

PRODUCT BROCHURE

Air Handling Units – Compact
COM4® series

***HVAC solutions with energy recovery
and unit automation***



The signs of the times are unmistakable



Investors, plant engineers, planners, and architects no longer ask “whether” but “how” they can enhance the degree of sustainability of their plants and building management systems. Each building is unique. Its location, size, construction quality, and increasingly the building management system determine its value and profit. The energy state of a building has gained appreciably in significance here: it is a fact that buildings consume around 40 percent of the world’s energy, and produce 21 percent of global greenhouse-gas emissions. The proportion of the energy costs in the “second rent” for users and residents is constantly increasing.

Where the heating, cooling, cleaning, purification, humidification and dehumidification of air are required, DencoHappel makes its contribution to progress. Customised climate control and air treatment, with the maximum-possible reduction in energy consumption over the entire life cycle of the facilities: this all pays out handsomely in euros and cents, in comfort, and in staff productivity. Our solutions reliably comply with all international standards in highly sensitive areas such as hospitals and cleanroom applications. They likewise set new standards for sustainability and flawless system integration in advanced sports arenas, production facilities, airport buildings, and swimming pools – as well as in offices, museums, and hotels.

The one who processes air must master it

It is due to the precision work that has gone into the development of the hardware and software that our air treatment can neither be seen nor be heard, provides pleasant experience and helps in avoiding wastage of energy and money.

Can a building with large glazed areas be heated during spring and autumn on its north side and cooled on its south side, with only one system and without having to switch on the central heating? Does a system used, e. g., for heating cooling, humidification and dehumidification in pharmaceutical or electronic industry also protect against dirt and bacteria? Can investors and building owners calculate the life cycle costs of a central plant air handling unit, determine the effect of an energy-saving equipment on the operating cost for this purpose and thus select the optimal efficiency class right in the configuration stage of the plant?

DencoHappel has found answers to these and many other questions concerning air treatment and climate control – and has implemented them in solutions which reflect its experience gained in many and various successful applications. The core proposal consists of a broad spectrum of central and decentral air treatment plants, separators and filter plants up to complete clean-room systems. Their function, control and design can be fine tuned to their task, the condition and infrastructure of buildings, the operating cost calculations and the highest standards of energy efficiency and climate protection. State-of-the-art control technology developed in-house permits the individual control in individual rooms just as it permits the central handling in the context of building management system.

Control unit, which has interfaces to all usual systems of the building automation, provide for the trouble-free integration of the devices into the building management system. The fact that planners and users can implement their own desires at the design stage of the plant itself is the proof of the precision work involved in the air conditioning equipment.

DencoHappel stands for:

- Tailor-made air quality and a healthy, comfortable room climate with extremely noiseless operation
- Maximum energy efficiency and reduction in the CO₂ emission
- Precise central and decentral control and regulation
- High adaptability to most diverse functions and environments
- Easy system integration
- Durability and high degree of availability at low maintenance costs





**INGENUITY IS ABOUT PRESENTING COMPLEX THINGS
IN A SIMPLE WAY**

With the COM4 series of air handling units DencoHappel has successfully managed to accomplish this task. The ease of handling is not only manifested during the uncomplicated and fast design stage but in the trouble-free and time-saving installation as well. Compact and exactly-dimensioned components combined with highly-efficient energy recovery systems, continuously operating drives and application-tailored, pre-configured MATRIX controls and automation system fulfill the tasks of delivering optimized, reliable and fully-equipped units to our customers straight from the factory and enabling highest comfort in unit operation and servicing.

Compact air handling units spares your budget – and your nerves

Low costs over the entire life cycle means that DencoHappel compact air handling units ensure maximum cost effectiveness.

Planners, architects, and developers can rest assured when they go to work with three air handling systems that are available for their selection. Fast, simple, and reliable system design with Lplus software (certified by Eurovent) – in addition to short delivery lead times – are priceless benefits during every project phase. In addition, the plug-and-play concept and the compact dimensions of the pre-configured system simplify installation and initial startup. In this phase as well, this means savings in time and money.

The later operators of the systems not only enjoy pleasant room air, but also low operating costs. Such benefits as optimal use of thermal and electrical energy are implemented thanks to integrated energy recovery systems using rotary or plate heat exchangers as well as intelligent MATRIX control and regulation system.

Calculation of life cycle costs using Lplus software

The lion's share of total costs of a central air handling system arises from operating and energy costs over the entire life cycle: 80 %. This is far more than the acquisition price and maintenance of such systems: only 12 % initial investment, and 8 % maintenance and disposal. Complimentary Lplus design software enables you to calculate operating costs in advance. This software contains the annual temperature plots for all regions of Europe, as taken from the European climate database. The calculation model used by the software is based on Eurovent Standards EN 1886 and EN 13053, for determination of life cycle costs. These calculations not only take into account system-specific data, the average load situation, and energy prices – but also the effects of interest, price-increase rates, and location factors. This enables you to perform comprehensive calculations without having to resort to vague estimates.



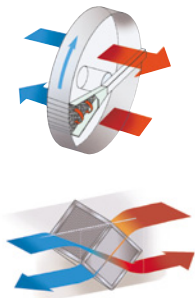
DencoHappel compact systems

- Fast, simple product design
- Short delivery times
- Easy assembly and installation
- Easy, condition-related maintenance
- Cost transparency from the very beginning thanks to Lplus design software
- Low operating costs throughout entire service life

It doesn't get any simpler or easier

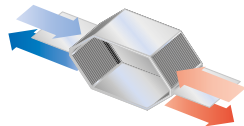


With the DencoHappel compact central-plant air handling units, there is no time-wasting search for a customised solution. The optimal solution is offered thanks to unit layout pre-configured by DencoHappel. The all-inclusive principle eliminates the need for costly modular configuration. You need only to select the most appropriate out of three possible basic systems, decide on the capacity and which required options should be included. In all cases, your selection takes place fast, simply, and effectively.



COM4^{plus} – the universal solution to comprise the widest possible application range

- 7 mode sizes with air flow rate up to 16,000 m³/h
- Horizontal double-deck model design for inside or outside installation
- Energy recovery using rotary heat exchanger ECOROT, efficiency factor h max. 89 %, plate heat exchanger ECOPLAT, efficiency factor h max. 81 %
- EC plug fans for continuous operation
- Re-heater/cooler installed as option in unit or supply air duct
- MATRIX system controls is integrated in COM4^{plus} air handling unit



COM4^{mini} – small but boasting highest efficiency

- 3 mode sizes with air flow rate up to 2,200 m³/h
- Horizontal double-deck model design for inside or outside installation
- Energy recovery using plate heat exchanger ECOPLAT, efficiency factor h max. 93 %
- EC plug fans for continuous operation
- Re-heater/cooler installed as option in supply air duct
- MATRIX system controls is integrated in COM4^{mini} air handling unit



COM4^{top} – the upright unit, extremely compact

- 5 mode sizes with air flow rate up to 6,500 m³/h
- Upright side-by-side model design for indoor installation
- Energy recovery using double-plate heat exchanger ECOPLAT, efficiency factor h max. 85 %
- EC plug fans for continuous operation
- Re-heater/cooler installed as option in unit or supply air duct
- MATRIX system controls is integrated in COM4^{top} air handling unit



MATRIX[®] system controls – one for all units

- MATRIX controls and regulation system is available for all central-plant air handling units and their functions
- Control panels with display for wall mounting are included in the packaged content.
- To support service and commissioning MATRIX.PC can be used

Just the right turn for the right room climate

Control and regulation system with numerous monitoring possibilities:

- Differential pressure monitoring for supply and extract air filter
- Measuring outside air temperature after PWW re-heater for regulating frost protection
- Anti-icing control for DX systems and ECOPLAT energy recovery
- Monitoring of the safety chain for external compressor-condenser unit
- Plausibility check for detection of sensor faults
- Monitoring of malfunction reports from circulation pumps, frequency inverters, and energy-recuperation systems

With MATRIX Compact System Controls the user enjoys many functions for operation, control and maintenance of the DencoHappel compact air handling units.

