Compact-Line

Compact air handling units

systemair

Compact-Line

Systemair Compact-Line units are designed as a compact air handling units, manufactured according to the Ecodesign Directive, Machinery Directive, Low Voltage Directive, EMC Directive and other directives covering functional elements. Essential requirements, stated in the standards EN 1886, EN 13053, EN 16798-3 and VDI 6022, have been accounted. Adjustments in order to meet the requirements of other standards are also possible.
Units can be selected with airCalc++ selection tool, which is frequently updated and allows optimization of every option.

The preconfigured standard version units are made in accordance with the general technical, safety and hygienic requirements which are laid down by the EU and domestic rules, regulations and standards.

Quality, optimization, reliability and efficient calculation ensures the best performance with a low pressure loss that is crucial for the safe operation and energy efficiency of the units.

EUROVENT certified.

How to select Compact-Line unit

Main range designation

KA HSI-CL3000-C-R-50F-TB2-L2

Air leakage class	**L1** **L2**	
Thermal bridging class	**TB2**	
Panel execution	**50F**	50 mm fully glued
Service side	**L** **R**	Left Right
Design	**C**	Stacked
Size	1500, 3000, 4500, 6000, 8000	
Subrange name	**CL**	Compact-Line
Installation	**I** **O**	Indoor Outdoor
Execution	**S**	Standard
Profile type	**H**	THOR 50 mm profile
Range name	**KA**	Series

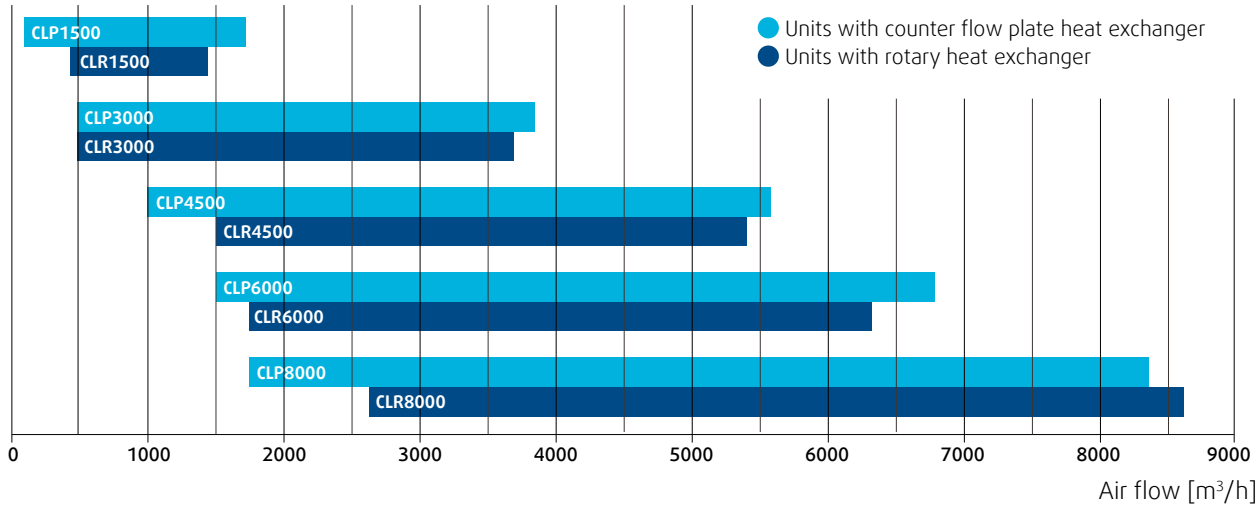
Sub range designation

CLP 3000-H-I-C-R-L2-C

Control system	**C** **-**	With control system No control system
Air leakage class	**L1** **L2**	
Service side	**L** **R**	Left Right
Design	**C** **D**	Compact (in one piece) Devided
Installation	**I** **O**	Indoor Outdoor
Connections	**H** **V**	Horizontal Vertical
Size	1500, 3000, 4500, 6000, 8000	
Heat exchanger type (heat recovery)	**P** **R**	Plate (counter flow) Rotary
Subrange name	**CL**	Compact-Line

Model sizes

The Compact Line series is available in 5 sizes with a nominal air flow of up to 8000 m³/h, with both plate and rotary heat exchanger in vertical and horizontal versions.



Size	Cross section size according to KA series		Fan motor supply, extract		Nominal air flow	Heat recovery efficiency at nominal air flow		Max. air flow ready for ErP 2018	
						Dry	Wet	CLP-H	CLP-V
	Supply	Extract	(kW)	(V)	(m³/h)	(%)	(%)	(m³/h)	(m³/h)
CLP1500	KA 2-1	KA 2-1	0,76	230	1500	82,2	90,1	1750*	1750*
CLP3000	KA 3-1,5	KA3-1,5	1,3	230	3000	82,8	90,4	3834*	3800*
			2,4	400				4155*	4035*
CLP4500	KA 4-1,5	KA 4-1,5	2,5	400	4500	82,3	90,1	5520*	5390*
CLP6000	KA 5-2	KA 5-2	2,5	400	6000	82,0	90,0	6888*	6732*
CLP8000	KA 5-3	KA 5-2	3,7	400	8000	84,0	91,1	8300*	8100*

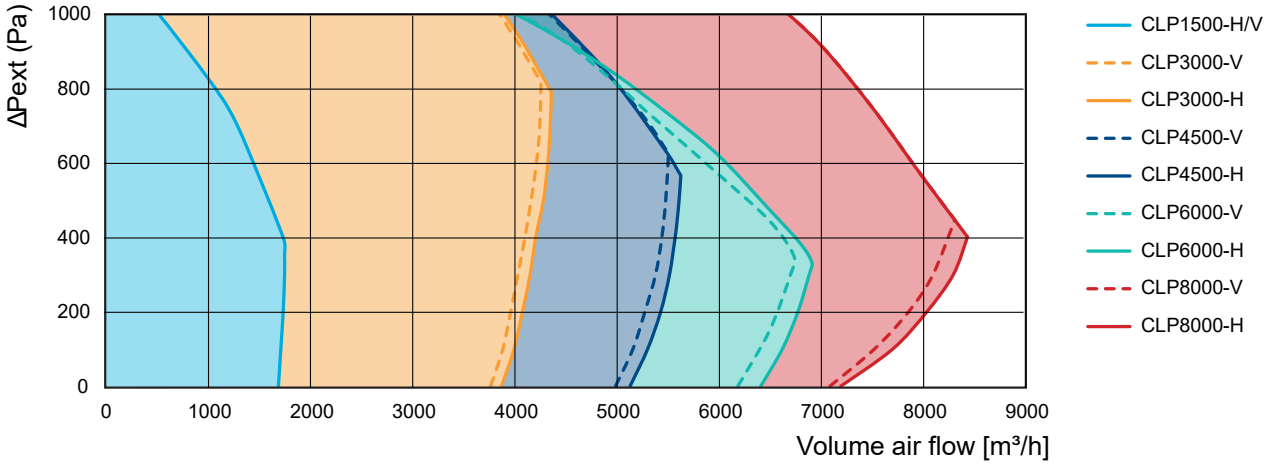
Size	Cross section size according to KA series		Fan motor supply, extract		Nominal air flow	Heat recovery efficiency at nominal air flow		Max. air flow ready for ErP 2018	
						Dry	Wet	CLP-H	CLP-V
	Supply	Extract	(kW)	(V)	(m³/h)	(%)	(%)	(m³/h)	(m³/h)
CLR1500	KA 2-1	KA 2-1	0,76	230	1150	82,2	80,0	1225*	1225*
CLR3000	KA 3-1,5	KA3-1,5	1,3	230	3000	82,8	81,1	3652*	3652*
			2,4	400				3660*	3660*
CLR4500	KA 4-1,5	KA 4-1,5	2,5	400	4500	82,3	81,7	5383*	5383*
CLR6000	KA 4-2	KA 4-2	2,5	400	6000	82,0	80,0	6265*	6265*
CLR8000	KA 5-3	KA 5-3	3,7	400	8000	84,0	82,2	8600*	8600*

The data in the table are calculated for the following conditions:
Winter; Outdoor air: -15 °C, 90 %, Extract air: 20 °C, 50 %
Summer; Outdoor air: 32 °C, 40 %, Extract air: 24 °C, 50 %
ΔP_{ext} (pressure drop in ducts): 300 Pa
Sea level: 0 m

* Applies to configuration with integrated water heating coil and with condensation type of rotary exchanger and integrated water heating coil.

