NEWSNEWSNEWS

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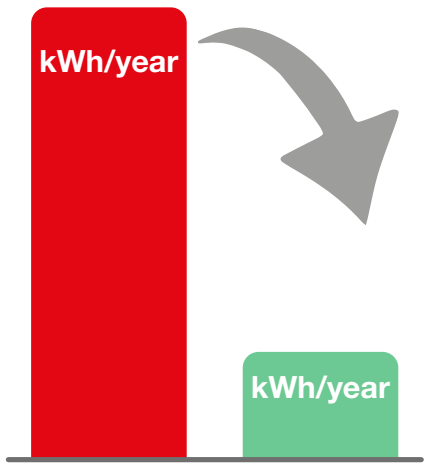
IV PRODUKT
Air handling with focus on LCC

Big energy savings and fast payback



Huge savings can be achieved by replacing older ventilation units. A new unit provides several benefits in the form of reduced environmental impact, a better indoor climate and increased property value. In addition, the payback period is often shorter than 5 years.

The need for energy efficiency improvements in Europe has never been greater. Many investments are made in heat pumps, LED lighting and solar cells. However many people are unaware of the potential savings to be gained by replacing older ventilation units. The ventilation industry can actually contribute to a global sustainable development.

In this issue of NEWS

With energy efficiency improvements in focus, we present several projects that resulted in major savings. The EU's European Green Deal clearly indicates the huge need for energy renovation of buildings over the next few years.

Sustainable investment

When a ventilation unit from the 1990s was replaced in an office building, savings of 85,000 kWh/year were achieved. The payback period was 5 years. The investment calculations in IV Produkt Designer made it a no-brainer for the property owner to invest.

Another example is where new units greatly reduced energy use for ventilation at an international industrial company. Comfort cooling was also installed, which improved the indoor climate and working environment.

An older ventilation unit may at first glance look completely OK. But new technology has made today's units much more energy efficient.

Do you have a project that needs calculating? IV Produkt is happy to help you produce an investment calculation – quickly and easily. You will then see the energy savings and payback period for your project.

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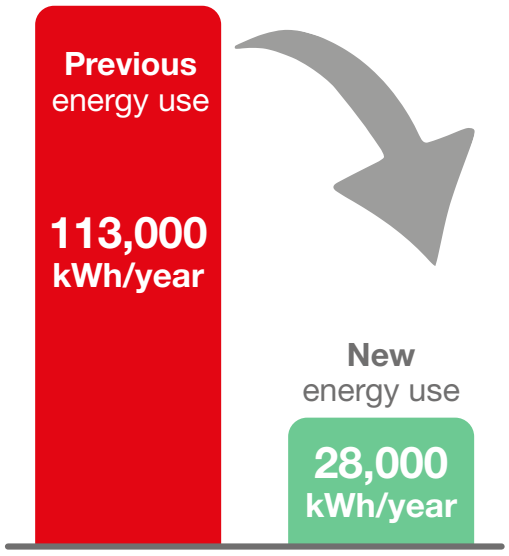
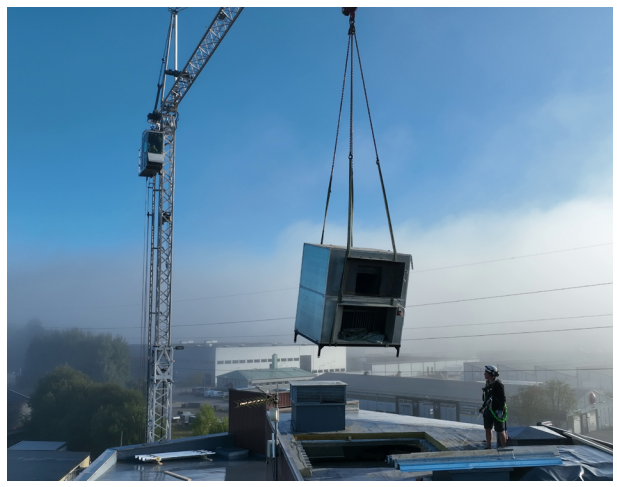
Replacing ventilation units from the 1990s resulted in a 5-year payback period



The 1991 unit had a heat recovery rate of approximately 40%. The fans had an SFP value of 3 kW/m³/s.