The user can optimally match the central-plant air handling units to the required functions: either by means of MATRIX OP51 control panel, or by the MATRIX. PC startup software. The system acquires a wide range of measured values and continuously monitors them, to assure safe and reliable operation. If one of the monitoring systems responds, this is displayed in plain text by the OP51 operator-control panel. In parallel, the signal is also communicated via the malfunction-report output and/or via the interface to the building-services management system.

Communicative and easily understood – the operator-control level

The MATRIX OP51 operator-control unit has a graphics-capable display that is operated with a menu structure analogous to that of a mobile telephone. As a result, setpoint values and switching times can be very quickly and easily entered, and current actual values and instruction messages can be simply read off. Add. Connection to the available MATRIX.Net bus system enables wide-range extensions of functions.

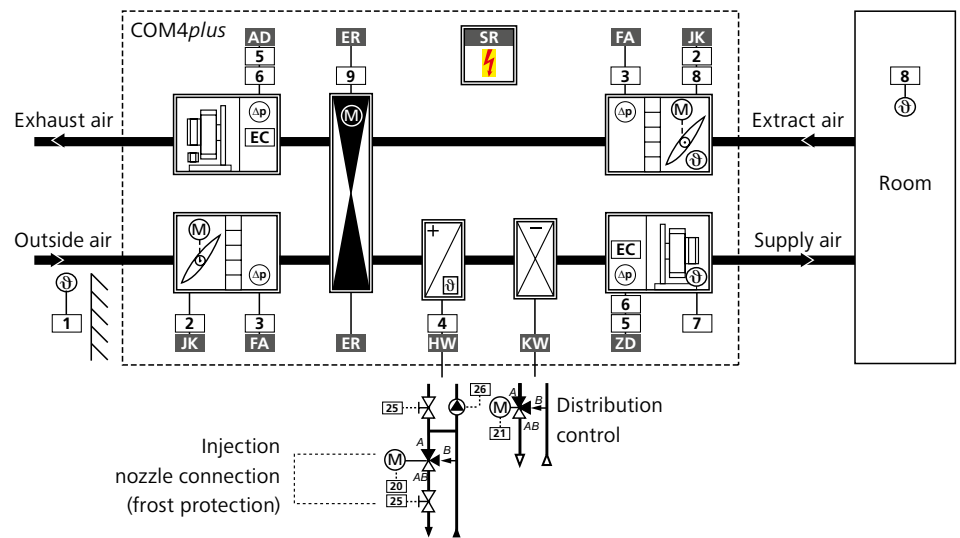
Fast initial startup

Before the COM4 air handling units are delivered to the customer, these are preassembled, pre-wired and commissioned by the factory. The electrical connections are plugged for simple and fast assembly by others on site. Colour designations additionally help to prevent confusion. The remaining connections are provided by a clearly designated terminal strip.



DencoHappel compact air handling units are equipped with the proven MATRIX closed-loop control system. This allows the use of internal DencoHappel service structures in the entire European operation area.

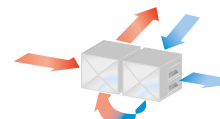
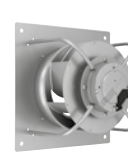
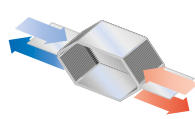
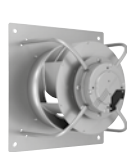
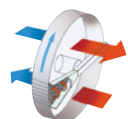
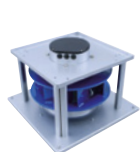
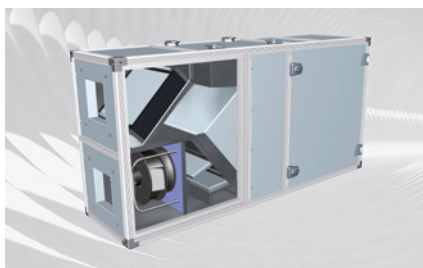
Compact System Control



Components and functions		Packaged content or DencoHappel controls	
ZD	Supply fan with EC motor	● mounted	Direct driven 3 phases 400 Volt / 50 Hz
AD	Extract fan with EC motor	● mounted	Direct driven 3 phases 400 Volt / 50 Hz
JK	Damper blades for outside air/extract air	● mounted	Dampers working in opposite direction with gear drive
FA	Filter for outside air/extract air	● mounted	Outside air F7 / extract air F5
ER	Energy recovery	● ECOROT	Rotary heat exchanger
HW	Heating PWW	● Without steam	Heating with steam on request
KW	Cooling PCW	● Without refrigerant	DX cooling on request
SR	Compact control and automation unit	● mounted	pre-wired and ready-to-operate
1	External sensor	● loose	NTC sensor in IP54 enclosure
2	Actuators for damper blades outside air/extract air	● mounted	Actuator 230 Volt
3	Differ. pressure switch f. outside air sensor/extract air filter	● mounted	Lower response sensitivity 40 Pa
4	Frost protection thermostat	● mounted	Thermostat with change-over contact
5	Pressure sensors for air flow control	● mounted	Volume or pressure or signal is external 0 ... 10 Volt
6	EC electronics for supply/extract air	● mounted	For RPM speed control of fan motor
7	Supply air minimum limitation sensor	● mounted	NTC sensor for installation
8	Mounted extract air sensor and/or loose room sensor	● mounted / loose	NTC sensor for installation or with IP21 enclosure
9	Drive motor for rotary heat exchanger	● mounted	For RPM speed control of rotor
20	Actuator 3-way mixing valve for heating with PWW	● loose	Actuator 230 Volt
21	Actuator 3-way diverting valve for cooling with PCW	● loose	Actuator 230 Volt
3-way valves		Hydraulics	
A	Return line from heat exchanger	Part-medium volume	Water or brine as medium
B	Bypass of inlet line	Part-medium volume	Water or brine as medium
AB	Return line to energy generator	Total-medium volume	Water or brine as medium
25	Mechanical throttle valves	by others	For on-site hydraulic balancing
26	Secondary pump for heating circuit	● by others	Controls on/off

OVERVIEW OF UNITS

COM4®plus – COM4®mini – COM4®top



COM4®plus
INSTALLATION SITE
7 MODEL SIZES
INSIDE OR OUTSIDE

COM4®mini
INSTALLATION SITE
3 MODEL SIZES
INSIDE OR OUTSIDE

COM4®top
INSTALLATION SITE
5 MODEL SIZES
INSIDE

Series CL	
Fans / drives	
Direct driven plug fans EC motors, continuous electronically commutated	
Energy recovery	
Rotation heat exchanger	ECOROT or
Plate heat exchanger	ECOPLAT
Re-heater / Re-cooler	
Integrated in CL unit or can be integrated in supply air duct.	
Recirculating-air function / damper blade	
Optional, with disconnect function of extract fan	
Bypass function / damper blade	
Without ECOROT Integrated in ECOPLAT	
Panel filter as of EN 779	
Outside air	Quality class F5 or F7
Extract air	Quality class F5 or F7
MATRIX System Control	
Control unit is integrated in unit series CL	

