## How does IV Produkt create the best solution?

In the Thermocooler HP cooling/heating pump, the return air coil is positioned before the heat recovery unit – the wheel on the warm side. This means there is no risk of the coil freezing. Unnecessary defrost cycles are not required. This means the unit has a very high reliability, long service life and can maintain a constant temperature of the air in the premises. In this way, IV Produkt has created the best solution for integrated cooling/heating pumps. An additional, and perhaps the greatest,

benefit with ThermoCooler HP is that there is no need for a frost coil in cold winter temperatures down to approx. -20 °C. This assumes a return air temperature of at least 22 °C.

As ThermoCooler HP is integrated in the air handling unit, there is no need for a liquid cooler or outdoor cooling medium cooler. We can therefore also achieve a comfortable indoor climate in the summer, while also making the installation more cost effective and space-saving.



Read more at [www.ivprodukt.com/TC](http://www.ivprodukt.com/TC)



# Benefits at every step



**Transport in** When IV Produkt develops products, it is important that the units are easy to transport into buildings. ThermoCooler HP has therefore

been designed in separate module sections that will fit through an opening of 900 mm.



**Installation** As the whole installation for cooling and additional heating for ventilation is integrated in one unit, there is no need for expensive and

large pump sets or plumbing. The responsibility for the installation lies with the supplier instead of several different parties.



**Operation** As ThermoCooler HP does not need defrosting, the compressors and coils have a longer service life. The operating costs for cooling

and heating are therefore significantly less than for a traditional installation with pump sets, cooling medium coolers and liquid coolers.



**Value adding** The ThermoCooler HP cooling/heating pump frees up space on the roof, creating a fifth facade. The roof surface can be used as a

pleasant terrace with endless possibilities. The property becomes more attractive, space is freed up, the value increases and the rental income increases.

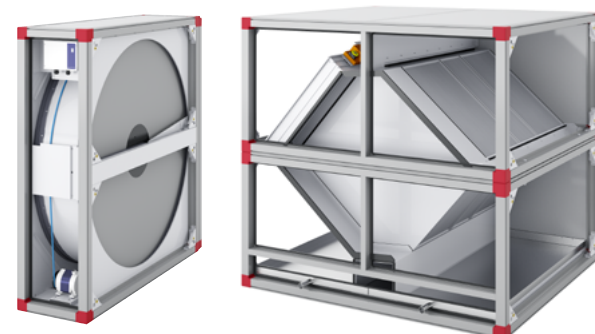
Read more at [www.ivprodukt.com/TC](http://www.ivprodukt.com/TC)

## KNOW-HOW

### Efficiency

In the industry, heat recovery unit performance is presented in different ways. We talk about dry and wet temperature efficiency. According to the EN 308 standard, dry efficiency should be used. This is so we don't give a misleadingly high performance by incorrectly utilising the air humidity.

IV Produkt always uses the dry temperature efficiency in accordance with the EN 308 standard.



### The Mollier diagram

The Mollier diagram helps us to clearly describe and understand how air changes state when we cool and/or heat it. In order to dimension the components in an air handling unit, it is necessary to know the relationship between air temperature and humidity. The Mollier diagram uses different scales and curves to illustrate the state of the air, allowing you to see the relationship between air temperature, moisture and energy content.

**Did you know** that IV Produkt has a program for those of you with previous experience of Mollier diagrams? It is called Mollier Sketcher and can be downloaded free of charge from [www.ivprodukt.com/mollier](http://www.ivprodukt.com/mollier)



### Eurovent Certification

Eurovent Certification is a certification body that verifies the performance of air handling units in accordance with European and international standards. It ensures that competing products can be compared on equal terms.

IV Produkt's Envistar and Flexomix air handling units have been tested by Eurovent, among others, in accordance with EN 1886 and EN 13053.

When performance calculations carry the below mark, you can be sure they have been certified by Eurovent Certification.



Read more at [www.ivprodukt.com/knowledge](http://www.ivprodukt.com/knowledge)



## IV Produkt advances into Europe

In 1980 IV Produkt began its export activities, and started delivering air handling units to various projects all around Europe. A couple of years later, the first partnership was established in Norway.