Opening up the roof, lifting out the existing unit and installing the new one took about a week.

By replacing an older ventilation unit, property owner Emilshus was able to reduce energy use by 85,000 kWh/year. This corresponds to savings of 50 kWh/m²/year.

Emilshus carried out an energy efficiency improvement project in an office building measuring 1,700 m².

Through IV Produkt Designer they quickly obtained calculations of payback period and energy savings. These calculations provided a sound basis for making decisions about the investment.

Integrated cooling unit

The new ventilation unit from the Envistar Flex series came delivered with the integrated cooling unit EcoCooler. The old cooling installation that was located outdoors could then be removed. The installation took about a week and the payback period was calculated at 5 years.

Watch the video clip!
Available at
ivprodukt.com/payback

The results

Saving
85,000
kWh/year

The property owner, the installer and IV Produkt's sales representative next to the new unit. Due to the high rate of heat recovery, additional heating from district heating was reduced by about 80%. Fan electricity consumption fell by about 50%.

The property and the energy efficiency improvement project

- **Property surface area**: 1,700 m²
- **Operating time, ventilation**: 3,500 hours/year
- **Energy use, old ventilation unit***: 113,000 kWh/year
- **Energy use, new ventilation unit***: 28,000 kWh/year
- **Total energy savings**: 85,000 kWh/year
- **Energy savings/m²**: 50 kWh/m²/year
- **Time required to replace the unit**: One week
- **Payback**: 5 years

** The ventilation unit's energy use for electricity and district heating.*

Successful projects from different perspectives

Marcus Arhov
Technical Manager
Emilshus

KVARTERET SKOMAKAREN, VÄXJÖ
Office property of 1,700 m². Units from the 1990s were replaced.

"We have calculated that the new ventilation unit will reduce energy use by 85,000 kWh/year, as well as providing tenants with a better indoor climate. The energy savings result in an increase in net operating income, which also enhances the property value."

Viktor Andersson
HVAC Consultant
Exengo

NATURSKYDDS-FÖRENINGEN, STOCKHOLM
Complete solution with heating and cooling

"With ThermoCooler HP, we delivered a complete and cost-effective solution where the reversible heat pump cools the supply air in summer and heats it in winter. No electrical air heater and associated piping were necessary. The new ventilation solution resulted in major savings. The combination of Easy Access and ThermoCooler HP meant low installation and operating costs."

Antony Mburu Kariuki Mukuria
Project Manager
Randem & Hübert AS

KARL JOHANS GATE 2, OSLO. Energy efficiency improvements in an older property

"The energy efficiency of the 20-year-old units was poor and an upgrade was needed. Four Envistar Flex 300s with the integrated cooling unit EcoCooler, were installed in the attic. In consultation with IV Produkt's sales representatives, we developed a detailed plan for the on-site transport. The units were delivered in smaller modules in an Easy Access configuration.

The fans' energy use is much lower than before. The temperature efficiency is now over 82%, which is much better than with the older units. With EcoCooler we have optimal cooling of the premises."

Huge potential savings right across Europe

The potential savings are enormous when it comes to energy renovations. This is where the ventilation industry can make a big difference.

The European Commission wants to see a renovation wave across Europe with energy efficiency improvements in existing buildings. This would reduce the climate footprint and create more jobs. Good ventilation and a good indoor climate also increase people's well-being and performance. The European Commission's European Green Deal has concluded that:

220 million
... or 85% of buildings in the EU were built before 2001 and are not considered energy efficient.

Only 1%
... of Europe's buildings undergo some form of energy renovation each year.

At least 3%
... of the surface area of publicly owned buildings should be renovated each year. The EU's proposal is for public and commercial buildings to achieve energy efficiency class E by 2027.

Energy use halved and improved working environment in production facilities

An international industrial company replaced the ventilation units in some of its production facilities. The purpose of the replacement was to save energy and improve the indoor climate.