Series CC	
Fans / drives	
Direct driven plug fans EC motors, continuous electronically commutated	
Energy recovery	
Cross-counterflow plate heat exchanger	ECOPLAT
Re-heater / Re-cooler	
can be integrated in supply air duct	
Recirculating-air function / damper blade	
Optional, with disconnect function of extract fan	
Bypass function / damper blade	
Integrated in ECOPLAT	
Panel filter as of EN 779	
Outside air	Quality class F7 or F8
Extract air	Quality class F5 or F6
MATRIX System Control	
Control unit is integrated in unit series CC	

Series CQ	
Fans / drives	
Direct driven plug fans EC motors, continuous electronically commutated	
Energy recovery	
Double plate heat exchanger	ECOPLAT
Re-heater / Re-cooler	
Integrated in CQ unit, or can be integrated in supply air duct.	
Recirculating-air function / damper blade	
Optional, operation with extract fan	
Bypass function / damper blade	
Integrated in ECOPLAT	
Panel filter as of EN 779	
Outside air	Quality class F5 or F7
Extract air	Quality class F5 or F7
MATRIX System Control	
Control unit is integrated in unit series CQ	

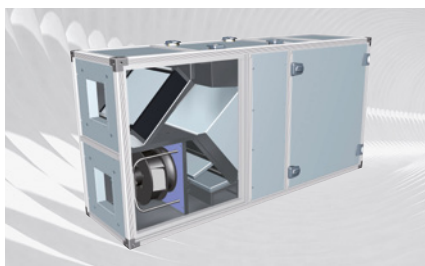
OVERVIEW OF UNITS

COM4[®]plus – COM4[®]mini – COM4[®]top



COM4[®]plus 7 MODEL SIZES
INSTALLATION SITE INSIDE OR OUTSIDE

Series CL	Air velocity	
Model size CL 10	1.0 m/s	2.0 m/s
Air flow rate	1,700 m ³ /h 3,400 m ³ /h	
*Heat recovery rate Φ		
ECOROT	0.88	0.82
ECOPLAT	0.64	0.62
Model size CL 30	1.0 m/s	2.0 m/s
Air flow rate	2,900 m ³ /h 5,800 m ³ /h	
*Heat recovery rate Φ		
ECOROT	0.89	0.83
ECOPLAT	0.80	0.74
Model size CL 40	1.0 m/s	2.0 m/s
Air flow rate	4,000 m ³ /h 8,000 m ³ /h	
*Heat recovery rate Φ		
ECOROT	0.89	0.83
ECOPLAT	0.81	0.77
Model size CL 50	1.0 m/s	2.0 m/s
Air flow rate	4,800 m ³ /h 9,600 m ³ /h	
*Heat recovery rate Φ		
ECOROT	0.89	0.83
ECOPLAT	0.80	0.77
Model size CL 60	1.0 m/s	2.0 m/s
Air flow rate	6,600 m ³ /h 13,200 m ³ /h	
*Heat recovery rate Φ		
ECOROT	0.89	0.82
ECOPLAT	0.76	0.74
Model size CL 70	1.0 m/s	2.0 m/s
Air flow rate	8,100 m ³ /h 16,200 m ³ /h	
*Heat recovery rate Φ		
ECOROT	0.89	0.83



COM4[®]mini 3 MODEL SIZES
INSTALLATION SITE INSIDE OR OUTSIDE

Series CC	Air velocity	
Model size CC 20	1.0 m/s	1.3 m/s
Air flow rate	600 m ³ /h	750 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.93	0.92
Model size CC 40	1.0 m/s	1.5 m/s
Air flow rate	900 m ³ /h	1,500 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.93	0.91
Model size CL 60	1.0 m/s	1.5 m/s
Air flow rate	1,400 m ³ /h	2,200 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.93	0.91



COM4[®]top 5 MODEL SIZES
INSTALLATION SITE INSIDE

Series CQ	Air velocity	
Model size CQ 15	1.0 m/s	2.0 m/s
Air flow rate	750 m ³ /h	1,500 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.91	0.84
Model size CQ 25	1.0 m/s	2.0 m/s
Air flow rate	1,200 m ³ /h	2,500 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.90	0.86
Model size CQ 35	1.0 m/s	2.3 m/s
Air flow rate	1,400 m ³ /h	3,500 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.88	0.85
Model size CQ 50	1.0 m/s	2.3 m/s
Air flow rate	2,100 m ³ /h	5,000 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.90	0.85
Model size CQ 65	1.0 m/s	2.2 m/s
Air flow rate	2,900 m ³ /h	6,500 m ³ /h
*Heat recovery rate Φ		
ECOPLAT	0.87	0.85

COM4[®]plus – with rotary heat exchanger ECOROT

COM4 [®] plus External pressure 300 Pa Z Supply air A Extract air			ECOROT D Energy recovery		PWW W 70 / 50 °C Re-heater		PCW K 6 / 12 °C Re-cooler		ELECTRIC E Re-heater	
Model size	CL 10	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	1,700 m ³ /h	3,400 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.88	0.82						
Air intake			–12 °C	–12 °C	18 °C	16 °C	28 °C / 50 % r.F.		18 °C	16 °C
Air discharge			18 °C	16 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			17 kW	32 kW	2 kW	7 kW	7 kW	14 kW	On request	
Model size	CL 20	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	2,100 m ³ /h	4,200 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.89	0.83						
Air intake			–12 °C	–12 °C	18 °C	16 °C	28 °C / 50 % r.F.		18 °C	16 °C
Air discharge			18 °C	16 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			21 kW	40 kW	3 kW	8 kW	9 kW	18 kW	On request	
Model size	CL 30	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	2,900 m ³ /h	5,800 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.89	0.83						
Air intake			–12 °C	–12 °C	18 °C	16 °C	28 °C / 50 % r.F.		18 °C	16 °C
Air discharge			18 °C	16 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			30 kW	55 kW	4 kW	11 kW	12 kW	24 kW	On request	
Model size	CL 40	1.0 m/s 2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s
Air flow rate	4,000 m ³ /h	8,000 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.89	0.83						
Air intake			–12 °C	–12 °C	18 °C	16 °C	28 °C / 50 % r.F.		18 °C	16 °C
Air discharge			18 °C	16 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			41 kW	76 kW	5 kW	16 kW	17 kW	34 kW	On request	
Model size	CL 50	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	4,800 m ³ /h	9,600 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.89	0.83						
Air intake			–12 °C	–12 °C	18 °C	16 °C	28 °C / 50 % r.F.		18 °C	16 °C
Air discharge			18 °C	16 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			49 kW	91 kW	6 kW	19 kW	20 kW	40 kW	On request	
Model size	CL 60	1.0 m/s 2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.0 m/s
Air flow rate	6,600 m ³ /h	13,200 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.89	0.82						
Air intake			–12 °C	–12 °C	18 °C	16 °C	28 °C / 50 % r.F.		18 °C	16 °C
Air discharge			18 °C	16 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			67 kW	124 kW	8 kW	27 kW	28 kW	55 kW	On request	
Model size	CL 70	1.0 m/s 2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s
Air flow rate	8,100 m ³ /h	16,200 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.89	0.83						
Air intake			–12 °C	–12 °C	18 °C	16 °C	28 °C / 50 % r.F.		18 °C	16 °C
Air discharge			18 °C	16 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			83 kW	154 kW	10 kW	32 kW	34 kW	68 kW	On request	

