

 AIR COMFORT

AIR TREATMENT

AIR HANDLING UNITS

COMBI COOLER

» ENERGY EFFICIENT COOLING UNIT FOR eQ
AIR HANDLING UNIT



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THE UNIQUE, STRAIGHTFORWARD AND ENERGY EFFICIENT METHOD OF GENERATING COOLING CAPACITY FOR A CHILLED BEAM SYSTEM

Fläkt Woods' Combi Cooler provides completely new opportunities when planning and specifying cooling systems. The Combi Cooler module is integrated and mounted directly into the air handling unit. It is particularly suitable for use together with chilled beam systems. Cooling can be provided using chilled beams, fancoils or ceilingmounted cassette chilled beams.

REQUIRES LITTLE SPACE

As the Combi Cooler replaces other components, such as liquid coolers and external condensers, the unit takes up little space. The Combi Cooler is integrated into the air handling unit so all components are located in the plant room, avoiding outdoor or roof installation. Because the appearance of a building is not changed, renovation work is easier, and noisy condenser fans are not necessary



THE MODERN SOLUTION FOR VENTILATION COOLING

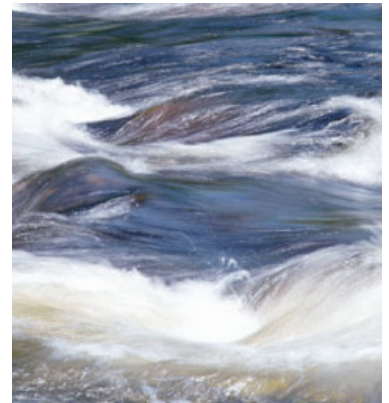
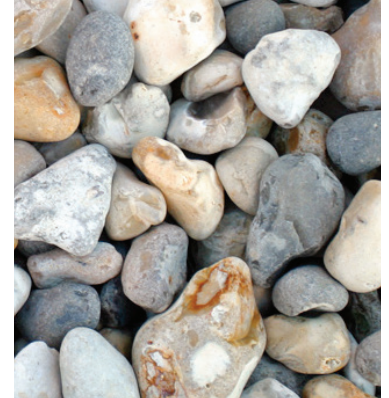
- Heating and cooling coil integrated into the supply air
- Reduces the need for space in the plant room because the combi cooler only has one cooling coil
- One module, integrated into the air handling unit
- Optimised for use with chilled beam systems
- Less installation work indoors and no installation work outdoors
- Greater operating reliability because all components are designed and sized to work together
- Energy efficient solution
- Easy commissioning as the unit is factory tested
- Fitted liquid cooler
- No liquid cooler to install in the plant room
- The air conditioning unit is only marginally longer despite all the cooling equipment being built-in to it
- No condensers on the roof to detract from the appearance of the building – The perfect solution when refurbishing old buildings



THE COMBI COOLER SAVES UP TO 40 % ENERGY

Systems using the Combi Cooler reduce energy consumption so that a cooling capacity of 100 kW is obtained with 21.5 kW instead of 35 kW.

Climate change and energy consumption are our shared responsibility. For many years, product development at Fläkt Woods has aimed at constantly improving energy efficiency and indoor air quality. Our e³ products and systems are a good example of our success. In business and office spaces, lighting, apparatus and people all represent a heat load. So for an even and comfortable room temperature of 21–24 °C, the need for energy for cooling is greater than that for energy for heating. Supplementary cooling is necessary; and cooling can be achieved very economically using the Combi Cooler.



WHAT MAKES THE COMBI COOLER SO ENERGY EFFICIENT?

- 1** The supply air to the air handling unit is only cooled to 18 °C instead of the 15 °C in traditional systems. This avoids energy-intensive condensation. Because the supply air temperature is slightly higher, areas such as empty meeting rooms with no heat load, maintain a comfortable temperature, and unnecessary cooling is avoided. Electricity consumption is reduced by 14 % (including the supplementary power used by the circuit for the chilled beams).
- 2** Vigorous subcooling of the refrigerant and a higher evaporation temperature reduce the energy required by 29 %.