There was great potential for savings in terms of both electricity and additional heating. When a new ventilation unit was installed, energy use for ventilation was estimated to be down from 470,000 kWh to 210,000 kWh/year, a reduction of more than half. The new unit from IV Produkt came delivered with the energy efficient cooling unit EcoCooler, allowing the premises to be supplied with comfort cooling. Good ventilation and comfort cooling in production facilities create a good indoor climate for the staff, which in turn results in better productivity.

The energy savings and increased productivity mean that this investment has an estimated ROI period of approximately 3 years.

The units are Envistar Flex, size 1280. With the integrated cooling unit EcoCooler with cooling recovery, each one can handle an air flow of approximately 32,400 m³/h (9 m³/s).

Calculate energy savings and payback – quickly and easily

An older ventilation unit that appears to be in good condition may be unexpectedly profitable to replace. It is easy to calculate energy savings and payback period when replacing e.g. a unit from the 1990s.

Given that it is over 20 years old, today's units are significantly more efficient. To calculate the energy savings and payback period, an investment calculation is performed in IV Produkt Designer. **See examples on the next page!**

COMPARISON

Older unit

- Air flow: 20,000 m^3/h (5.6 m^3/s)
- Belt driven fans, SFP value: 3.5 $kW/m^3/s$
- Heat recovery unit, approx. 40% recovery
- Operating time: 3,500 hours/year

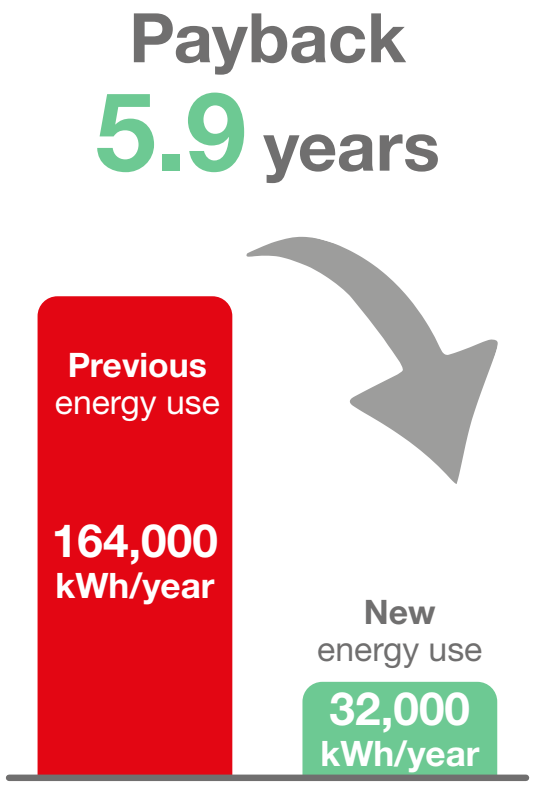
In the 1990s, plate heat exchangers and run-around coils were generally used as heat recovery units. On installation, the temperature efficiency was around 50% and after over 20 years of operation it may have fallen to about 40%.

New unit, Envistar Flex

- Air flow: 20,000 m^3/h (5.6 m^3/s)
- Rotary heat exchanger
- Reversible heat pump ThermoCooler HP
- Temperature efficiency: 87.8% (Heat pump + heat exchanger)
- SFP value: 1.63 $kW/m^3/s$
- Energy price: 0.15€/kWh for electricity, 0.08€/kWh for heating
- Installation cost: 115,000€
- Reduced maintenance cost over 20 years: 1,500€ x 20 years = 30,000€
- Energy savings: 137,000 kWh/year
- Payback period: 5.9 years
- Increase in property value: 166,000€ (An increased net operating income of approximately 13,300€ and required rate of return of 8%)

A video about investment calculations is available at ivprodukt.com/investment_calculation

An older unit may look OK, but a replacement to a new unit will significantly reduce energy use. With just a few technical data, air flow and operating times, an investment calculation is quick and easy. You get an immediate answer to how much energy you can save using a new unit.