In the early 1990s, the partnership activities were expanded into Poland and Finland, which then became a part of the community. Success in Europe continued, and more partnerships were created. In a period of continued expansion, subsidiaries were founded in Norway, the UK and Germany in 2014, and today IV Produkt is represented in 16 countries in Northern and Central Europe, via partners and subsidiaries.

The future also seems bright. The European ventilation industry is expected to grow by 100 % between 2013 and 2025, and IV Produkt is continuing to invest in order to be ready.

### Positive with Ecodesign

Different markets apply different rules in relation to air handling and energy efficiency. But one common denominator for the ventilation industry in Europe is the EU regulation on Ecodesign. Current requirements state that heat recovery units must have a dry temperature efficiency of at least 67 %, and this is being raised further in 2018. IV Produkt considers this to be positive for the industry, and would have preferred the requirements to be raised even further. This goes hand in hand with our



business concept since 1991 – to develop, manufacture and sell environmental and energy-efficient air handling units. Naturally, it is also important to aim for more stringent requirements on energy efficiency from an environmental perspective.

### With LCC in focus

IV Produkt has a clear strategy of working both with subsidiaries and partners as authorised dealers of the air handling units. This involves a closer cooperation between IV Produkt and the relevant market, with prepared strategies and a similar way of discussing air handling. The aim is to always be able to offer the lowest life-cycle cost, LCC.

### Mobile showroom

As a step towards spreading knowledge and displaying its products, IV Produkt has been travelling around in a mobile showroom – IV Produkt Innovation Van – since 2015. This allows us to discuss air handling, the company and its products personally.

IV Produkt Innovation Van is on the road year round, and can be used to provide information on product presentations, air handling units with integrated cooling and the way to control units in the future via IV Produkt Cloud and the AHU Controls app, to name a few examples.

## Differences drive development forward

Thanks to IV Produkt's close cooperation with its partners and subsidiaries in Europe, development is driven by innovative solutions for future air handling.

As an example, the Norwegian ventilation market is a leader in Europe in relation to requirements for energy efficiency. This means that IV Produkt has created solutions that meet the highest requirements on performance.

The ventilation market in Germany is characterised by particularly high requirements for hygiene and cleaning of air handling units. Therefore, IV Produkt has produced a hygiene version of its unit, which follows German hygiene guide VDI 6022. It is also a great advantage to be able to offer this on the other markets as well.

Denmark traditionally has strong architects who protect the architectonic design of the building. For this reason, IV Produkt's integrated cooling installations and colour-matched outdoor units are much more common here than in other markets.



## VENT NEWS

### Ecodesign 2018 – are you aware of the requirements?

|  | Ecodesign 2016 | Ecodesign 2018 |
|--|----------------|----------------|
| Dry temperature efficiency in heat recovery units  | 67 %           | 73 %           |
| Dry temperature efficiency in coil heat exchangers | 63 %           | 68 %           |

The first step in the EU regulation on Ecodesign was taken in January 2016, when requirements were introduced for manufacturers to CE mark their products. In the ventilation industry, this primarily means the fan efficiency and dry efficiency of the heat recovery unit.