The total energy saving is
 $100 - (0,71 \times 0,86) \times 100 = 39 \%$

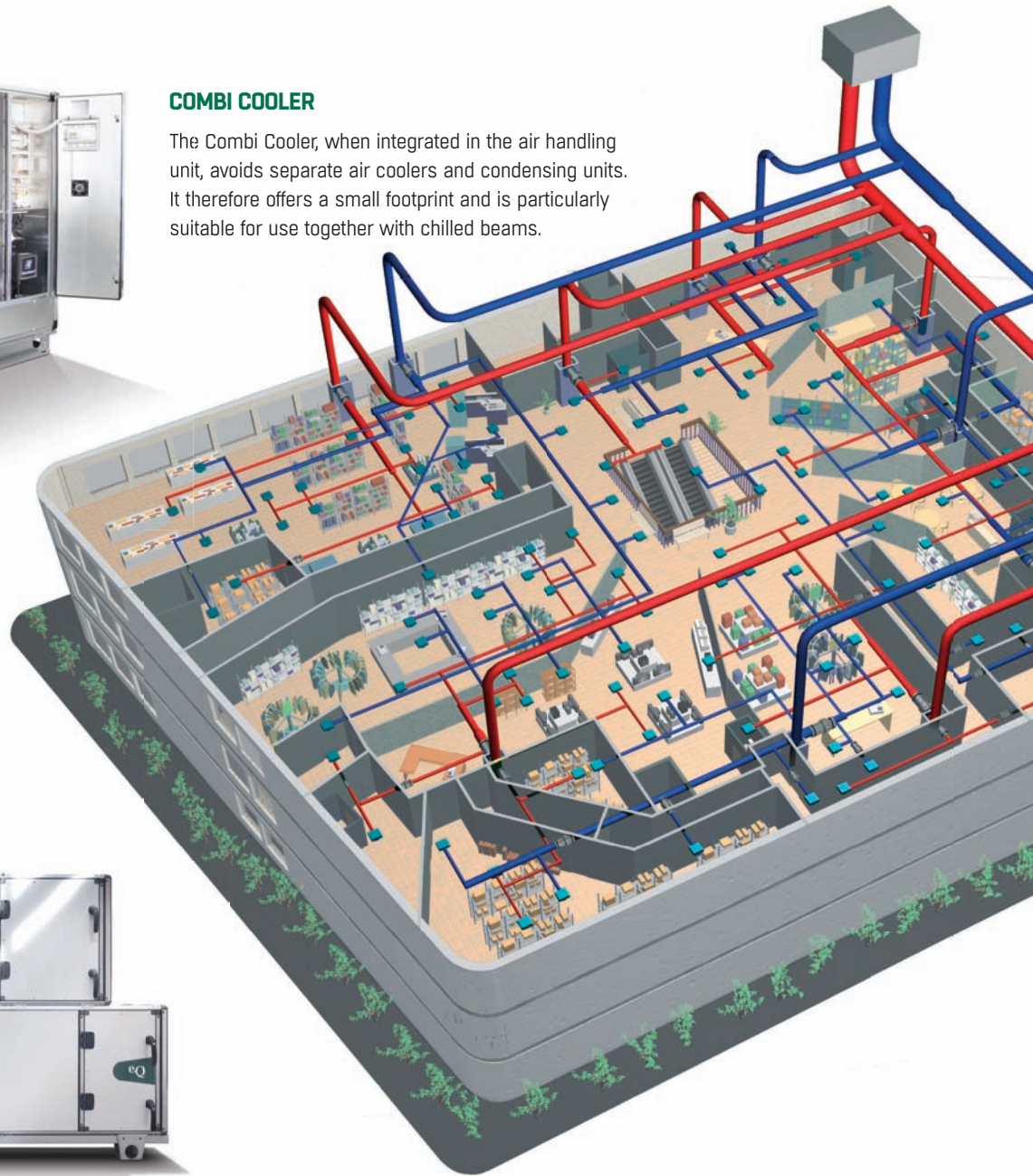


THE COMBI COOLER COOLS THE SUPPLY AIR AND PRODUCES COLD WATER FOR ROOM-BASED COOLING



COMBI COOLER

The Combi Cooler, when integrated in the air handling unit, avoids separate air coolers and condensing units. It therefore offers a small footprint and is particularly suitable for use together with chilled beams.