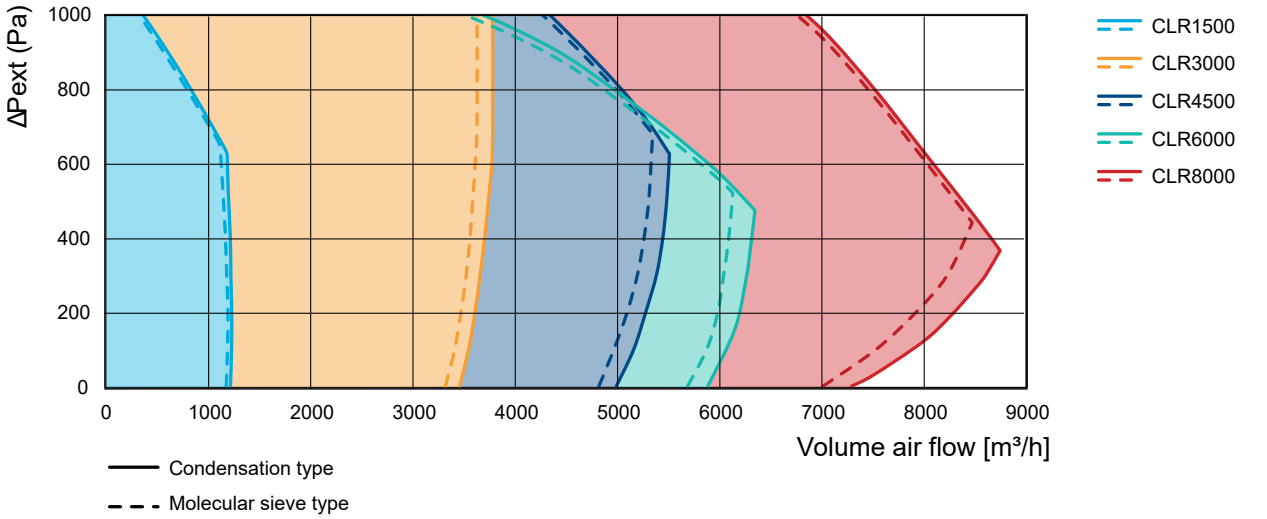
Air flow and pressure capacity

Units with counter flow plate heat exchanger

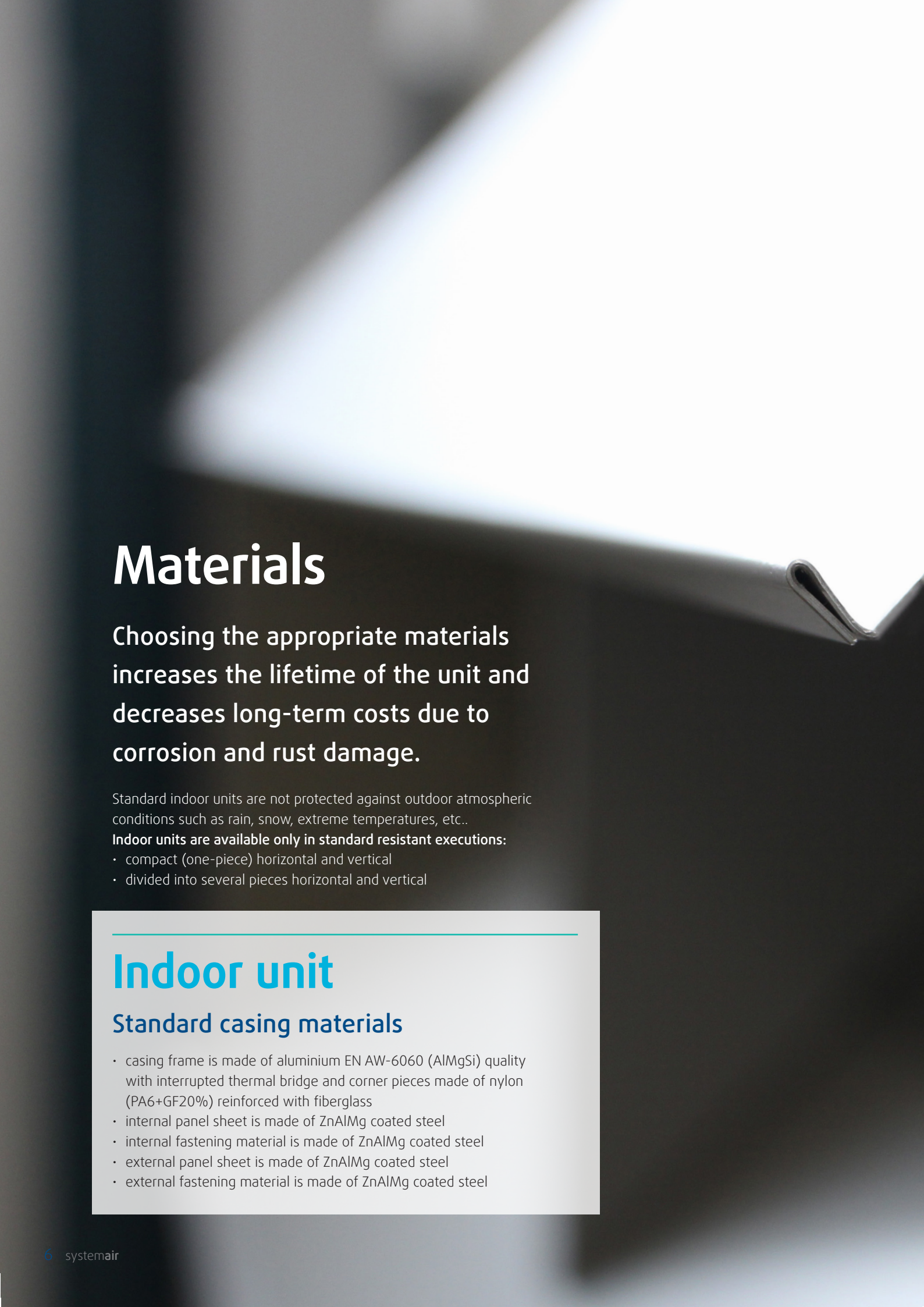


The diagram shows the maximum flow curve. The area without curve is not applicable area.
Air flow area depending on external air pressure drop - ready for ErP 2018*
* Applies to configuration with integrated water heating coil
ΔP_{ext} (Pa): Means the sum of pressure drops on cooling coils, silencers, electric heaters, ducts, etc.

Units with rotary heat exchanger



The diagram shows the maximum flow curve. The area without curve is not applicable area.
Air flow area depending on external air pressure drop - ready for ErP 2018**
** Applies to configuration with condensation type of rotary exchanger and integrated water heating coil
ΔP_{ext} (Pa): Means the sum of pressure drops on cooling coils, silencers, electric heaters, ducts, etc.



Materials

Choosing the appropriate materials increases the lifetime of the unit and decreases long-term costs due to corrosion and rust damage.

Standard indoor units are not protected against outdoor atmospheric conditions such as rain, snow, extreme temperatures, etc..

Indoor units are available only in standard resistant executions:

- compact (one-piece) horizontal and vertical
- divided into several pieces horizontal and vertical

Indoor unit

Standard casing materials

- casing frame is made of aluminium EN AW-6060 (AlMgSi) quality with interrupted thermal bridge and corner pieces made of nylon (PA6+GF20%) reinforced with fiberglass
- internal panel sheet is made of ZnAlMg coated steel
- internal fastening material is made of ZnAlMg coated steel
- external panel sheet is made of ZnAlMg coated steel
- external fastening material is made of ZnAlMg coated steel

Outdoor unit

Additional protection against outdoor atmospheric conditions

Only compact (one-piece) horizontal units are available.

- **Waterproof roof** is made of ZnAlMg coated steel (optionally: galvanized pre-painted steel sheet RAL 9006). The design of the roof closes all possible gaps, prevents any water from accessing the unit from the top and protects the panels.
- **External panel sheet** is made of ZnAlMg coated steel (optionally: galvanized pre-painted steel sheet RAL 9006). Panels are installed with Ruspert protected screws. Other fastening material is Ruspert protected or stainless steel.
- **Weather protection hoods** is made of ZnAlMg coated steel (optionally: galvanized pre-painted steel sheet RAL 9006). They protect the outdoor and exhaust air openings. There are no sharp edges on the hood that could injure people. Drainage channels keep water on the outer side of the weather hood, so it has no chance to enter unit trough outdoor opening. A protective steel grille is installed on each opening, preventing the entry of small animals, leaves or other nuisances.
- **The dampers** with the actuator are always placed inside the casing, allowing extra protection of actuator and electric parts,
- **The heating and cooling coils** are designed with external collecting pipe connections. It is necessary to protect the hydraulic circuit from external weathering and from freezing conditions during winter.

Casing

Thoughtfully used materials and construction solutions are the basis for a quality and sustainable casing.

The Compact Line casing consists of a mounting frame, panels and a base frame. The height, width and length values depend on the size and execution of unit. The casing interior is smooth, all exposed interior integrated elements have a smooth edge finish or rounded edges.

Mechanical properties in accordance with EN 1886:

- Thermal transmittance class **T2**
- Thermal bridging class **TB2**
- Mechanical strength casing class **D1**
- Casing air leakage class **L1 / L2**

Doors and removable panels

Doors with hinges and removable panels are available to access the interior of the air handling unit.

Base frame

The ZnAlMg coated steel base frame protects the lower section of the air handling unit against corrosion and damage, ensures structural strength and rigidity, and enables the unit transport and assembly on the building. The following base frame versions are possible:

One-piece unit

- 125 mm base frame (no feet),
- 125 mm base frame + 110~175 mm adjustable feet.

Devided unit

- Without base frame, only with 110~175 mm adjustable feet.

The base frame comes with lifting brackets for easier lifting and installation.

Handles and hinges

Strong and robust hinges and handles increase the lifetime of your unit casing, increase security with regard to the unit's moving parts and increase casing airtightness.

Panels

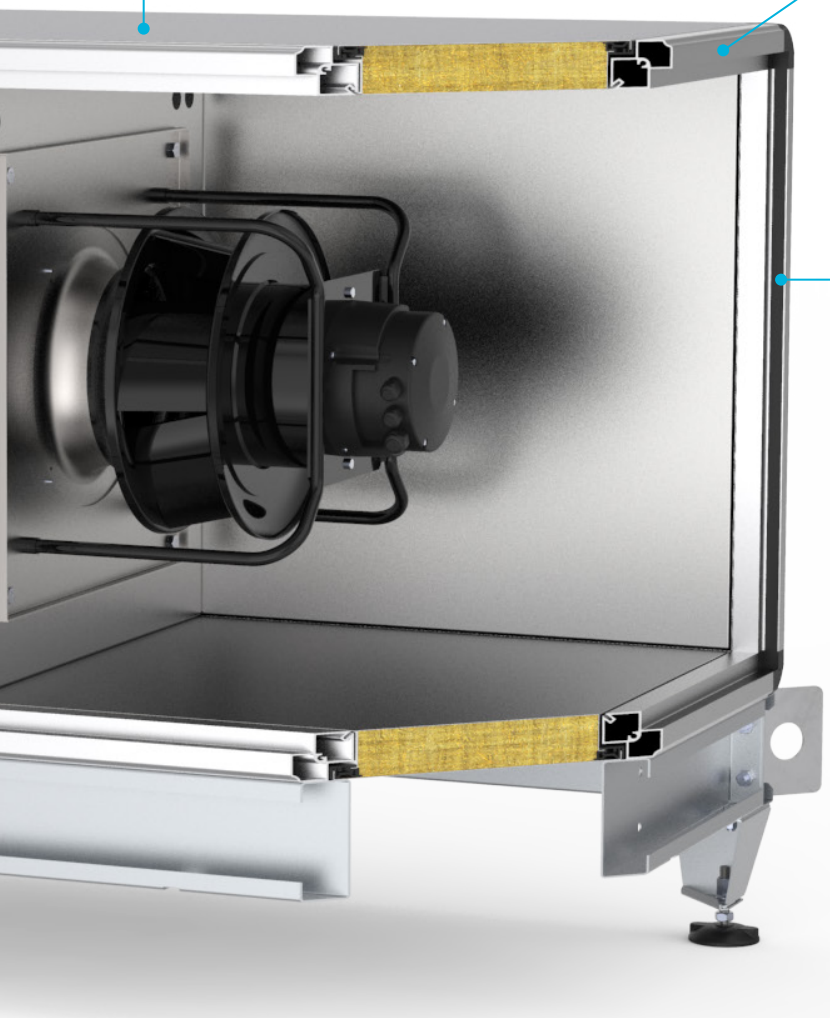
Double-shell insulated panels come with an interrupted thermal bridge. The panels are bolted onto the frame from the outside.