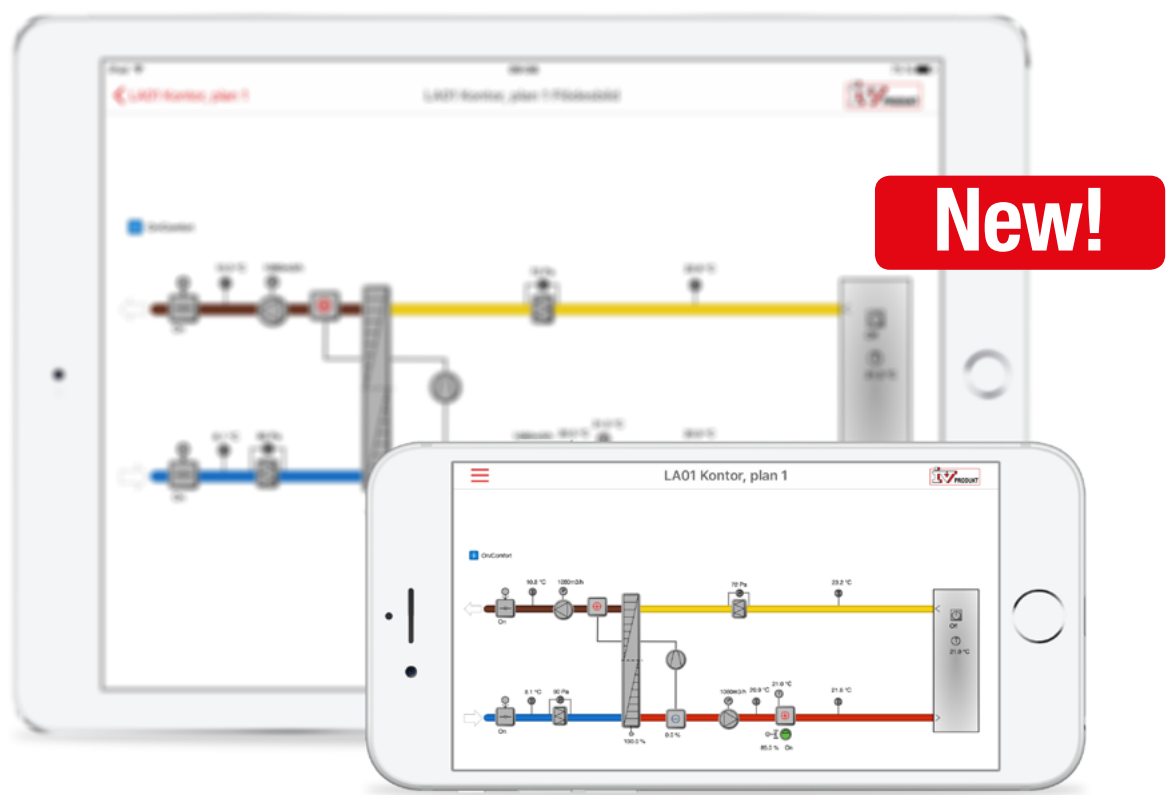
These requirements will be more stringent from 2018. This means that rotors, counter-flow heat exchangers and plate heat exchangers must have a dry temperature efficiency of at least 73 %. For coil heat exchangers, the requirements is slightly lower at 68 %. The aim is to reduce global energy use.

It can be good to consider that all units supplied in 2018 must fulfil the requirements, even if they were planned earlier.





# New app allows wireless control



## Widely supported on mobiles and tablets

IV Produkt's AHU Controls work on most smart-phones and tablets on the market. The app is currently available to download for iPhone, iPad and Android™ mobiles and tablets.

All units with Siemens Climatix supplied from 2009 and later can be upgraded to support the app. As IV Produkt is active and growing in Europe, the app is also available in a number of languages.

Together with IV Produkt Cloud – the company's cloud service for monitoring the unit via an Internet browser – the app strengthens IV Produkt's position as industry leader in relation to development of modern solutions for air handling.

The list of products that can be controlled wirelessly via apps could be long. Lights, refrigerators and speakers are only a few of the products that are easier to handle thanks to control via smart-phones and tablets.

IV Produkt's air handling unit with incorporated control equipment can now also be controlled via an app. The new IV Produkt AHU Controls app allows the user to control and monitor their unit – fully wirelessly within the property's local Wi-Fi network.

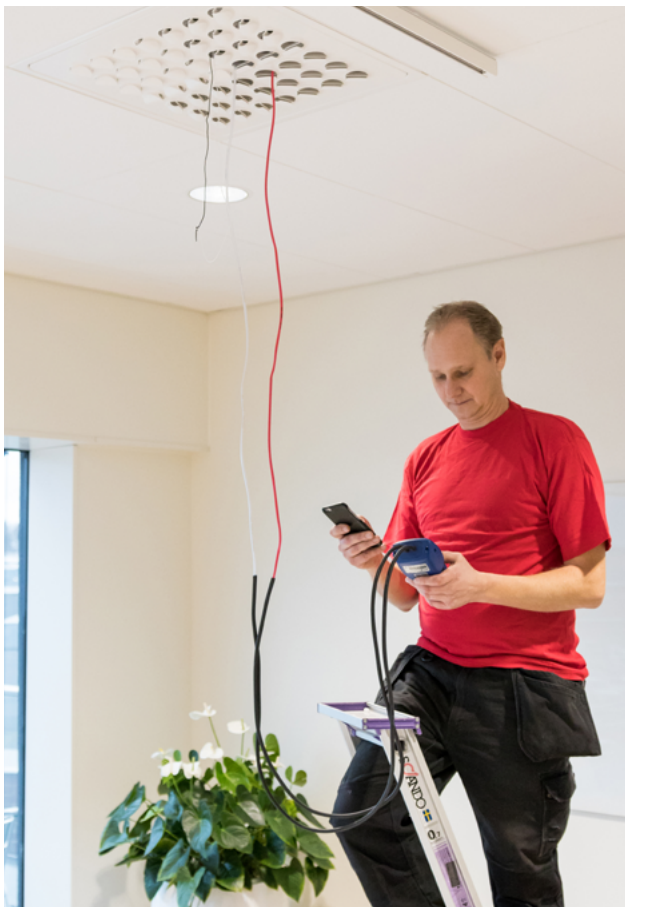
## Facilitates everyday life for the installer and service technicians