COM4[®]plus – with rotary heat exchanger ECOROT

Sound power level					Sound power level				
		Supply	Extract				Supply	Extract	
		air	air				air	air	
Model size	Air velocity approx.	1.0 m/s			Model size	Air velocity approx.	2.0 m/s		
CL10	Suction side	1,700 m ³ /h	68 dB(A)	68 dB(A)	CL10	Suction side	3,400 m ³ /h	76 dB(A)	76 dB(A)
	Pressure side		78 dB(A)	78 dB(A)		Pressure side		88 dB(A)	88 dB(A)
	Externally on fan casing		49 dB(A)	49 dB(A)		Externally on fan casing		58 dB(A)	58 dB(A)
CL20	Suction side	2,100 m ³ /h	69 dB(A)	69 dB(A)	CL20	Suction side	4,200 m ³ /h	81 dB(A)	81 dB(A)
	Pressure side		80 dB(A)	80 dB(A)		Pressure side		93 dB(A)	93 dB(A)
	Externally on fan casing		51 dB(A)	51 dB(A)		Externally on fan casing		64 dB(A)	64 dB(A)
CL30	Suction side	2,900 m ³ /h	71 dB(A)	70 dB(A)	CL30	Suction side	5,800 m ³ /h	81 dB(A)	81 dB(A)
	Pressure side		82 dB(A)	82 dB(A)		Pressure side		93 dB(A)	93 dB(A)
	Externally on fan casing		56 dB(A)	55 dB(A)		Externally on fan casing		65 dB(A)	64 dB(A)
CL40	Suction side	4,000 m ³ /h	70 dB(A)	69 dB(A)	CL40	Suction side	8,000 m ³ /h	79 dB(A)	78 dB(A)
	Pressure side		80 dB(A)	79 dB(A)		Pressure side		89 dB(A)	89 dB(A)
	Externally on fan casing		55 dB(A)	54 dB(A)		Externally on fan casing		64 dB(A)	63 dB(A)
CL50	Suction side	4,800 m ³ /h	70 dB(A)	70 dB(A)	CL50	Suction side	9,600 m ³ /h	81 dB(A)	81 dB(A)
	Pressure side		80 dB(A)	80 dB(A)		Pressure side		92 dB(A)	92 dB(A)
	Externally on fan casing		52 dB(A)	52 dB(A)		Externally on fan casing		63 dB(A)	63 dB(A)
CL60	Suction side	6,600 m ³ /h	74 dB(A)	74 dB(A)	CL60	Suction side	13,200 m ³ /h	87 dB(A)	87 dB(A)
	Pressure side		86 dB(A)	85 dB(A)		Pressure side		99 dB(A)	99 dB(A)
	Externally on fan casing		59 dB(A)	58 dB(A)		Externally on fan casing		70 dB(A)	70 dB(A)
CL70	Suction side	8,100 m ³ /h	73 dB(A)	72 dB(A)	CL70	Suction side	16,200 m ³ /h	82 dB(A)	81 dB(A)
	Pressure side		83 dB(A)	82 dB(A)		Pressure side		92 dB(A)	92 dB(A)
	Externally on fan casing		58 dB(A)	57 dB(A)		Externally on fan casing		66 dB(A)	66 dB(A)

Motor capacity/SFPv					Motor capacity/SFPv				
		 Supply air	 Extract air	Total			 Supply air	 Extract air	Total
Model size	Motor rated capacity		SFPv		Model size	Motor rated capacity		SFPv	
CL10	1,700m³/h	2.2 kW	2.2 kW	1.78kW/m³/s	CL10	3,400m³/h	2.2 kW	2.2 kW	2.37 kW/m³/s
CL20	2,100m³/h	2.2 kW	2.2 kW	1.68kW/m³/s	CL20	4,200m³/h	2.2 kW	2.2 kW	2.55 kW/m³/s
CL30	2,900m³/h	4.1 kW	4.1 kW	1.91kW/m³/s	CL30	5,800m³/h	4.1 kW	4.1 kW	2.60 kW/m³/s
CL40	4,000m³/h	3.8 kW	3.8 kW	1.69kW/m³/s	CL40	8,000m³/h	3.8 kW	3.8 kW	2.13 kW/m³/s
CL50	4,800m³/h	2 x 2.5 kW	2 x 2.5 kW	1.67kW/m³/s	CL50	9,600m³/h	2 x 2.5 kW	2 x 2.5 kW	2.39 kW/m³/s
CL60	6,600m³/h	2 x 4.1 kW	2 x 4.1 kW	1.81kW/m³/s	CL60	13,200m³/h	2 x 4.1 kW	2 x 4.1 kW	2.62 kW/m³/s
CL70	8,100m³/h	2 x 4.1 kW	2 x 4.1 kW	1.68kW/m³/s	CL70	16,200m³/h	2 x 4.1 kW	4.1 kW	2.11 kW/m³/s

COM4[®]plus – with plate-type heat exchanger ECOPLAT

COM4 [®] plus Z Supply air A Extract air External pressure 300 Pa			ECOPLAT D Energy recovery		PWW W 70 / 50 °C Re-heater		PCW K 6 / 12 °C Re-cooler		ELECTRIC E Re-heater	
Model size	CL 10	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	1,700 m ³ /h	3,400 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.64	0.62						
Air intake			-12 °C	-12 °C	10 °C	9 °C	28 °C / 50		10 °C	9 °C
Air discharge			10 °C	9 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			12 kW	24 kW	7 kW	15 kW	7 kW	14 kW	On request	
Model size	CL 20	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	2,100 m ³ /h	4,200 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.72	0.67						
Air intake			-12 °C	-12 °C	12 °C	11 °C	28 °C / 50		12 °C	11 °C
Air discharge			12 °C	11 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			17 kW	32 kW	7 kW	16 kW	9 kW	18 kW	On request	
Model size	CL 30	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	2,900 m ³ /h	5,800 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.80	0.74						
Air intake			-12 °C	-12 °C	15 °C	13 °C	28 °C / 50		15 °C	13 °C
Air discharge			15 °C	13 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			27 kW	49 kW	7 kW	17 kW	12 kW	24 kW	On request	
Model size	CL 40	1.0 m/s 2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s
Air flow rate	4,000 m ³ /h	8,000 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.81	0.77						
Air intake			-12 °C	-12 °C	16 °C	14 °C	28 °C / 50		16 °C	14 °C
Air discharge			16 °C	14 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			37 kW	71 kW	9 kW	21 kW	17 kW	34 kW	On request	
Model size	CL 50	1.0 m/s 2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s	1.0 m/s	2.0 m/s
Air flow rate	4,800 m ³ /h	9,600 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.80	0.77						
Air intake			-12 °C	-12 °C	15 °C	13 °C	28 °C / 50		15 °C	13 °C
Air discharge			15 °C	13 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			44 kW	81 kW	11 kW	29 kW	20 kW	40 kW	On request	
Model size	CL 60	1.0 m/s 2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s	1.0 m/s	2.1 m/s
Air flow rate	6,600 m ³ /h	13,200 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.76	0.74						
Air intake			-12 °C	-12 °C	14 °C	13 °C	28 °C / 50		14 °C	13 °C
Air discharge			14 °C	13 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			58 kW	112 kW	18 kW	39 kW	28 kW	55 kW	On request	