Insulation:

- Material type: rockwool
- Insulation thickness: 50 mm
- Insulation density: 100 kg/m3
- Non-combustible, class A1 according to EN 13501-1

Possible materials for internal panel sheet, external panel sheet and internal built-in elements:

- ZnAlMg coated steel



Frame profiles and corners

The aluminium profile frame (AlMgSi) is made of hollowed aluminium sections (EN AW-6060) and rounded nylon corners (PA6+GF20%).

Possible versions of aluminium sections:

- with an interrupted thermal bridge,
- painted aluminium RAL9006.

Joints and sealing tapes

Self-adhesive sealing tape is used for joints between the fixed non-removable panels and the frame.

Self-adhesive or foamed sealing tape on doors, depending on standard or hygienic execution.

All sealing tapes have a closed-cell structure and are resistant to molds and other microorganisms.

Depending on the purpose of use and the requirements of the client, the following sealing options are available:

- sealant is applied to the bottom openings of internal casing (standard)
- sealant is applied to all fixed panel openings of internal casing (L1)
- sealant is applied to all fixed panel openings of external casing (outdoor)

Eurovent certification

CL units are constructed in accordance with European standards and certified by Eurovent.

EUROVENT CERTIFIED PERFORMANCE
AHU No.: 20.11.013
Range: KA
www.eurovent-certification.com

Assembly brackets

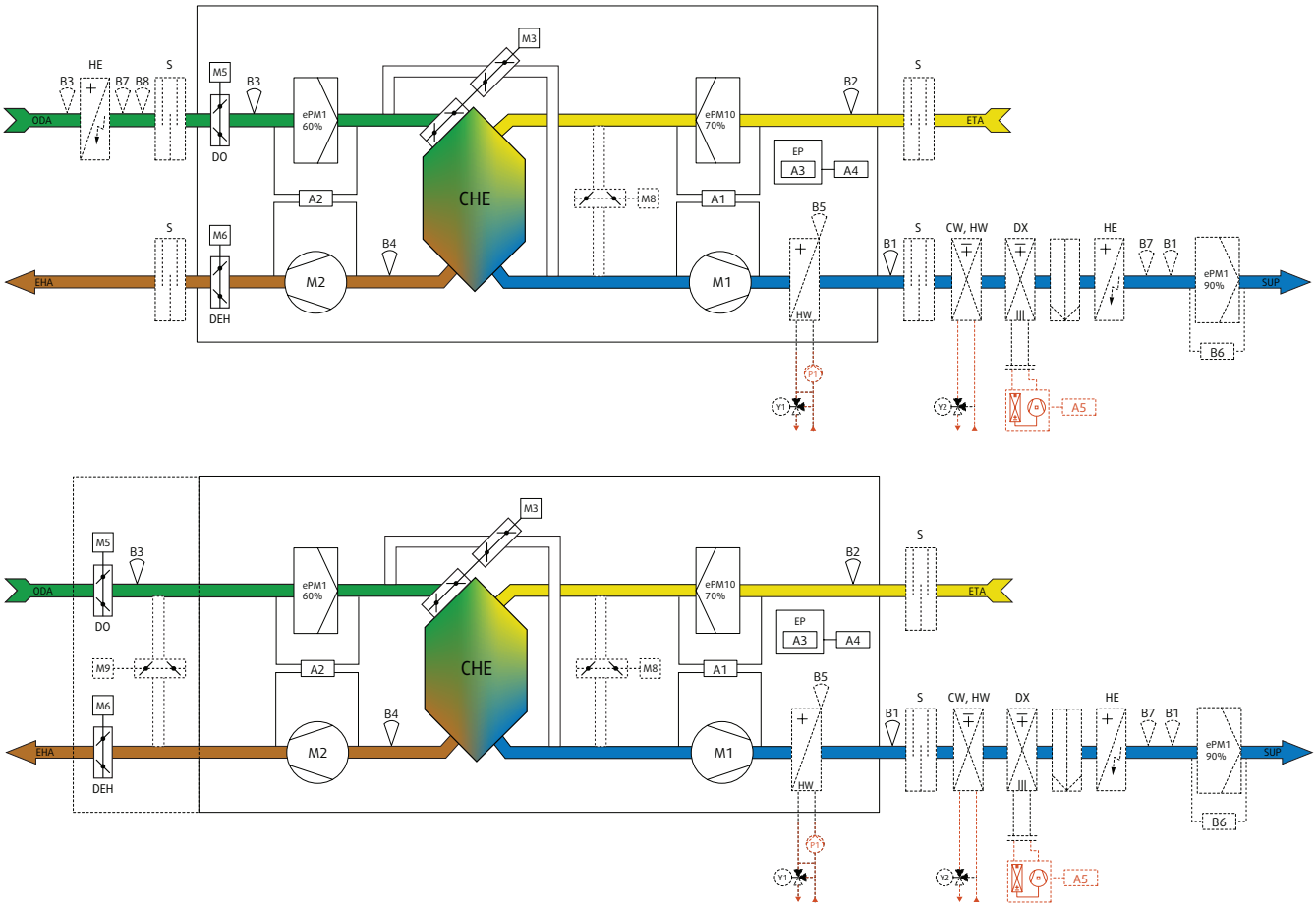
Aluminium (EN AB 46100) brackets for precise coupling of housing sections.

Component arrangement

For full efficiency and functionality

Components are installed in a compact housing or in a housing consisting of several modules. All components are factory wired and tested. Accessories are available (heaters, coolers, filters, etc.) with the option of duct installation or in some cases installation in the housing of the unit.

Horizontal unit with plate heat exchanger – for indoor and outdoor installation

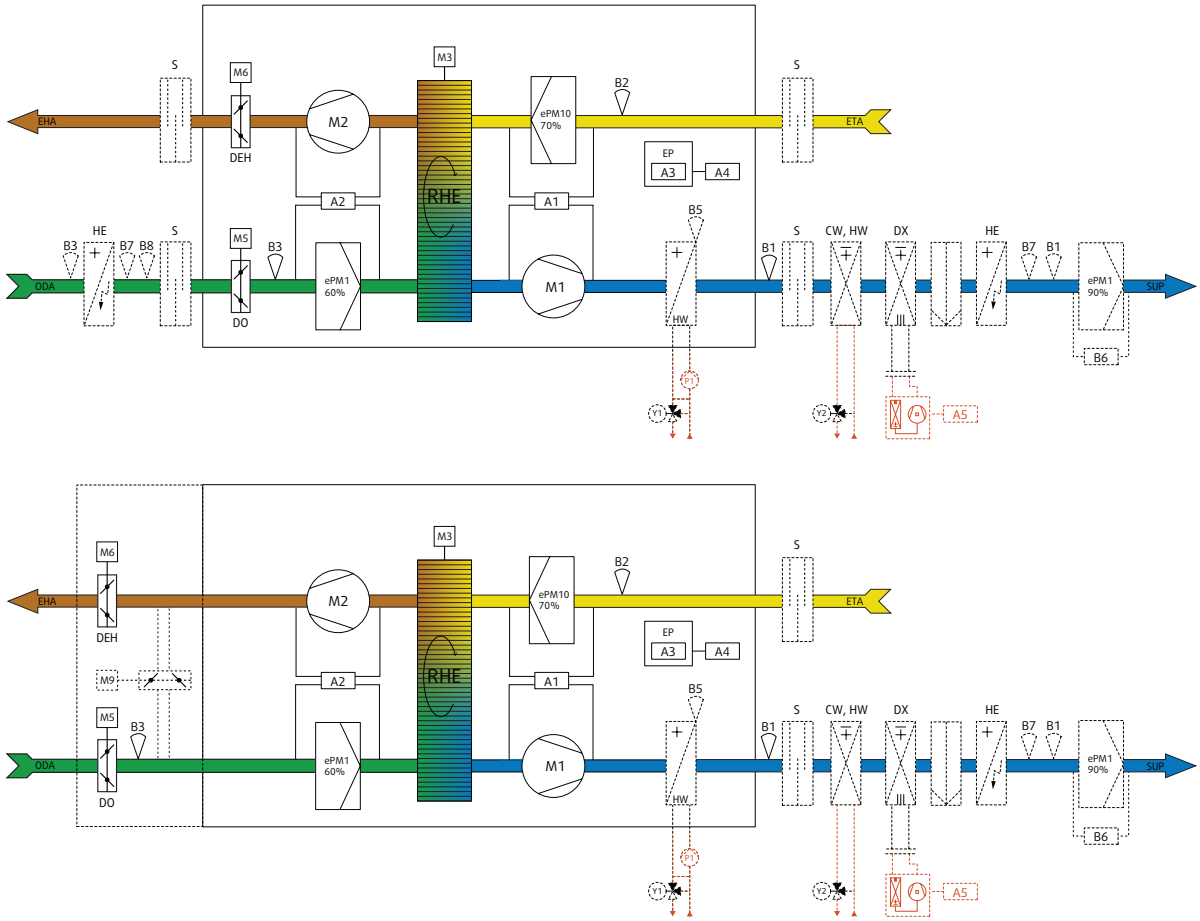


standard
accessory
not supplied

ODA	Outdoor air
SUP	Supply air
ETA	Extract air
EHA	Exhaust air

B1 Supply air temperature sensor
B2 Extract air temperature sensor
B3 Outdoor air temperature sensor
B4 Defrost sensor of plate heat exchanger
B5 Frost protection of water heating coil
B6 Pressure switch – second filter stage
B7 Pressure switch – electric heater
B8 Electric pre-heater air temp. sensor
Y1 Water heating coil valve actuator
Y2 Water cooling coil valve actuator
M1 Supply air fan
M2 Extract air fan
M3 Plate heat exchanger bypass damper actuator
M4 Outdoor and exhaust air damper actuator
M5 Outdoor air damper actuator
M6 Exhaust air damper actuator
M7 Water heating coil circulating pump
M8 Circulating air damper actuator
M9 Mixing air section damper actuator
A1 Presigo Duo 2500
A2 Presigo Duo 2500
A3 Access controller
A4 NaviPad control panel
A5 Communication module between C-line unit controller and outdoor cooling unit
CHE Counter-flow plate heat exchanger
CW Cooling coil (water)
HW Heating coil (water)
HE Heating coil (electrical)
DX Cooling/heating coil (refrigernat)
EP Electrical cabinet
S Silencer