AIR HANDLING UNITS

Our comprehensive Air Handling Unit offering allows us to deliver optimised solutions for any customer. Our R&D work focuses on reducing energy consumption and creating factory complete air handling system solutions with controls. Our experience in the marine, off-shore, pharmaceutical and hospital markets makes us the perfect partner for such applications.

INTERGRATED CONTROLS

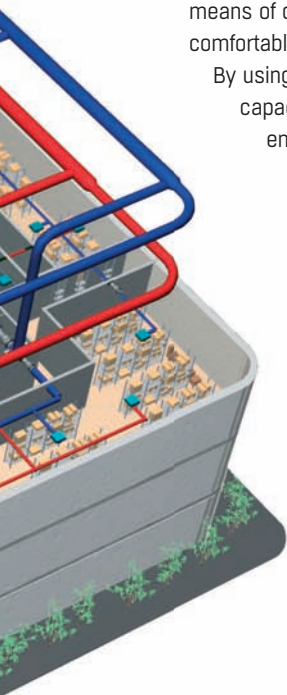
Fläkt Woods offers a wide range of integrated control solutions for air handling and indoor climate systems. Factory mounted and pre-wired controls will reduce installation time and simplify on-site logistics. Preprogrammed and factory tested control applications based on Fläkt Woods extensive experience also means a fast commissioning process and will secure a reliable and energy efficient operation of the system. Based on support for open standard communication protocols, integration to a building management system can easily be carried out by an independent system integrator.



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.



FAN COILS

Fan coils are most commonly used in areas where individual room control is essential, such as hotels, private and public office buildings, hospitals and schools. Fläkt Woods can offer classic, cassette and satellite fancoils.



THE COMBI COOLER IS THE RESULT OF NEW APPROACHES IN PLANNING AND SPECIFYING OF COOLING SYSTEMS

The supply air temperature is slightly higher than usual in the Combi Cooler, and most of the cooling capacity enters the room through chilled beams. In traditional solutions the supply air temperature is normally 15–16 °C, while in solutions using the Combi Cooler it is 18 °C. Using hotter supply air prevents air at too cold a temperature being carried into areas where there is no heat load, such as empty meeting rooms. At the same time, avoiding excessive cooling of the supply air prevents unwelcome and very energy-intensive condensation.

EQUAL COOLING CAPACITY WITH LESS ENERGY CONSUMPTION

In practice, the annual energy required for cooling is halved when the supply air is cooled to 18 °C instead of 15 °C. While this does not reduce energy consumption, because the chilled beams must generate more cooling capacity, the higher supply air temperature prevents energy-intensive condensation.

AVOID OVERSIZING YOUR COOLING SYSTEM BY USING THE ACON AIR HANDLING SELECTION TOOL

Taking the size of the room into account, it is easy to dimension the cooling capacity of a system using a Combi Cooler. Thanks to this the problem of oversizing the cooling capacity can be avoided. Using the air handling selection tool ACON, a cooling system can be designed to provide excellent efficiency. Because maximum cooling capacity is only needed for 3–5 % of the time the system is operating, it is important that the unit operates efficiently even when little cooling capacity is required. The Combi Cooler has three power stages, and the lower the power output, the greater the efficiency of the cooling unit.