COM4[®]plus – with plate-type heat exchanger ECOPLAT

Sound power level ■ Supply air ■ Extract air					Sound power level ■ Supply air ■ Extract air				
Model size	Air velocity approx.		1.0 m/s		Model size	Air velocity approx.		2.0 m/s	
CL10	Suction side	1,700 m ³ /h	65 dB(A)	65 dB(A)	CL10	Suction side	3,400 m ³ /h	74 dB(A)	74 dB(A)
	Pressure side		78 dB(A)	78 dB(A)		Pressure side		88 dB(A)	88 dB(A)
	Externally on fan casing		49 dB(A)	49 dB(A)		Externally on fan casing		59 dB(A)	59 dB(A)
CL20	Suction side	2,100 m ³ /h	66 dB(A)	66 dB(A)	CL20	Suction side	4,200 m ³ /h	79 dB(A)	79 dB(A)
	Pressure side		79 dB(A)	80 dB(A)		Pressure side		93 dB(A)	93 dB(A)
	Externally on fan casing		50 dB(A)	50 dB(A)		Externally on fan casing		64 dB(A)	64 dB(A)
CL30	Suction side	2,900 m ³ /h	68 dB(A)	68 dB(A)	CL30	Suction side	5,800 m ³ /h	79 dB(A)	79 dB(A)
	Pressure side		82 dB(A)	81 dB(A)		Pressure side		93 dB(A)	93 dB(A)
	Externally on fan casing		55 dB(A)	54 dB(A)		Externally on fan casing		64 dB(A)	64 dB(A)
CL40	Suction side	4,000 m ³ /h	68 dB(A)	68 dB(A)	CL40	Suction side	8,000 m ³ /h	76 dB(A)	76 dB(A)
	Pressure side		80 dB(A)	79 dB(A)		Pressure side		89 dB(A)	89 dB(A)
	Externally on fan casing		55 dB(A)	54 dB(A)		Externally on fan casing		63 dB(A)	63 dB(A)
CL50	Suction side	4,800 m ³ /h	68 dB(A)	68 dB(A)	CL50	Suction side	9,600 m ³ /h	79 dB(A)	79 dB(A)
	Pressure side		81 dB(A)	81 dB(A)		Pressure side		92 dB(A)	92 dB(A)
	Externally on fan casing		53 dB(A)	53 dB(A)		Externally on fan casing		63 dB(A)	63 dB(A)
CL60	Suction side	6,600 m ³ /h	71 dB(A)	71 dB(A)	CL60	Suction side	13,200 m ³ /h	85 dB(A)	85 dB(A)
	Pressure side		85 dB(A)	85 dB(A)		Pressure side		99 dB(A)	99 dB(A)
	Externally on fan casing		58 dB(A)	57 dB(A)		Externally on fan casing		70 dB(A)	70 dB(A)

Motor capacity/SFPv ■ Supply air ■ Extract air Total					Motor capacity/SFPv ■ Supply air ■ Extract air Total				
Model size	Motor rated capacity		SFPv		Model size	Motor rated capacity		SFPv	
CL10	1,700 m ³ /h	2.2 kW	1.1 kW	1.91 kW/m ³ /s	CL10	3,400 m ³ /h	2.2 kW	2.2 kW	2.49 kW/m ³ /s
CL20	2,100 m ³ /h	2.2 kW	1.1 kW	1.80 kW/m ³ /s	CL20	4,200 m ³ /h	2.2 kW	2.2 kW	2.58 kW/m ³ /s
CL30	2,900 m ³ /h	4.1 kW	1.5 kW	1.56 kW/m ³ /s	CL30	5,800 m ³ /h	4.1 kW	4.1 kW	2.58 kW/m ³ /s
CL40	4,000 m ³ /h	3.8 kW	2.2 kW	1.91 kW/m ³ /s	CL40	8,000 m ³ /h	3.8 kW	3.8 kW	2.37 kW/m ³ /s
CL50	4,800 m ³ /h	2 x 2.5 kW	2.2 kW	1.78 kW/m ³ /s	CL50	9,600 m ³ /h	2 x 2.5 kW	5.0 kW	2.90 kW/m ³ /s
CL60	6,600 m ³ /h	2 x 4.1 kW	2.2 kW	1.50 kW/m ³ /s	CL60	13,200 m ³ /h	2 x 4.1 kW	8.2 kW	2.63 kW/m ³ /s

OVERVIEW OF CAPACITY

COM4[®]mini – cross-counterflow plate heat exchanger ECOPLAT

COM4 [®] mini External pressure 100 Pa			ECOPLAT Energy recovery		PWW 70 / 50 °C Re-heater		PCW 6 / 12 °C Re-cooler		ELECTRIC Re-heater	
Model size	1.0 m/s	1.3 m/s	1.0 m/s	1.3 m/s	1.0 m/s	1.3 m/s	1.0 m/s	1.3 m/s	1.0 m/s	1.3 m/s
Air flow rate	600 m ³ /h	750 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.93	0.92						
Air intake			-12 °C	-12 °C	20 °C	19 °C	28 °C / 50 % r.F.		20 °C	19 °C
Air discharge			20 °C	19 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			6.4 kW	7.9 kW	0.5 kW	0.7 kW	2.5 kW	3.1 kW	On request	
Model size	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s
Air flow rate	900 m ³ /h	1,500 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.93	0.91						
Air intake			-12 °C	-12 °C	20 °C	19 °C	28 °C / 50 % r.F.		20 °C	19 °C
Air discharge			20 °C	19 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			9.6 kW	15.6 kW	0.7 kW	1.5 kW	3.8 kW	6.3 kW	On request	
Model size	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s	1.0 m/s	1.5 m/s
Air flow rate	1,400 m ³ /h	2,200 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.93	0.91						
Air intake			-12 °C	-12 °C	20 °C	19 °C	28 °C / 50 % r.F.		20 °C	19 °C
Air discharge			20 °C	19 °C	22 °C	22 °C	18 °C	18 °C	22 °C	22 °C
Capacity			14.9 kW	23.0 kW	1.1 kW	2.3 kW	5.9 kW	9.2 kW	On request	

SOUND LEVEL

Sound power level				Sound power level			
		Z Supply air	A Extract air			Z Supply air	A Extract air
Model size	Air velocity approx.	1.0 m/s		Model size	Air velocity approx.	1.5 m/s	
CL10	Suction side	600 m ³ /h	67 dB(A)	CL20	Suction side	750 m ³ /h	69 dB(A)
	Pressure side		68 dB(A)		Pressure side		70 dB(A)
	Externally on fan casing		75 dB(A)		Externally on fan casing		77 dB(A)
CL40	Suction side	900 m ³ /h	51 dB(A)	CL40	Suction side	1,500 m ³ /h	53 dB(A)
	Pressure side		52 dB(A)		Pressure side		54 dB(A)
	Externally on fan casing		75 dB(A)		Externally on fan casing		78 dB(A)
CL60	Suction side	1,400 m ³ /h	65 dB(A)	CL60	Suction side	2,200 m ³ /h	65 dB(A)
	Pressure side		67 dB(A)		Pressure side		67 dB(A)
	Externally on fan casing		75 dB(A)		Externally on fan casing		79 dB(A)
CL60	Suction side	1,400 m ³ /h	68 dB(A)	CL60	Suction side	2,200 m ³ /h	69 dB(A)
	Pressure side		69 dB(A)		Pressure side		71 dB(A)
	Externally on fan casing		78 dB(A)		Externally on fan casing		80 dB(A)

MOTORS / SFPv

Motor capacity/SFPv					Motor capacity/SFPv				
		 Supply air	 Extract air	Total			 Supply air	 Extract air	Total
Model size		Motor rated capacity		SFPv	Model size		Motor rated capacity		SFPv
CC20	600 m³/h	0.45 kW	0.45 kW	1.35 kW/m³/s	CC20	750 m³/h	0.45 kW	0.45 kW	1.60 kW/m³/s
CC40	900 m³/h	0.72 kW	0.72 kW	1.07 kW/m³/s	CC40	1,500 m³/h	0.72 kW	0.72 kW	1.62 kW/m³/s
CC60	1,400 m³/h	2x0.72 kW	1.43 kW	1.28 kW/m³/s	CC60	2,200 m³/h	2x0.72 kW	1.43 kW	1.72 kW/m³/s