Horizontal unit with rotary heat exchanger – for indoor and outdoor installation



— standard
- - - accessory
- - - not supplied

ODA	Outdoor air
SUP	Supply air
ETA	Extract air
EHA	Exhaust air

B1 Supply air temperature sensor
B2 Extract air temperature sensor
B3 Outdoor air temperature sensor
B5 Frost protection of water heating coil
B6 Pressure switch – second filter stage
B7 Pressure switch – electric heater
B8 Electric pre-heater air temp. sensor
Y1 Water heating coil valve actuator
Y2 Water cooling coil valve actuator
M1 Supply air fan
M2 Extract air fan
M3 Rotary exchanger drive
M4 Outdoor and exhaust air damper actuator
M5 Outdoor air damper actuator
M6 Exhaust air damper actuator
M7 Water heating coil circulating pump
M8 Circulating air damper actuator
M9 Mixing air section damper actuator
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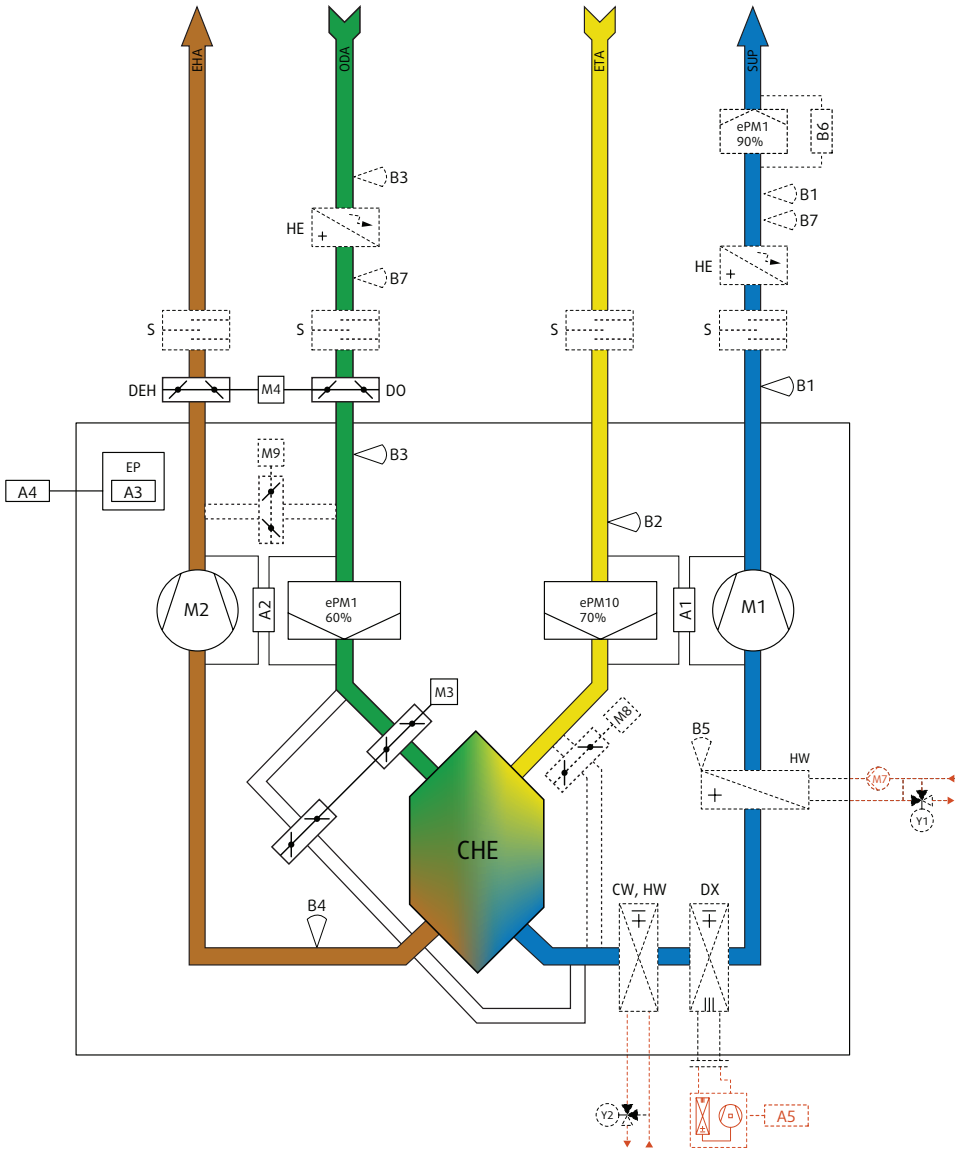
RHE Rotary heat exchanger
CW Cooling coil (water)
HW Heating coil (water)
HE Heating coil (electrical)
DX Cooling/heating coil (refrigernat)
EP Electrical cabinet
S Silencer

Vertical compact unit with plate heat exchanger – for indoor installation



— standard
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Y2 Water cooling coil valve actuator
M1 Supply air fan
M2 Extract air fan
M3 Plate heat exchanger bypass damper actuator
M4 Outdoor and exhaust air damper actuator
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M6 Exhaust air damper actuator
M7 Water heating coil circulating pump
M8 Circulating air damper actuator
M9 Mixing air section damper actuator
A1 Presigo Duo 2500
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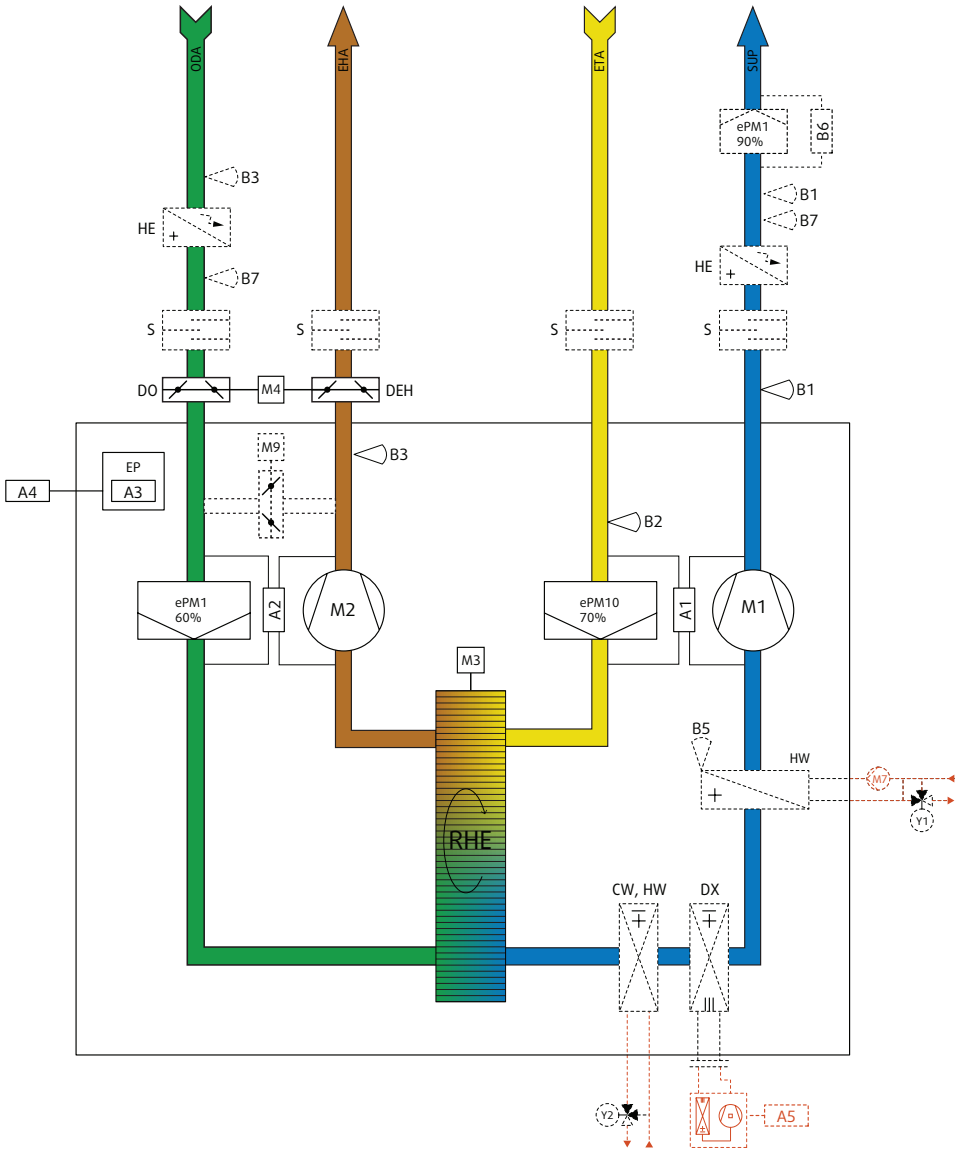
CHE Counter-flow plate heat exchanger
CW Cooling coil (water)
HW Heating coil (water)
HE Heating coil (electrical)
DX Cooling/heating coil (refrigernat)
EP Clectrical cabinet
S Silencer

Vertical compact unit with rotary heat exchanger – for indoor installation



— standard
- - - accessory
- - - not supplied

ODA	Outdoor air
SUP	Supply air
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M1 Supply air fan
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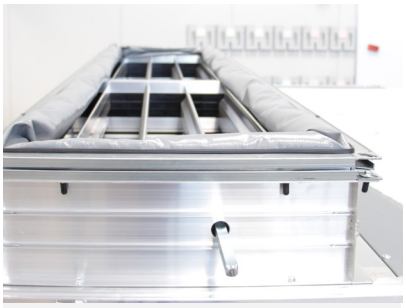
RHE Rotary heat exchanger
CW Cooling coil (water)
HW Heating coil (water)
HE Heating coil (electrical)
DX Cooling/heating coil (refrigernat)
EP Electrical cabinet
S Silencer

Components

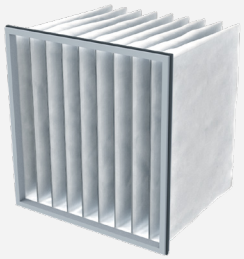
Proper components ensure the reliable energy-efficient operation and long lifetime of the unit.