Energy efficiency improvements in focus

What do you gain by replacing a unit?

It is easy to make investment decisions with calculations from IV Produkt Designer.

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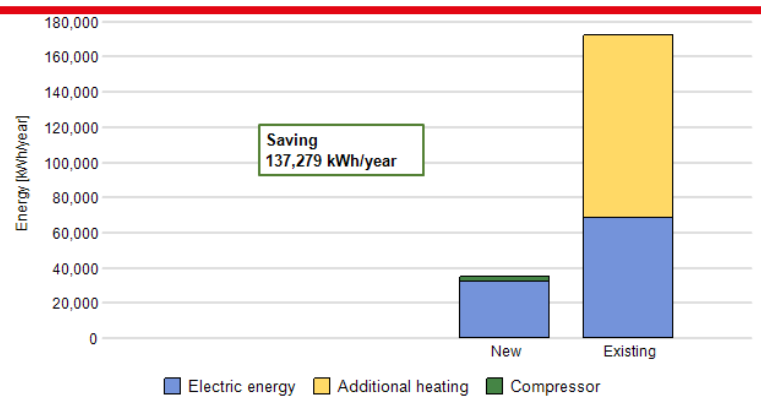
Envistar Flex *Investment calculation*

Project name
Name of AHU AHU1
Size 850 20,000/20,000 m³/h

Energy

	New	Existing	
Temperatures			
Supply air temperature	20.0	20.0	°C
Return air temperature	22.0	22.0	°C
Annual average temperature	10.0	10.0	°C
Running data			
Flow supply air	20,000	20,000	m³/h
Flow extract air	20,000	20,000	m³/h
SFP value	1.63	3.50	kW/(m³/s)
Exchanger's temperature efficiency (dry)	87.8	40.0	%
Running time	3,500	3,500	hours/year
Energy performance			
Ventilated area	2,200	2,200	m²
Calculated energy performance, ventilation	15.8	78.2	kWh/m²
Annual energy usage			
Supplyair fan and Extractair fan	31,745	68,056	kWh
Compressor	3,105		kWh
Additional heating	0	104,073	kWh
Total	***34,850***	***172,129***	***kWh***



Saving	62	kWh/m²
Saving %	80	%/m²

ENERGY

- Savings: **137,000** kWh/year
- Equivalent to **62** kWh/m²/year
- Means savings of 80%
- Can be used in the sustainability report

ECONOMY

- Payback period: **5.9** years
- Energy cost savings year 1: approx. **13,300€**
- Savings over 20 years: approx. **287,000€**
- The increase in property value is three times the investment cost.

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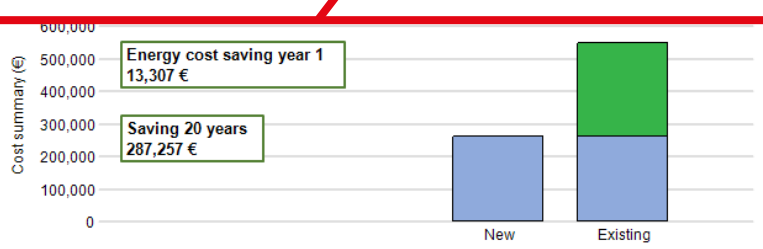
Envistar Flex *Investment calculation*

Project name
Name of AHU AHU1
Size 850 20,000/20,000 m³/h

Economy

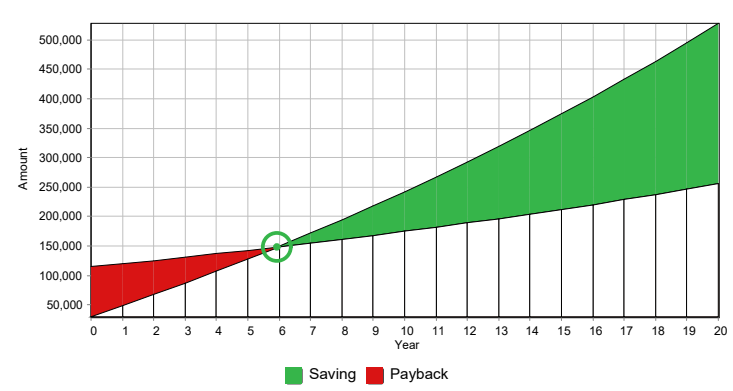
Economic factors		
Energy price El	0.15	€/kWh
Expected annual price increase electricity	3.0	%
Energy price add heat	0.08	€/kWh
Expectel annual price increase heating	3.0	%
Life expectancy	20	years
Running time	3,500	hours/year