The app has been developed to meet the growing need for fast and easy access to the unit settings, without any need to enter the plantroom. A simple job such as adjusting the flow in an air terminal was previously complicated by the service technician needing to run between the plantroom and

room containing the air terminal. But now that AHU Controls works with smartphones, the technician can control the pressure in the terminal with one hand and adjust the flow in the unit with the other.

If there are several units in the property, these can be saved in the app for rapid access during the next service. The user can also see a flow chart of the unit's meter values and performance in the app, providing an overview and simplicity that many control units lack.

Connection to the air handling unit is done through the property's Wi-Fi network, and the app can therefore be used in all parts of the building with a signal. If there is no Wi-Fi network, we offer accessories in the form of a Wi-Fi router. This can be ordered together with the unit, or simply attached to the Climatix compact unit at a later date.





# Top connecting Envistar Top – now with counter-flow exchanger



The Envistar Top series has been adapted to allow transport in through narrow door openings and tight passages.

IV Produkt's Envistar Top AHU series, which has its duct connections at the top, has been a runaway success, and more than 10,000 units have been supplied since 2004.

The reason for this success, is that up to 75 % of floor surface can be saved by connecting the ducts at the top instead of on the ends of the unit.

Another success from IV Produkt is Envistar Home Concept, which was produced especially for blocks of flats. Today, Home Concept units from IV Produkt supply ventilation to more than 100,000 flats.

The success of Envistar Home Concept can be attributed, among other reasons, to the heat recovery unit – the counter-flow heat exchanger – having a unique, patented defrosting – ODS – specially adapted for residences. It also achieves the highest possible annual efficiency.

IV Produkt has now innovatively crossed these successes and produced the new Envistar Top with a counter-flow heat exchanger in place of the rotor.

The range of the air flow in Envistar Top with counter-flow heat exchanger is 0.13–1.15 m<sup>3</sup>/s, and it is available in four sizes.

With the heat recovery unit – counter-flow heat exchanger, there is no risk of odour transfer as the air flows between supply and extract air never meet. Therefore, more and more customers are opting for this type of heat recovery unit, not just for residences, but also for other projects.

The counter-flow heat exchanger for Envistar Top also has ODS defrost technology. The dry temperature efficiency for the counter-flow heat exchanger is just over 85 %.

## Valuable square metres

The primary reason for top connecting units is that they save floor space and have measurements adjusted to simplify transport in to the location where they will be installed. In some projects, the passage can be narrow. In these cases, it is good to have the unit in sections, which IV Produkt can offer.

At IV Produkt, we have the ambition to develop the unit according to the wishes of the users and installers, and hope that this makes it easier to get the units into the building, and even into tight lifts.

IV Produkt's top connecting unit also supports wireless control via the company's new IV Produkt AHU Controls app.





# IV Produkt delivers units to Norway's first zero-energy school

Skanska is currently building Norway's first zero-energy school, Heimdal Gymnasium in Trondheim. IV Produkt has been awarded the prestigious assignment to supply the air handling unit to the project, which must be ready for the start of the new school year in August 2018.

The school is designed to be a zero-energy building in accordance with the standard for passive buildings, which places high demands on suppliers.

## Concept for saving space

According to Eskil Solberg, ventilation project manager at Skanska, the ventilation is one of the key components in the project for achieving the

lowest possible energy use. This puts SFP, annual efficiency and system division under the spotlight. Heimdal has therefore chosen to decentralise the ventilation, using 54 different ventilation systems positioned as close to the areas they serve as possible.