CL units are equipped with advanced and factory tested components such as fans, heat exchangers, heaters, coolers, filters, protection equipment, control system, etc..
They can be modified outdoor execution, where units can be exposed to the external weather conditions.
All components and body design can be modified in airCalc++ selection software, where all calculations can be performed in accordance with the latest ERP 2018 directive.



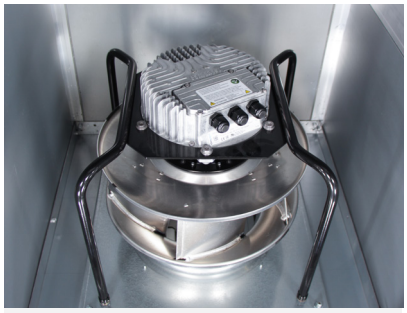
Dampers

Blades are made of aluminium and are aerodynamically shaped so they have lower pressure drop when opened.



Filters

Panel or bag filter available.
The ePM10 70% quality filter is used on the extract side and the ePM1 60% quality filter on the supply side.



Fans

Plug fan used has the impeller fitted with air foiled blades. Both impeller and motor are statically and dynamically balanced. The inlet of fan is through fan wall inside the unit and outlet is open towards supply or exhaust air of AHU. The plug fan is supplied with EC motor.
Each CL size, regardless of heat recovery exchanger type and design, has only one fan equal size on the supply and extract side.

Water and DX cooling and heating coils

(AHU integrated - accessories)

Cooling coils consist of aluminium sheet frame, copper tubes and aluminium fins. Under whole section there is sloped drip tray for condensate drainage.
Cooling can be applied by cold water (or mixture of water and antifreeze) or evaporation of refrigerant.

Cooling coils that can be used for heating as well are called change-over coils. They have same applications as cooling coil and protections as heating coil.
There is only one, standard size of water cooling coil available for each CL size.

Heat exchangers

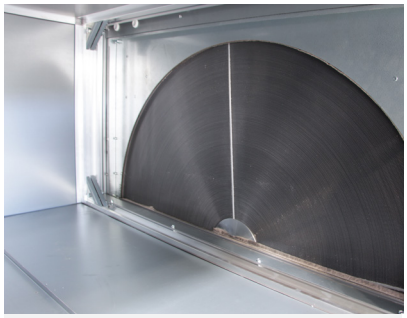
When there is a demand for heat exchanger by ERP directive or just a request from costomer, one can decide from several options. Decision should be based on air quality or industrial process and include optimal energy efficiency, requested results and price.

Plate

Plate heat exchanger is available in counter flow options. Heat transfer takes place directly through a partition wall, without any transfer of medium or moisture. Plate heat exchanger comes with by-pass for frost protection or for free cooling option in summer at night. Under the exchanger on the extract air side there is sloped drip tray for condensate drainage.

At the largest size (CL 8000), a droplet separator is also built on the exhaust air side.

There is only one, standard size of plate heat exchanger available for each CL size.



Rotary

Rotary heat exchanger is available in condensation, hygroscopic and sorption versions.

There is only one, standard size of rotary exchanger available for each CL size

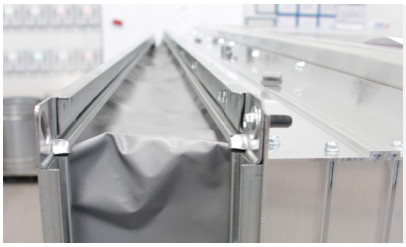
A use of a purge sector is possible only in case of positive value of static pressure difference between the supply and extract side of rotary exchanger P22 - P11.

Condensation heat exchanger
ST3 is a cost-efficient solution to recover heat and is suitable for standard applications in comfort ventilation. Humidity is only transferred in cases when the dew point of one of the air streams is reached.

Hygroscopic heat exchanger SE3
has a molecular sieve 3 Å coating on the smooth foil of the storage mass. It transfers sensible energy (temperature) as well as latent energy (humidity).

Sorption exchanger SH1
has a molecular sieve 3 Å coating on the corrugated foil of the storage mass. It transfers more humidity than the hygroscopic rotor.

Sorption heat exchanger HM1
is the high-performance model. The storage mass is fully coated to provide a maximum humidity transfer. The high humidity efficiency is nearly constant throughout all climate conditions



Airtight flexible connections

Flexible connections are airtight and easily assembled. On both sides there is a preinstalled gasket that perfectly seals the connection to the duct. The frame is made of galvanized steel and canvas is non-hygroscopic.

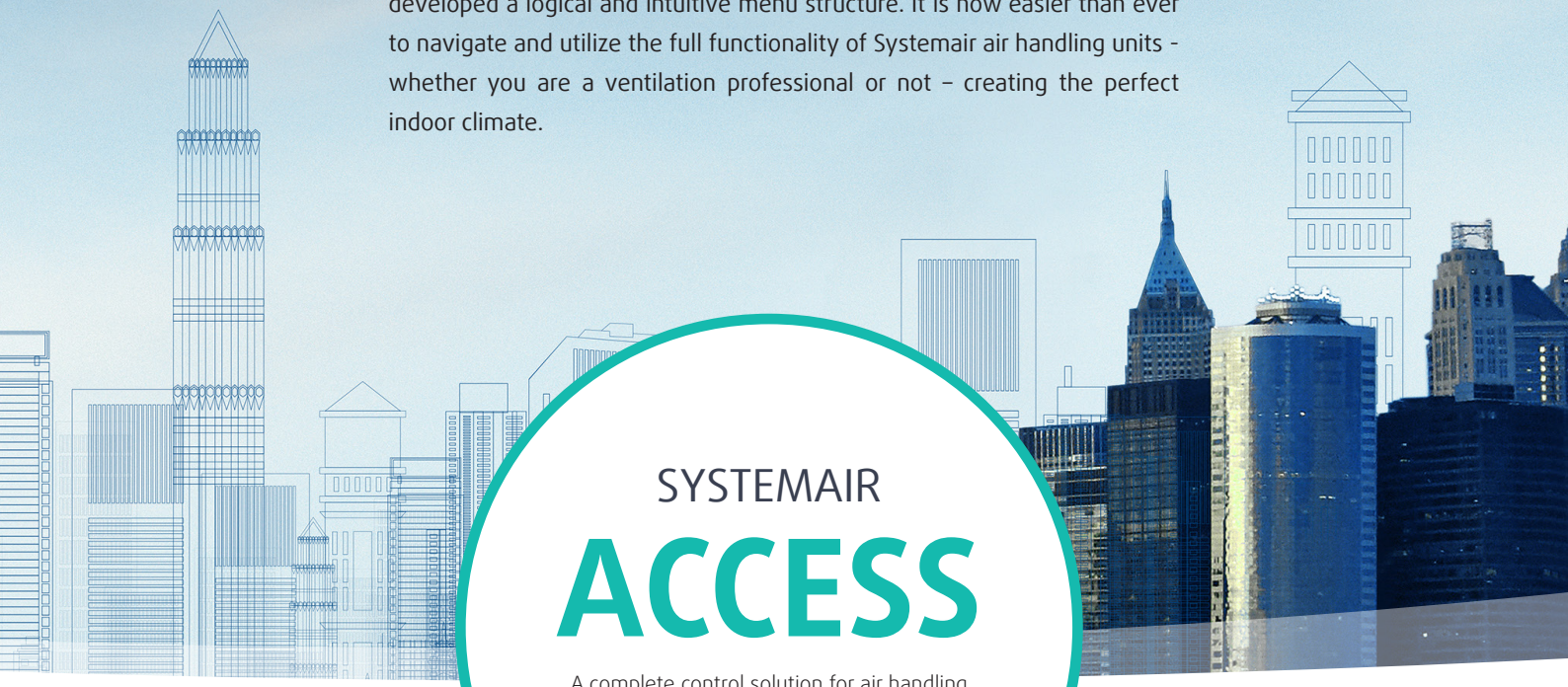
ADVANCED TECHNOLOGY MADE ACCESSIBLE WITH

Systemair Access

At Systemair we're all about making things easier for our customers and we believe that advanced technology should be accessible for everyone. Now we have combined a strong heart with a sharp mind - Systemair Access.

Systemair Access is a complete control solution for air handling units, which allows you to optimize ventilation performance. It makes the advanced technology of Systemair's air handling units easily accessible, unlocking all their potential – while improving the indoor climate for people at home, at work or in public buildings.

Inspired by the advanced simplicity of today's smartphones, we have developed a logical and intuitive menu structure. It is now easier than ever to navigate and utilize the full functionality of Systemair air handling units - whether you are a ventilation professional or not – creating the perfect indoor climate.



SYSTEMAIR

ACCESS

A complete control solution for air handling units, making advanced technology easily accessible – helping you to create the perfect indoor climate.

SYSTEMAIR ACCESS

SYSTEMAIR ACCESS

SYSTEMAIR ACCESS

EASIER THAN EVER TO CREATE THE PERFECT INDOOR CLIMATE

Access NaviPad

As easy as your smartphone

NaviPad is an ergonomic, robust designed and easy to use interface, developed specifically for industrial environments.

You're in control

You'll very soon become familiar with the NaviPad's graphical user interface. You monitor and control your air handling unit by navigating the easy and intuitive menu structure with icons on your touchscreen. Thanks to NaviPad's user-friendly interface, it is now easier than ever to manage an air handling unit.