Cost summary, Lifetime	**New**	**Existing**	
Investment	115,000	30,000	€
Energy cost 20 years	146,021	518,278	€
Cost summary	261,021	548,278	€



Payback Diagram

Payback time based on energyprice increase: **5.9 years**
Return on investment: **15.7 %**



INCREASE IN PROPERTY VALUE

Energy savings reduce the property's total operating costs. The net operating income is calculated by deducting operating costs from total rental income. If you divide the net operating income by the property's required rate of return, you get the property value. A higher net operating income thus leads to an increase in property value. And a higher property value creates opportunities for making new investments.

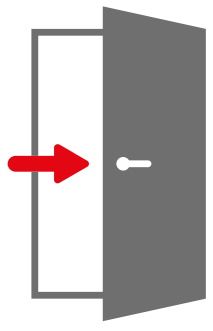
$$\frac{\text{net operating profit}}{\text{required rate of return \%}} = \text{property value}$$

$$\frac{13{,}300€}{8\%} = 166{,}000€$$

Smart solution simplified on-site transport in an older property

Brought on site through a standard door of width

90 cm



easy access

Karl Johans gate, central Oslo's main boulevard, passes through the city centre.

Four Envistar Flex 300s with the integrated cooling unit EcoCooler, were installed at Karl Johans gate 2. Thanks to the Easy Access concept, on-site transport went very smoothly.

The property was built in 1898, and some parts of the building are listed. The units were placed in an attic with restricted ceiling height.

All unit modules were delivered separately, in an Easy Access configuration.

The installer could therefore avoid damaging the old façade or having to open up the roof. The modules were carried through narrow passages to the backyard and then lifted up to the attic, where new plant rooms had been built.

Excellent indoor climate

The ground floor accommodates retail premises, with offices on the other floors. With EcoCooler, tenants can enjoy an excellent indoor climate with comfort cooling. This solution meant there was no need for outside cooling installations.

Makes life easier for the installer

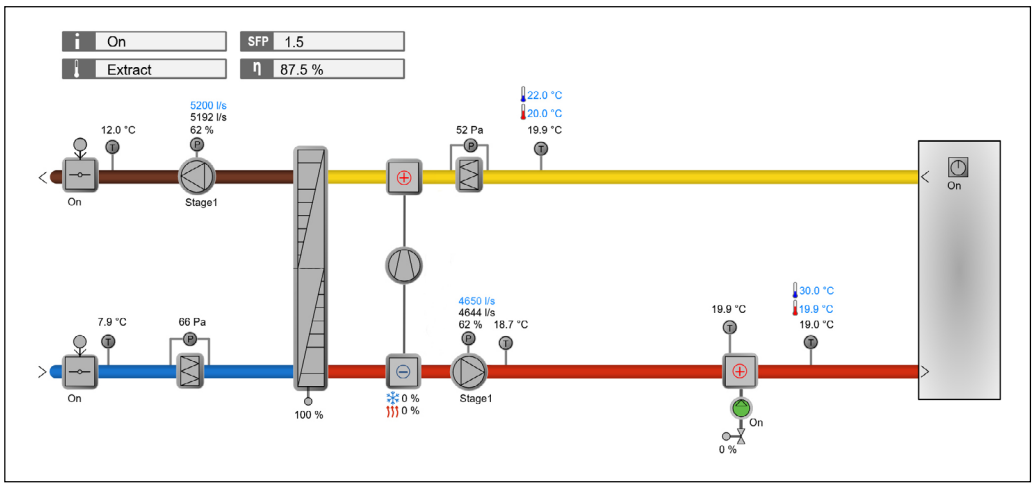
- Customized modules with minimal dimensions to make transport into the plant room easier
- Installation is easier and faster with smart electrical connections
- Significant time and cost savings

More Easy Access projects with an easier route to the plant room

Keep track of your units wherever you are

IV Produkt Cloud

IV Produkt Cloud is a cloud service that makes it possible to keep track of your facilities no matter where you are. You can easily see alarms, adjust values and monitor energy use.