"The concept is to use as little space as possible for technical installations, and the combination of small plantrooms and low SFP was the greatest technical challenge in the project," says Eskil.

## High SFP requirements

The SFP target is one of the lowest ever in Norway. Eskil mentions that IV Produkt has displayed high

technical competence and a genuine interest in achieving the project target.

The supplied unit has been adapted for the project and several solutions have demanded accurate calculations. The controls have also been tailored to the needs of the project.

One step in quality assuring the unit was arranging a test run by IV Produkt, which produced a result that was even better than predicted. The test showed that the fans have an SFP of 0.5 and a dry temperature efficiency of 85 % for the rotating heat recovery units.



The cloud service has several smart and time-saving functions for those on the go. It is possible to create personal favourite pages with shortcuts to the most used functions and values. The user can also select to have any alarms sent via e-mail or sms, so they do not have to be at the computer all the time.

## Many smart advantages

IV Produkt Cloud has several other advantages. As with the AHU Controls app, it is possible to adjust settings, check status, and display a flow chart of the unit's measurement values. The cloud service also has a smart function allowing the user to see the status of several different units in an overview map display. For an entrepreneur with a number of ongoing projects, this can save a lot of time.

It is often the entrepreneur's responsibility to ensure that filters are replaced regularly during the warranty period. This requirement is quickly checked via IV Produkt Cloud, saving the need to send a service technician on an unnecessary journey.

If any problems arise in the plantroom, IV Produkt's service personnel can connect to the unit and check the settings. This can help the service technician on-site to resolve the situation faster.

In many of these situations, the traditional way of controlling the unit would have involved many unnecessary and expensive journeys between facilities.

# Cloud service with advantages

IV Produkt's aim is to be a leader in providing options for customers to simply and intuitively control and monitor their air handling units. Traditionally, these options have been limited. The ventilation industry has been slow in cultivating any technological progress in terms of wireless and cloud-based communication. In an attempt to change this, IV Produkt Cloud was launched last year.

## Connect wherever you are

The subscription-based service allows the user to take full control of their facilities via the internet browser in their computer, tablet or mobile.

Contrary to the newly-launched AHU Controls app which functions via the building's Wi-Fi network, IV Produkt Cloud can be accessed from the office, business travel or even while on holiday.

Read more at [www.ivprodukt.com/Cloud](http://www.ivprodukt.com/Cloud)



# Increased rate of development in the new Innovation Center

In the newly constructed test laboratory, which is a part of IV Produkt's Innovation Center, development of innovative solutions for air handling units is progressing at top speed. Automated test sequences allow an even higher rate of development to be maintained.

The required climate can be created in the test laboratory, in terms of temperature and air humidity. In addition to this, a calibrated reverberation chamber also makes advanced noise measurements possible.

The new test laboratory is equipped with the most up-to-date equipment and tests are equivalent to those performed in Eurovent certification.



## Knowledge drives the whole industry forwards

The new building is located right next door to the main offices and production, and has several uses. Training rooms give IV Produkt's employees the opportunity for training in practical handling and service of the units. IV Produkt Competence Center is also a natural meeting place for knowl-



IV Produkt's head office and production in Växjö, Sweden.

edge, conferences and training. The Competence Center allows knowledge regarding energy efficiency, ventilation technology and the significance of indoor climate to be collected, developed and published. IV Produkt arranges theoretical and practical training programs that provide both

basic and technically advanced knowledge on ventilation units, integrated cooling, control functions and energy optimisation.

IV Produkt wants to use the training offered to increase the level of knowledge within the industry.



## We are expanding and looking for employees from different industries

Our focus is on being the best in the plantroom. In order to succeed with this, we need knowledgeable and ambitious personnel within several different areas of expertise. The company is expanding and we are continuously looking for new employees to join us on this exciting journey.

Regardless of whether you are an engineer, electrician, consultant, sales person, installer, service technician, or simply interested in indoor climate – check our vacancies at [ivprodukt.com/work](http://ivprodukt.com/work) or send us a spontaneous application today!

The ventilation industry is a fantastic industry in which to work, and at IV Produkt we invest in continuously improving our products and response to take the industry to the next level.

# We look forward to seeing you!

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Air handling with focus on LCC