Going pro!

You don't need to be a ventilation expert to get the most out of your air handling unit. We have made functions and features easily available, allowing you to make optimal use of your air handling unit.

Make people feel good

Using your air handling unit more effectively will help you save energy and money, but at the end of the day, it's all about people and their well-being. NaviPad will help you optimize the air handling unit so people can breathe easy in a great indoor climate.

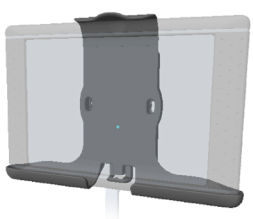
System overview dashboard in the NaviPad- several units can be connected to the same NaviPad.

SYSTEMAIR ACCESS

Detachable

The NaviPad* is a robust navigation tablet, designed specifically for industrial usage. It is mounted on the air handling unit or on the wall, easy to detach for handheld use.

*The NaviPad is connected via 3 m flat cable



- Developed by Systemair, ergonomic and robust design
- Intuitive, user-friendly navigation
- Editable names for alarms, control components and unit name
- System overview of several units via home button
- 7″ TFT, 1024x600 pixels capacitive touch display
- Protection class, IP54

Full control

NaviPad puts you in control of the status of your air handling unit – at all times. Should an error occur you will immediately be notified by an alarm. Press the alarm icon to view the list of active alarms including the alarm history.

User friendly

We were inspired by today's consumer devices when developing the NaviPad's user interface. Just click on an icon on your touchscreen to activate a function, change a setting or adjust a value. You will quickly learn how to control your unit as you go, thanks to NaviPad's intuitive graphical user interface.

Live data

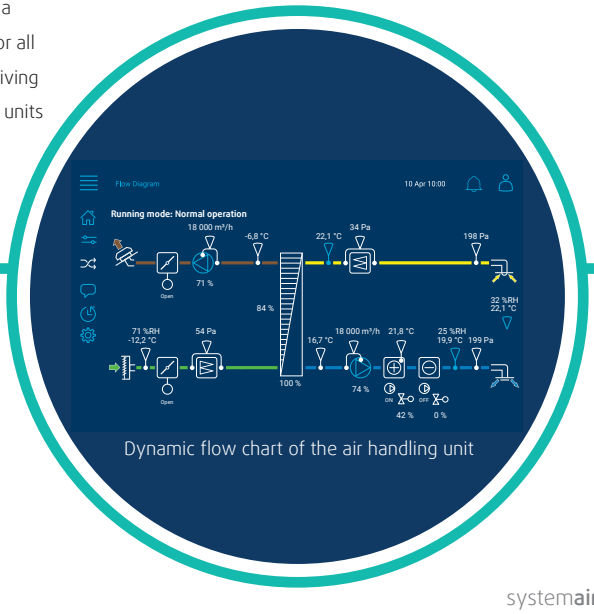
It is easy to remotely monitor and adjust your air handling unit's performance. Relevant operating data and flow charts are easily available in real time and can be changed with a few clicks. You can view the status and adjust the settings of your air handling unit.

Robust design

NaviPad is developed specifically for industrial use – simple to use, yet robust and durable in design. Drop tested and IP54 classified, your NaviPad will fit in most installations. A frame made of high-friction rubber will keep it firmly in your grip as you manage your air handling unit.

Home button

Press the home button to view the system overview dashboard. A LED-light will indicate current status. This provides access to a system-overview dashboard for all connected air handling units, giving the operator control of several units from one NaviPad.



Dynamic flow chart of the air handling unit

Access Control Unit

Full connectivity and control

The new Access control solution for all Systemair modular and compact air handling units

HTML5 interface

Intuitive and easy navigation of menus that can be used on a variety of devices including NaviPad, tablets, smartphones or computers. Access to information can be set to three different user levels, depending on competence.

Designed by Systemair

Designed specifically for fast and easy installation of air handling units, for example the Geniox series.

Dedicated BMS system connection

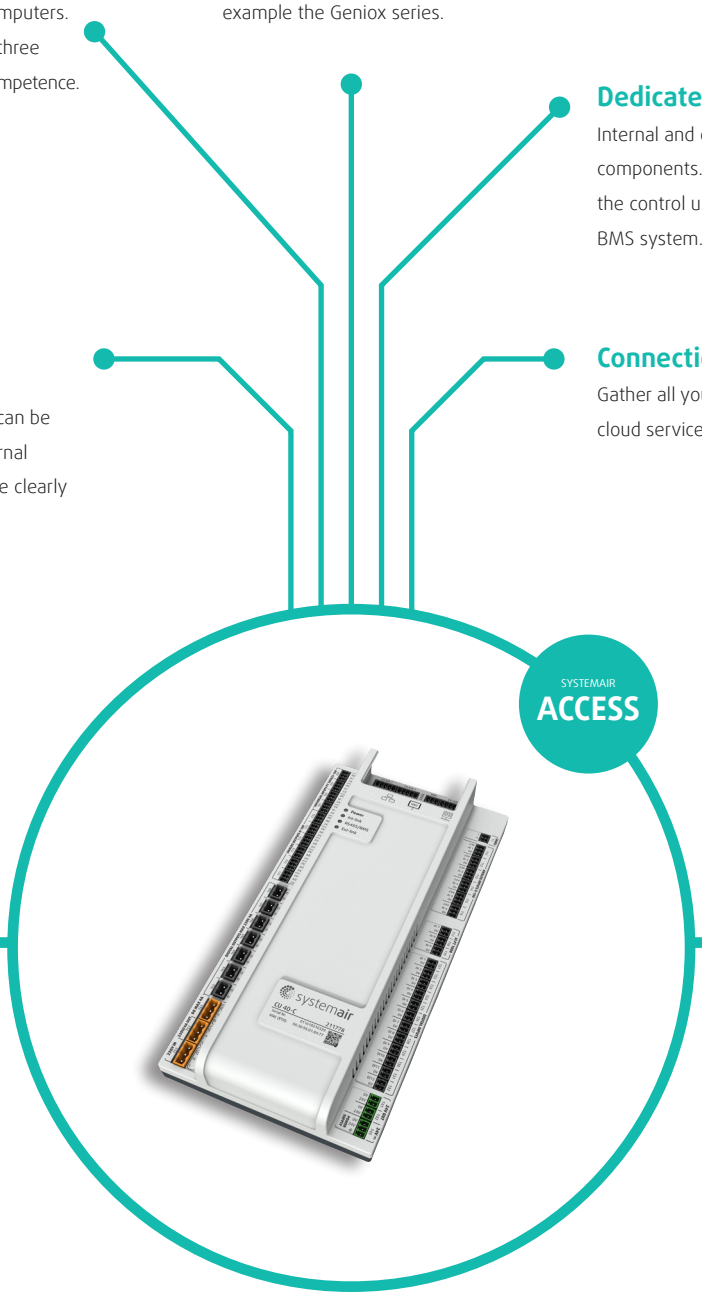
Internal and external communication circuit for bus-based components. Built-in BACnet, Modbus communication makes the control unit well-prepared for integration into SCADA or BMS system.

Connectors for external components

The installation and startup time can be reduced as all connectors for external components on the control unit are clearly marked and grouped together.

Connection to Systemair Connect

Gather all your air handling units in an easy-to-use cloud service for complete overview and accessibility.



- Designed by Systemair
- All connectors for external components clearly marked and grouped together
- Internal- and extern communication circuit for bus-based components
- HTML5 interface
- Dedicated BMS system connection
- Connection to Systemair Connect

SYSTEMAIR
ACCESS

Home button

Gives you a visual indication of the status for each connected air handling unit.

Starting page

Important operating data are shown in real time, easy to change a few a clicks.

Full control

You have access to all operating data in real time. Should an error occur you will immediately be notified by an alarm. Press the alarm icon to view the list of active alarms including the alarm history.

SYSTEMAIR
ACCESS

Plug'n'play with Compact-Line

NaviPad comes as standard with Systemair's Compact-Line units.

SYSTEMAIR

ACCESS

A complete control solution for air handling units, making advanced technology easily accessible – helping you to create the perfect indoor climate.

Dimensions

The Compact-Line series available in 5 model sizes

For more demanding installation needs, certain models are designed to be disassembled into modules which makes it easier to enter the unit into the facility and place it at the intended installation site.

The following versions are available for each size:

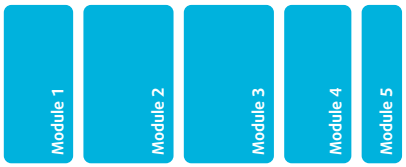
- divided horizontal execution for indoor installation
- compact horizontal execution for indoor installation
- compact horizontal execution for outdoor installation
- divided vertical execution for indoor installation
- compact vertical execution for indoor installation

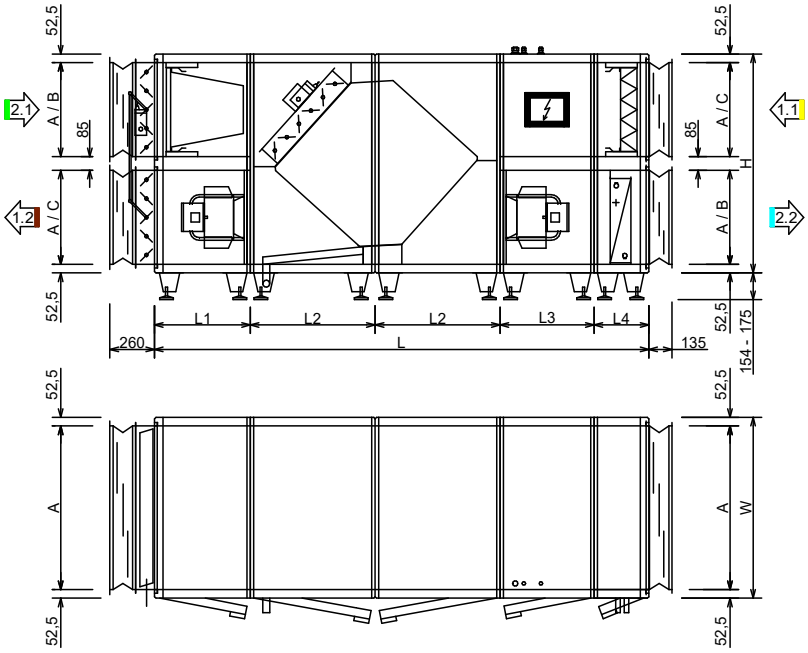
Horizontal divided indoor unit

The unit with built in counter flow plate heat exchanger.