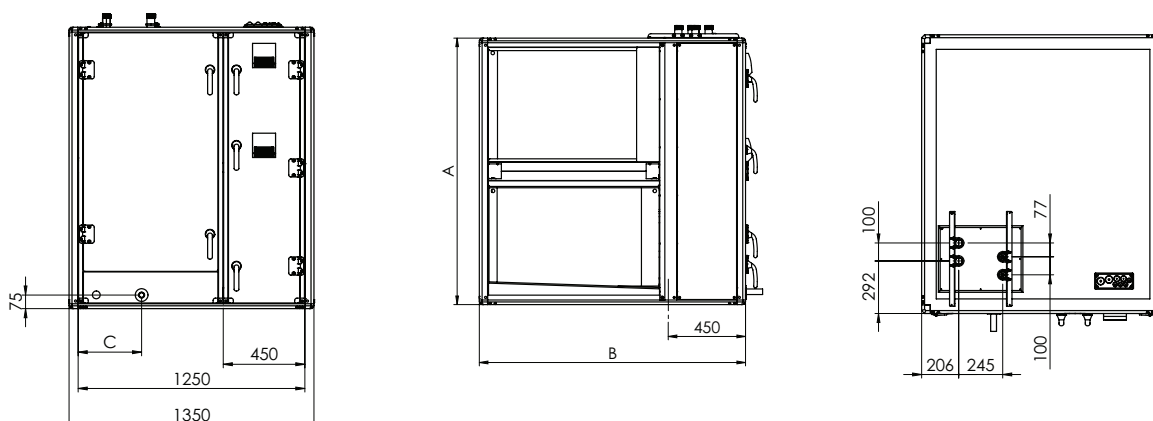
IF YOU HAVE A SMALL OR MEDIUM COOLING REQUIREMENT, CHOOSE A COMBI COOLER



Combi Cooler is suitable for buildings where the cooling need is max. 50 W/m². This is often enough for offices and business premises.



TECHNICAL DATA



DIMENSIONS AND WEIGHT, MM AND KG

eQ-size	A	B	Weight (excl. casing)
014	1552	1550	330 - 385
018	1552	1850	385 - 440
023	1852	2150	475 - 555
032	2052	2250	555 - 730
041	2152	2450	690 - 815

EFFEKT, KW

eQ-size	Output variant 1	Output variant 2	Output variant 3
014	21	29	34
018	26	34	43
023	36	46	55
032	55	69	80
041	69	86	101

REFRIGERANT, KG

eQ-size	Output variant	Refrigerant*	
		Circuit 1	Circuit 2
014	1	5,2	8,1
	2	5,2	9,0
	3	6,2	10,5
018	1	6,6	11,3
	2	8,5	12,7
	3	8,5	14,6
023	1	9,4	15,8
	2	9,9	16,8
	3	9,9	17,3
032	1	10,5	18,5
	2	10,9	18,5
	3	10,9	20,0
041	1	11,5	21,8
	2	12,5	22,3
	3	13,4	22,8

*] Refrigerant R134A

This product contains fluorinated greenhouse gas, R134A, with a GWP-factor of 1430. Refrigerant quantity: 5.2 - 22.8 kg, corresponding to 7.4 - 32.6 tonnes of CO₂ equivalent.

SMART PRODUCT SELECTION TOOL FOR CALCULATION

In Fläkt Woods' product selection tool you will find product dimensions, technical data, LCC-calculations, technical catalogues, directions for installation, adjustment and maintenance. **ACON**, our computer-aided selection tool for air handling units, offers rapid selection to specific project requirements and provides you with all the information you will need. The program is web based and always up-to date without the need to download patches or program updates.



- Product dimensions
- Technical data as noise level ,efficiency etc
- LCC (Life Cycle cost)
- Always updated documentation linked to the product selection
- Current lead times with accurate delivery time projections
- e-CAD to incorporate the air handling unit into most CAD programs
- Safe and confidential storage of project data
- Easy to use

WE BRING **BETTER AIR**[™] TO LIFE

With over a century of innovation and expertise to share with our customers, Fläkt Woods is a global leader in Air Technology products and solutions. We specialize in the design and manufacturing of a wide range of products and solutions for Air Movement, Air Treatment, Air Distribution, Air Management and Air Diffusion with focus on two major benefits – **Air Comfort** and **Fire Safety**. With market presence in 65 countries we are in a unique position to be a local supplier and an international partner in our customer's projects.

Our product brands such as SEMCO[®], eQ[®], eQ Prime[®], JM Aerofoil[®], Econet[®], Veloduct[®], Optivent[®], Econovent[®] and Cleanvent[®] are well-known and trusted by customers all over the world to deliver high quality and energy efficient solutions.

» To learn more about our offering and get in contact with your nearest sales representative please visit www.flaktwoods.com

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