OVERVIEW OF CAPACITY

COM4[®]top – with double plate-type heat exchanger ECOPLAT

COM4 [®] top			ECOPLAT		PWW		PCW		ELECTRIC	
Z Supply air A Extract air			D Energy recovery		W 70 / 50 °C Re-heater		K 6 / 12 °C Re-cooler		E Re-heater	
External pressure 300 Pa										
Model size	CQ15	1.0 m/s 2.1 m/s	1.0 m/s 2.1 m/s	1.0 m/s 2.1 m/s	1.0 m/s 2.1 m/s	1.0 m/s 2.1 m/s	1.0 m/s 1.3 m/s	1.0 m/s 1.3 m/s	1.0 m/s 1.3 m/s	1.0 m/s 1.3 m/s
Air flow rate	750 m ³ /h	1,500 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.91 0.84							
Air intake			-12 °C -12 °C		19 °C 17 °C		28 °C / 50 % r.F.		19 °C 17 °C	
Air discharge			19 °C 17 °C		22 °C 22 °C		18 °C 18 °C		22 °C 22 °C	
Capacity			8 kW 14 kW		1 kW 3 kW		3 kW 6 kW		On request	
Model size	CQ25	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s
Air flow rate	1,200 m ³ /h	2,500 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.90 0.86							
Air intake			-12 °C -12 °C		19 °C 17 °C		28 °C / 50 % r.F.		19 °C 17 °C	
Air discharge			19 °C 17 °C		22 °C 22 °C		18 °C 18 °C		22 °C 22 °C	
Capacity			12 kW 25 kW		1 kW 4 kW		5 kW 10 kW		On request	
Model size	CQ35	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s
Air flow rate	1,400 m ³ /h	3,500 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.88 0.85							
Air intake			-12 °C -12 °C		18 °C 17 °C		28 °C / 50 % r.F.		18 °C 17 °C	
Air discharge			18 °C 17 °C		22 °C 22 °C		18 °C 18 °C		22 °C 22 °C	
Capacity			14 kW 34 kW		2 kW 6 kW		6 kW 15 kW		On request	
Model size	CQ50	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s
Air flow rate	2,100 m ³ /h	5,000 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.90 0.85							
Air intake			-12 °C -12 °C		19 °C 17 °C		28 °C / 50 % r.F.		19 °C 17 °C	
Air discharge			19 °C 17 °C		22 °C 22 °C		18 °C 18 °C		22 °C 22 °C	
Capacity			22 kW 49 kW		2 kW 9 kW		9 kW 21 kW		On request	
Model size	CQ65	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s	1.0 m/s 2.0 m/s
Air flow rate	2,900 m ³ /h	6,500 m ³ /h								
Heat recovery rate Φ max. in extract air	22 °C / 50 %		0.87 0.85							
Air intake			-12 °C -12 °C		18 °C 17 °C		28 °C / 50 % r.F.		18 °C 17 °C	
Air discharge			18 °C 17 °C		22 °C 22 °C		18 °C 18 °C		22 °C 22 °C	
Capacity			29 kW 63 kW		4 kW 11 kW		12 kW 27 kW		On request	

SOUND LEVEL

Sound power level			Z Supply A Extract air		Sound power level			Z Supply A Extract air	
Model size	Air velocity approx.	1.0 m/s			Model size	Air velocity approx.	2.0 m/s		
CQ15	Suction side	750 m ³ /h	78 dB(A)	78 dB(A)	CQ15	Suction side	1,500 m ³ /h	77 dB(A)	77 dB(A)
	Pressure side		84 dB(A)	84 dB(A)		Pressure side		84 dB(A)	84 dB(A)
	Externally on fan casing		58 dB(A)	58 dB(A)		Externally on fan casing		57 dB(A)	57 dB(A)
CQ25	Suction side	1,200 m ³ /h	79 dB(A)	79 dB(A)	CQ25	Suction side	2,500 m ³ /h	79 dB(A)	79 dB(A)
	Pressure side		85 dB(A)	85 dB(A)		Pressure side		86 dB(A)	86 dB(A)
	Externally on fan casing		59 dB(A)	59 dB(A)		Externally on fan casing		57 dB(A)	57 dB(A)
CQ35	Suction side	2,400 m ³ /h	77 dB(A)	77 dB(A)	CQ35	Suction side	3,500 m ³ /h	82 dB(A)	82 dB(A)
	Pressure side		83 dB(A)	83 dB(A)		Pressure side		89 dB(A)	89 dB(A)
	Externally on fan casing		57 dB(A)	57 dB(A)		Externally on fan casing		59 dB(A)	59 dB(A)
CQ50	Suction side	2,100 m ³ /h	79 dB(A)	79 dB(A)	CQ50	Suction side	5,000 m ³ /h	81 dB(A)	81 dB(A)
	Pressure side		86 dB(A)	86 dB(A)		Pressure side		88 dB(A)	88 dB(A)
	Externally on fan casing		61 dB(A)	61 dB(A)		Externally on fan casing		59 dB(A)	59 dB(A)
CQ65	Suction side	2,900 m ³ /h	78 dB(A)	78 dB(A)	CQ65	Suction side	6,500 m ³ /h	85 dB(A)	85 dB(A)
	Pressure side		84 dB(A)	84 dB(A)		Pressure side		92 dB(A)	92 dB(A)
	Externally on fan casing		57 dB(A)	57 dB(A)		Externally on fan casing		63 dB(A)	63 dB(A)

MOTORS / SFPv

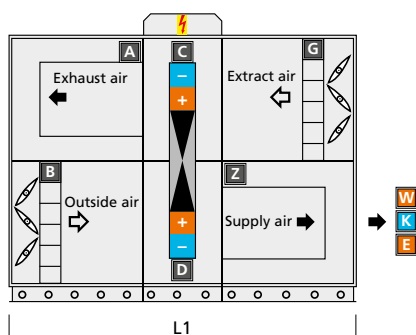
Motor capacity/SFPv			Z Supply A Extract air		Motor capacity/SFPv			Z Supply A Extract air	
Model size	Motor rated capacity	SFPv			Model size	Motor rated capacity	SFPv		
CQ15	750 m ³ /h	1.00 kW	1.00 kW	2.69 kW/m ³ /s	CQ15	1,500 m ³ /h	1.0 kW	1.0 kW	2.52 kW/m ³ /s
CQ25	1,200 m ³ /h	1.65 kW	1.65 kW	2.79 kW/m ³ /s	CQ25	2,500 m ³ /h	1.7 kW	1.7 kW	2.82 kW/m ³ /s
CQ35	1,400 m ³ /h	1.65 kW	1.65 kW	2.39 kW/m ³ /s	CQ35	3,500 m ³ /h	1.7 kW	1.7 kW	2.79 kW/m ³ /s
CQ50	2,100 m ³ /h	3.0 kW	3.00 kW	2.21 kW/m ³ /s	CQ50	5,000 m ³ /h	3.0 kW	3.0 kW	2.57 kW/m ³ /s
CQ65	2,900 m ³ /h	3.0 kW	3.00 kW	1.97 kW/m ³ /s	CQ65	6,500 m ³ /h	3.0 kW	3.0 kW	2.72 kW/m ³ /s