Electrical connections between the modules are made with electrical connectors, which allows easy disassembly and assembly of individual modules.

The unit can be disassembled into 5 individual modules.





2.1 - outdoor air 1.1 - extract air 2.2 - supply air 1.2 - exhaust air

Model	W	H	L	L1	L2	L3	L4	A	B	C	Mass
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
CLP 1500-H-I-D	750	870	2350	440	520	550	320	645	340	340	460
CLP 3000-H-I-D	1055	1280	2890	560	730	550	320	950	545	545	720
CLP 4500-H-I-D	1360	1280	2890	560	730	550	320	1255	545	545	830
CLP 6000-H-I-D	1665	1480	3050	640	730	630	320	1560	645	645	900
CLP 8000-H-I-D	1665	1785	3670	790	990	580	320	1560	950	645	1320

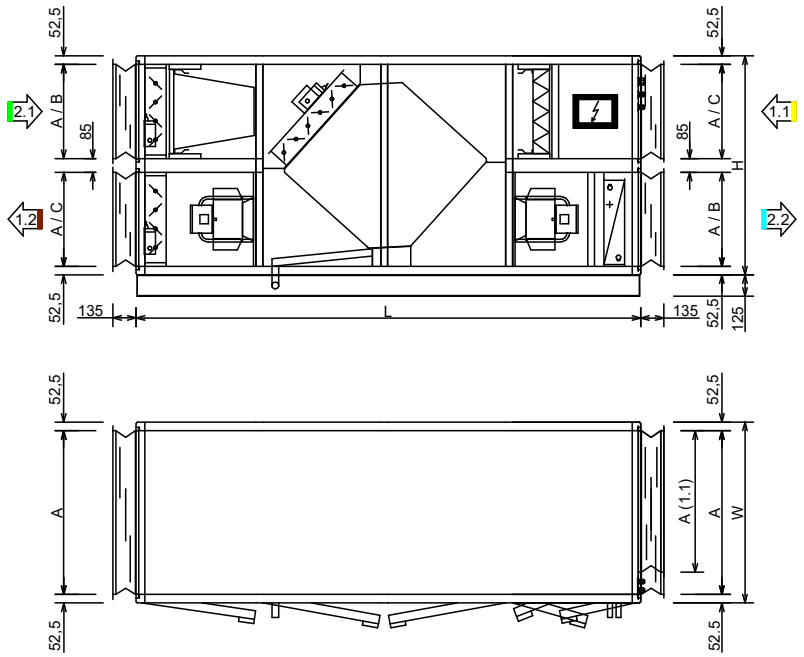
Horizontal compact indoor unit

The unit with built in counter flow plate heat exchanger.

The unit is delivered in one piece on a support base along the entire length of the device.

Compact unit in one piece.

Compact indoor



Horizontal compact outdoor unit

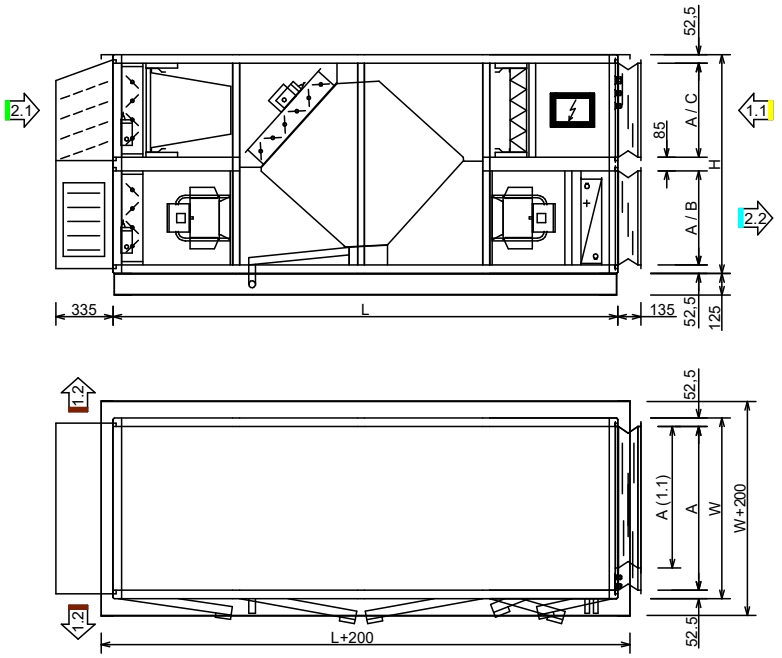
The unit with built in counter flow plate heat exchanger.

The unit is delivered in one piece on a support base along the entire length of the device.

The additional roof and hoods are factory-fitted to protect the device from external weather conditions.

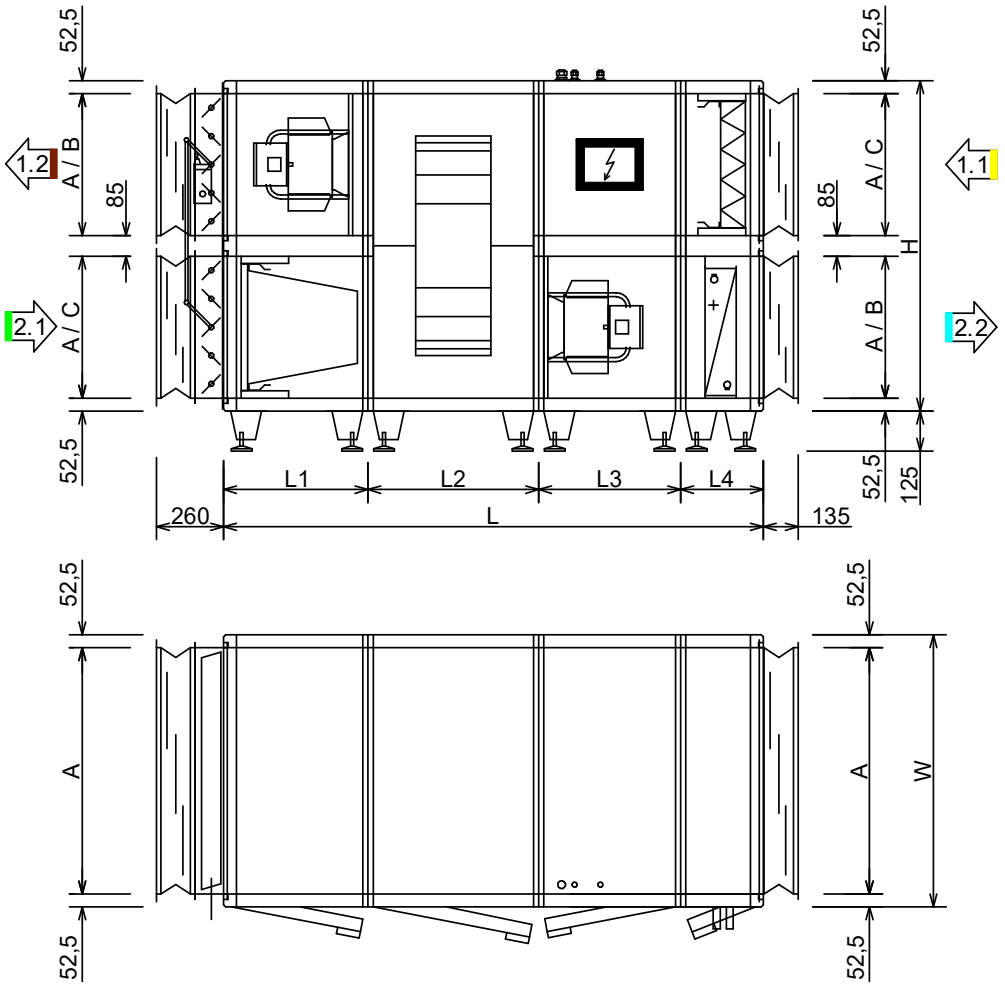
Compact unit in one piece.

Compact outdoor



2.1 - outdoor air | 1.1 - extract air | 2.2 - supply air | 1.2 - exhaust air

Model	W	H	L	A	A(1.1)	B	C	Mass - indoor	Mass - outdoor
	mm	mm	mm	mm	mm	mm	mm	kg	kg
CLP 1500-H- I(O)-C	750	870	2500	645	520	340	340	375	400
CLP 3000-H- I(O)-C	1055	1280	2950	950	825	545	545	615	665
CLP 4500-H- I(O)-C	1360	1280	2950	1255	1130	545	545	810	810
CLP 6000-H- I(O)-C	1665	1480	3110	1560	1435	645	645	1010	1010
CLP 8000-H- I(O)-C	1665	1785	3630	1560	1435	950	645	1350	1350

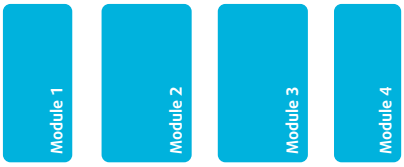


Horizontal divided indoor unit

The unit with built in rotary heat exchanger.

Electrical connections between the modules are made with electrical connectors, which allows easy disassembly and assembly of individual modules.

The unit can be disassembled into 4 individual modules.