FREE

Completely free subscription

IV Produkt Cloud Free is a completely free subscription, whereby connecting your unit to the internet you gain access to a visual flow chart.

In it, you will see your air handling unit's status, SFP and efficiency. You can also reset any alarms. Above is an example of what the flow chart might look like.

If you want full access to control your units remotely, there is the subscription form IV Produkt Cloud Service+.

SERVICE+

Full access to all functions

IV Produkt Cloud Service+ gives you access to all the smart functions of the cloud service that helps you control and monitor your air handling units. Through alarm notifications and history, you can follow up on how your unit is performing.

IV Produkt Cloud Service+ is a perfect tool for commissioning and adjusting air handling units, among other things. When self-registering, IV Produkt Cloud Service+ is free during the first month.

DIGITAL WALLET

Administer the unit

With IV Produkt Cloud Digital Wallet, you who have several air handling units with IV Produkt Cloud can manage your account yourself and reduce subscription costs.

Digital Wallet allows you to switch between Free and Service+ subscriptions as the needs of the facilities change.

Read more at
www.ivprodukt.com/cloud

IV Produkt invests big in the future

IV Produkt is constantly investing to maintain its rapid rate of development as a cutting-edge knowledge company. The company has invested 40 million Euro over the last five years and is growing rapidly.

A good indoor climate, energy savings and reduced environmental impact are becoming increasingly important. Buildings account for 40% of Europe's total energy use. There are therefore great potential savings to be made in energy efficient ventilation.

"We are seeing a greater awareness of how important ventilation is for health, learning and productivity," says Mattias Sjöberg, CEO of IV Produkt.

Reliable and long-term

The company has enjoyed average annual organic growth of 13% since 2005. Innovation, reliability and a long-term approach underpin the work of IV Produkt. These values govern the attitudes to employees, customers, suppliers and society in general.

IV Produkt has enjoyed good growth for many years and its market share is increasing.

"An energy efficient ventilation solution is a wise investment. Together we can create sustainable investments," says Mattias Sjöberg.

Among the latest investments are a third sheet metal processing line (pictured above) and an additional machine for the production of rotary heat exchangers.

> "Together we can create sustainable investments."
>
> Mattias Sjöberg, CEO of IV Produkt

About IV Produkt

- Founded in 1969
- Revenue 2022: 140 million Euro
- 450 employees

IV Produkt is where you are – we're hoping to see you!

Innovation Van in Europe

Three Innovation Vans are out and about on Europe's roads, making it easy to meet IV Produkt's customers and demonstrate **units in operation**. The vehicles are fitted out as conference rooms; already thousands of visitors have enjoyed the demonstration units and the accompanying presentations.

Competence Centre and Innovation Centre

Welcome to IV Produkt's Växjö venues devoted to education, innovation and knowledge. The company is always happy to share its knowledge. At **www.ivprodukt.com/knowledge** you will find useful videos and articles with in-depth studies of various topics.

LinkedIn®

Photo: Munch Museum / Einar Aslaksen

Follow IV Produkt on LinkedIn

Scan the QR code above! LinkedIn is kept updated with current topics, such as **energy efficiency improvements, good indoor climate,** smart solutions and product development. IV Produkt is also available on YouTube, Instagram and Facebook.

Reference cases from the real world

Through many years of experience, IV Produkt has gained a unique understanding of the requirements placed on different types of buildings, such as schools, offices, museums, shopping centres, hospitals and apartment buildings. Do not hesitate to contact us to discuss your particular project. Read more at **ivprodukt.com/references**

We look forward to seeing you!

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