DIMENSIONS AND WEIGHT – 100 % OUTSIDE AIR

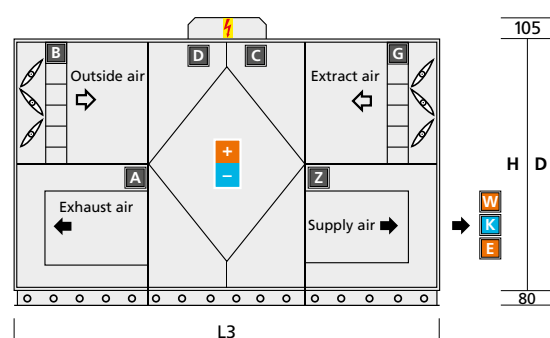
COM4[®]plus

COM4 [®] plus with ECOROT Operating mode: 100 % outside air					COM4 [®] plus with ECOPLAT Operating mode: 100 % outside air				Height	Depth
Model size	L1		L2		L3		L4		H	T
CL10	1,760 mm	550 kg	2,400 mm	700 kg	2,320 mm	600 kg	2,960 mm	800 kg	1,080 mm	1,080 mm
CL20	2,080 mm	700 kg	2,720 mm	900 kg	2,760 mm	800 kg	3,400 mm	1,000 kg	1,200 mm	1,200 mm
CL30	2,160 mm	850 kg	2,800 mm	1,100 kg	2,960 mm	1,000 kg	3,600 mm	1,250 kg	1,400 mm	1,400 mm
CL40	2,400 mm	1,100 kg	3,040 mm	1,350 kg	3,360 mm	1,250 kg	4,000 mm	1,550 kg	1,600 mm	1,600 mm
CL50	2,640 mm	1,250 kg	3,280 mm	1,550 kg	3,600 mm	1,400 kg	4,240 mm	1,750 kg	1,720 mm	1,720 mm
CL60	2,720 mm	1,600 kg	3,360 mm	2,000 kg	3,880 mm	1,950 kg	4,520 mm	2,300 kg	2,000 mm	2,000 mm
CL70	3,040 mm	1,950 kg	3,680 mm	2,300 kg					2,200 mm	2,200 mm

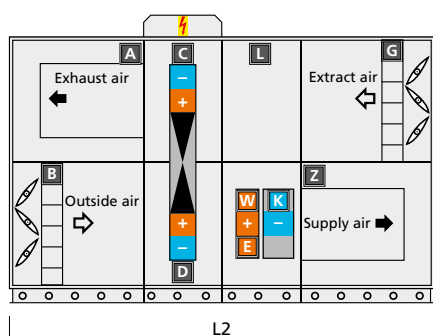
Re-heater/re-cooler can be integrated in field-provided supply duct



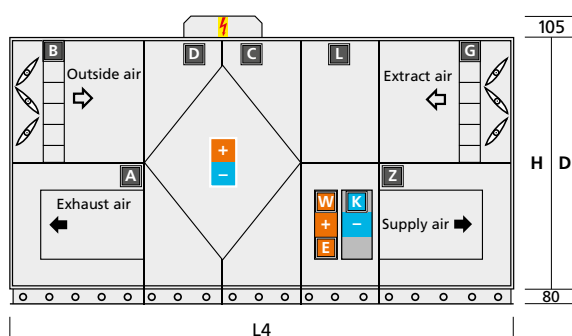
Re-heater/re-cooler can be integrated in field-provided supply duct



Reheater/re-cooler can be integrated in unit series CL



Reheater/re-cooler can be integrated in unit series CL



- | | | |
|---|--|-----------------------------|
| A Extract fan | Z Supply fan | W Re-heater |
| B Outside air filter | G Extract air filter | K Re-cooler |
| C Energy recovery from extract air | L Empty section | E Electric re-heater |
| D Energy recovery outside air | Without recirculating-air section | System control |

DIMENSIONS AND WEIGHT – 100 % OUTSIDE AIR

COM4[®]mini/COM4[®]top

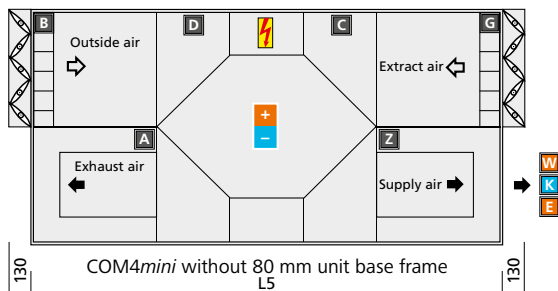
COM4[®]mini with ECOPLAT
Operating mode: 100 % outside air

Model size	L5	Height	Depth	Weight
CC20	1,870 mm	930 mm	530 mm	185 kg
CC40	1,870 mm	930 mm	760 mm	225 kg
CC60	1,870 mm	930 mm	1080 mm	285 kg

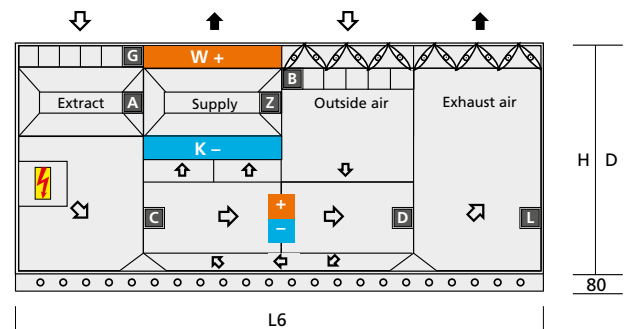
COM4[®]top with ECOPLAT
Operating mode: 100 % outside air

Model size	L6	Height	Depth	Weight
CQ15	1,640 mm	1,800 mm	760 mm	480 kg
CQ25	2,280 mm	1,800 mm	760 mm	650 kg
CQ35	2,760 mm	2,080 mm	760 mm	750 kg
CQ50	2,760 mm	2,080 mm	1,080 mm	820 kg
CQ65	2,760 mm	2,080 mm	1,400 mm	1,000 kg

Re-heater/re-cooler can be integrated
in field-provided supply duct



Reheater/re-cooler can be integrated in unit series CQ



- A** Extract fan
- B** Outside air filter
- C** Energy recovery from extract air
- D** Energy recovery outside air

- Z** Supply fan
- G** Extract air filter
- L** Empty section
- Without recirculating-air section

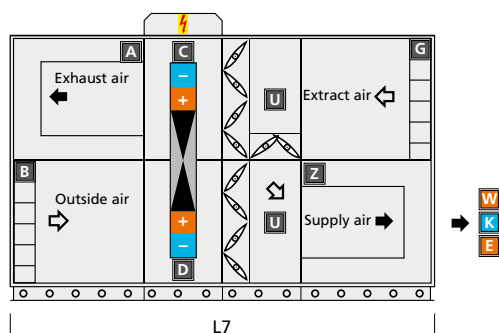
- W** Re-heater
- K** Re-cooler
- E** Electric re-heater
- System control

DIMENSIONS AND WEIGHT – 100 % OUTSIDE OR RECIRCULATING AIR

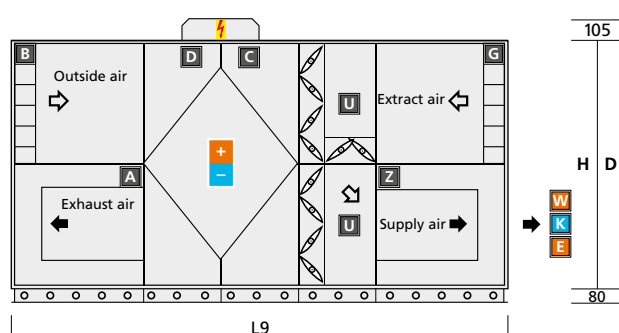
COM4[®]plus

COM4 [®] plus with ECOROT Operating mode: 100 % outside air or 100 % recirculating air					COM4 [®] plus with ECOPLAT Operating mode: 100 % outside air or 100 % recirculating air				Height	Depth
Model size		L7		L8	L9		L10		H	T
CL10	2,080 mm	600 kg	2,720 mm	750 kg	2,640 mm	650 kg	3,280 mm	850 kg	1,080 mm	1,080 mm
CL20	2,400 mm	750 kg	3,040 mm	950 kg	3,080 mm	850 kg	3,720 mm	1,050 kg	1,200 mm	1,200 mm
CL30	2,480 mm	900 kg	3,120 mm	1,150 kg	3,280 mm	1,050 kg	3,920 mm	1,300 kg	1,400 mm	1,400 mm
CL40	2,840 mm	1,150 kg	3,480 mm	1,450 kg	3,800 mm	1,350 kg	4,440 mm	1,600 kg	1,600 mm	1,600 mm
CL50	3,080 mm	1,350 kg	3,720 mm	1,650 kg	4,040 mm	1,550 kg	4,680 mm	1,850 kg	1,720 mm	1,720 mm
CL60	3,160 mm	1,700 kg	3,800 mm	2,050 kg	4,320 mm	2,050 kg	4,960 mm	2,400 kg	2,000 mm	2,000 mm
CL70	3,720 mm	2,100 kg	4,360 mm	2,500 kg	–				2,200 mm	2,200 mm

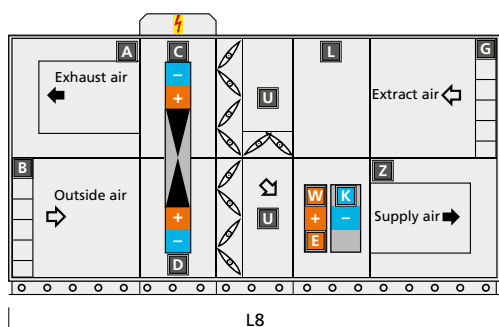
Re-heater/re-cooler can be integrated in field-provided supply duct



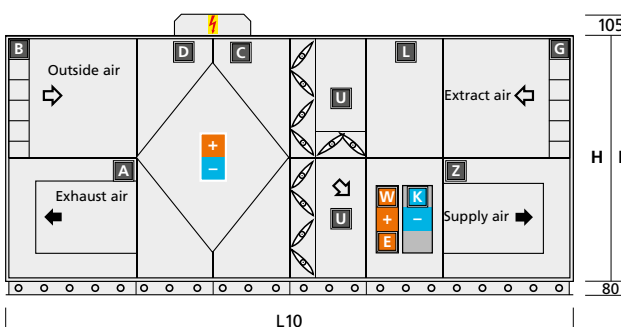
Re-heater/re-cooler can be integrated in field-provided supply duct



Reheater/re-cooler can be integrated in unit series CL



Reheater/re-cooler can be integrated in unit series CL



- | | | |
|---|------------------------------------|-----------------------------|
| A Extract fan | Z Supply fan | W Re-heater |
| B Outside air filter | G Extract air filter | K Re-cooler |
| C Energy recovery from extract air | L Empty section | E Electric re-heater |
| D Energy recovery outside air | U Recirculating-air section | System control |

COM4[®]mini/COM4[®]top

COM4[®]mini
with recirculating-air function not included in
product range

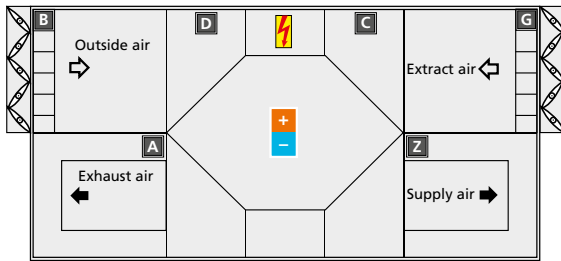
Because of high heat recovery rate > 0.90 over energy
recovery - recirculating-air mode with compact COM4[®]mini
air handling unit is usually not necessary.

COM4[®]top with ECOPLAT
Operating mode: 100 % outside or recirculating air

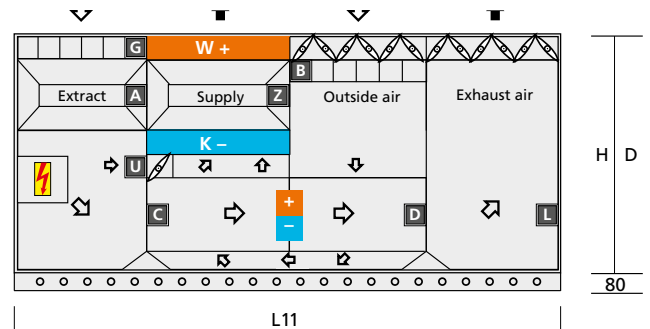
Model size	L6	Height	Depth	Weight
CQ15	1,640 mm	1,800 mm	760 mm	480 kg
CQ25	2,280 mm	1,800 mm	760 mm	650 kg
CQ35	2,760 mm	2,080 mm	760 mm	750 kg
CQ50	2,760 mm	2,080 mm	1,080 mm	820 kg
CQ65	2,760 mm	2,080 mm	1,400 mm	1,000 kg

COM4[®]mini only for operation with 100 % outside air –
refer to page 16

Re-heater/re-cooler can be integrated in unit series CQ



Campos without 80 mm unit base frame

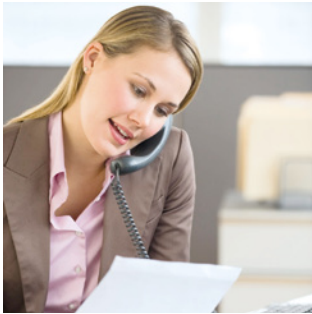


- A** Extract fan
- B** Outside air filter
- C** Energy recovery from extract air
- D** Energy recovery outside air

- Z** Supply fan
- G** Extract air filter
- L** Empty section
- U** Recirculating-air section

- W** Re-heater
- K** Re-cooler
- ⚡** System control

Always at your side



Our services at a glance

- Own heat exchanger production
- Use of certified products and components
- Use of components from well-known component manufacturers
- Short delivery times for spare parts
- Commissioning of new facilities
- Periodic servicing
- Maintenance
- Factory trial run
- Upgrading and optimisation of old facilities
- Maintenance agreements

Economical from the beginning

The technical developments of DencoHappel represent state-of-the-art swimming pool climate control. Our systems support diverse applications that optimally conform to current criteria of cost effectiveness, safety and sustainability. Our products and services go far beyond pure technology. They are integrated into a comprehensive and in every respect customised service package. This programme includes not only conventional services such as spare part delivery, maintenance, and repair. It unites the consulting and engineering of a technology leader with customised after-sales service and rapid response times. And this not only for installing new equipment. This service also applies for upgrading and optimising old equipment and provides you with perfect support in all project phases. The functionality of the system is secured over its entire service life.

International service und support in experienced hands

Wherever you need us, we will be there for you in the shortest time. All over Europe, our own customer service ensures that you are able to make optimal use of our units' advantages at all times. Many technicians are ready on-call in Germany alone for rapid deployment. All services are designed for absolute safety and reliability. For example, an on-site function check is a part of our delivery service, conducted by an experienced DencoHappel technician together with the installer. This way we directly and personally pass on our functional know-how built up over many years. In this context we should also mention the training we offer in the technology of our climate control systems. Such training is a beneficial instrument for ensuring the lasting functionality and availability of the systems.

A decision for quality

A high quality standard is the basis and principle for all our services. All our service specialists are highly experienced and devote themselves to their work with great diligence. Technically and personally convincing: this is what you can expect from us.



- Initial installation
- Maintenance and servicing
- Assembly services
- Spare parts
- Customer service
- Consulting
- Refurbishing
- Training

DencoHappel is a globally operating company with great expertise in air treatment, air conditioning and filtration technology.

Our nearest consulting and service teams will be glad to discuss ideas and develop creative and effective solutions with you.