2.1 - outdoor air 1.1 - extract air 2.2 - supply air 1.2 - exhaust air

Model	W	H	L	L1	L2	L3	L4	A	B	C	Mass - indoor
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
CLR 1500-H-I-D	750	870	1890	440	580	550	320	645	340	340	395
CLR 3000-H-I-D	1055	1280	2090	560	660	550	320	950	545	545	590
CLR 4500-H-I-D	1360	1280	2090	560	660	550	320	1255	545	545	685
CLR 6000-H-I-D	1360	1480	2300	640	710	630	320	1255	645	645	775
CLR 8000-H-I-D	1665	2090	2500	700	790	690	320	1560	950	950	1065

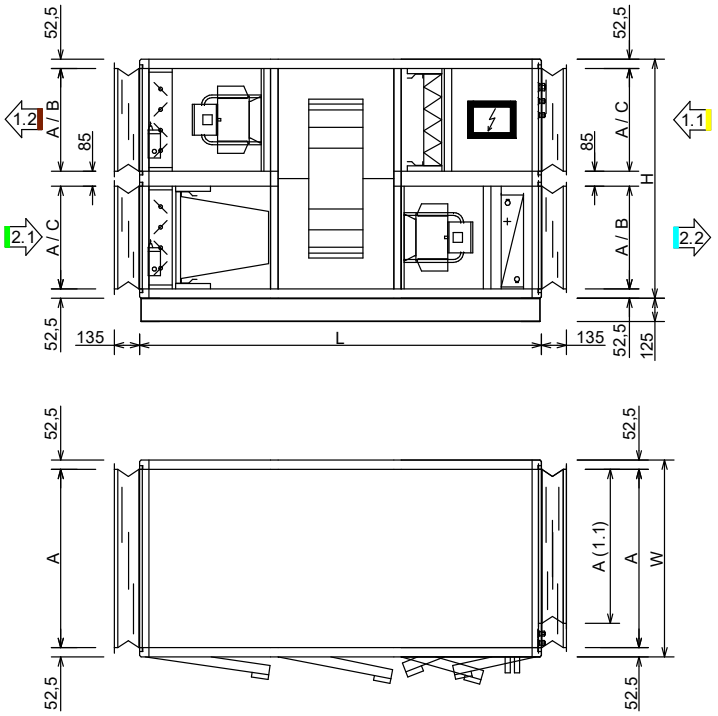
Horizontal compact indoor unit

The unit with built in rotary heat exchanger.

The unit is delivered in one piece on a support base along the entire length of the device.

Compact unit in one piece.

Compact indoor



Horizontal compact outdoor unit

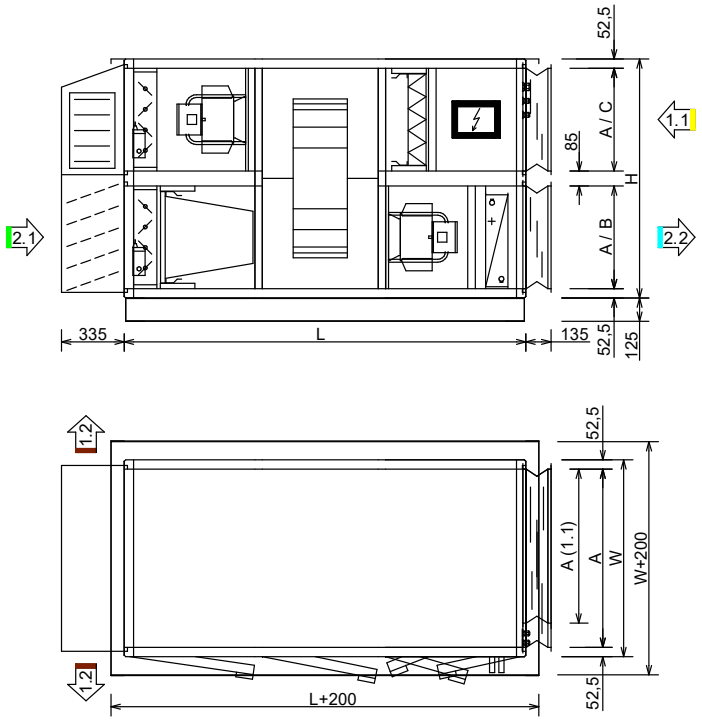
The unit with built in rotary heat exchanger.

The unit is delivered in one piece on a support base along the entire length of the device.

The additional roof and hoods are factory-fitted to protect the device from external weather conditions.

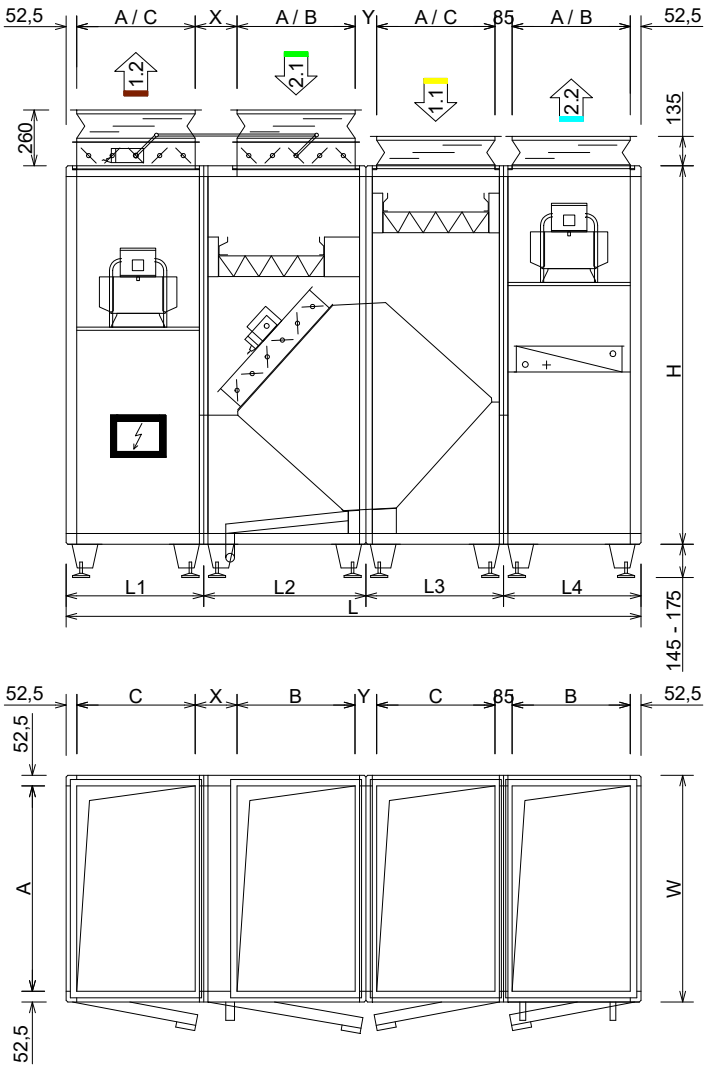
Compact unit in one piece.

Compact outdoor



2.1 - outdoor air 1.1 - extract air 2.2 - supply air 1.2 - exhaust air

Model	W	H	L	A	A(1.1)	B	C	Mass - indoor	Mass - outdoor
	mm	mm	mm	mm	mm	mm	mm	kg	kg
CLR 1500-H-I(O)-C	750	870	2045	645	520	340	340	330	355
CLR 3000-H- I(O)-C	1055	1280	2150	950	825	545	545	530	570
CLR 4500-H- I(O)-C	1360	1280	2150	1255	1130	545	545	625	675
CLR 6000-H- I(O)-C	1360	1480	2360	1255	1130	645	645	715	775
CLR 8000-H- I(O)-C	1665	2090	2440	1560	1435	950	950	1025	1115



Vertical devided indoor unit

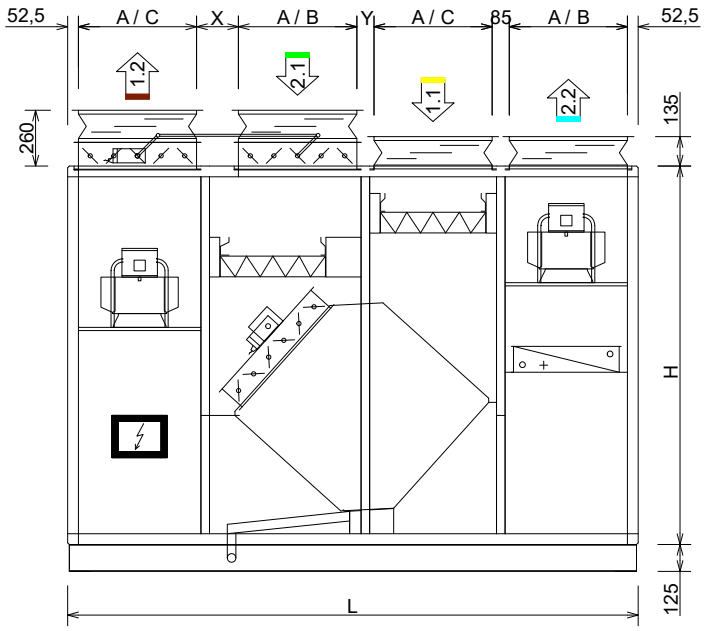
The unit with built in counter flow plate heat exchanger.

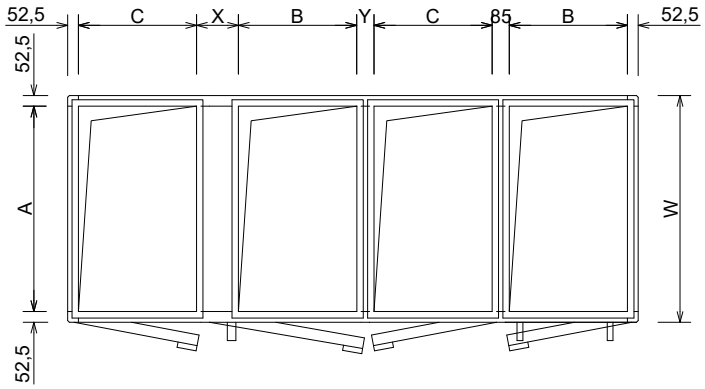
Electrical connections between the modules are made with electrical connectors, which allows easy disassembly and assembly of individual modules.

The unit can be disassembled into 4 individual modules.

2.1 - outdoor air | 1.1 - extract air | 2.2 - supply air | 1.2 - exhaust air

Model	W	H	L	L1	L2	L3	L4	A	B	C	X	Y	Mass
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
CLP 1500-V-I-D	750	1340	1925	435	620	435	435	645	340	340	270	85	455
CLP 3000-V-I-D	1055	1760	2675	640	755	640	640	950	545	545	200	105	735
CLP 4500-V-I-D	1360	1760	2675	640	755	640	640	1255	545	545	200	105	855
CLP 6000-V-I-D	1665	1760	2960	740	740	740	740	1560	645	645	85	85	1165
CLP 8000-V-I-D	1665	2220	3705	740	1045	875	1045	1560	950	645	85	220	1325





Vertical compact indoor unit

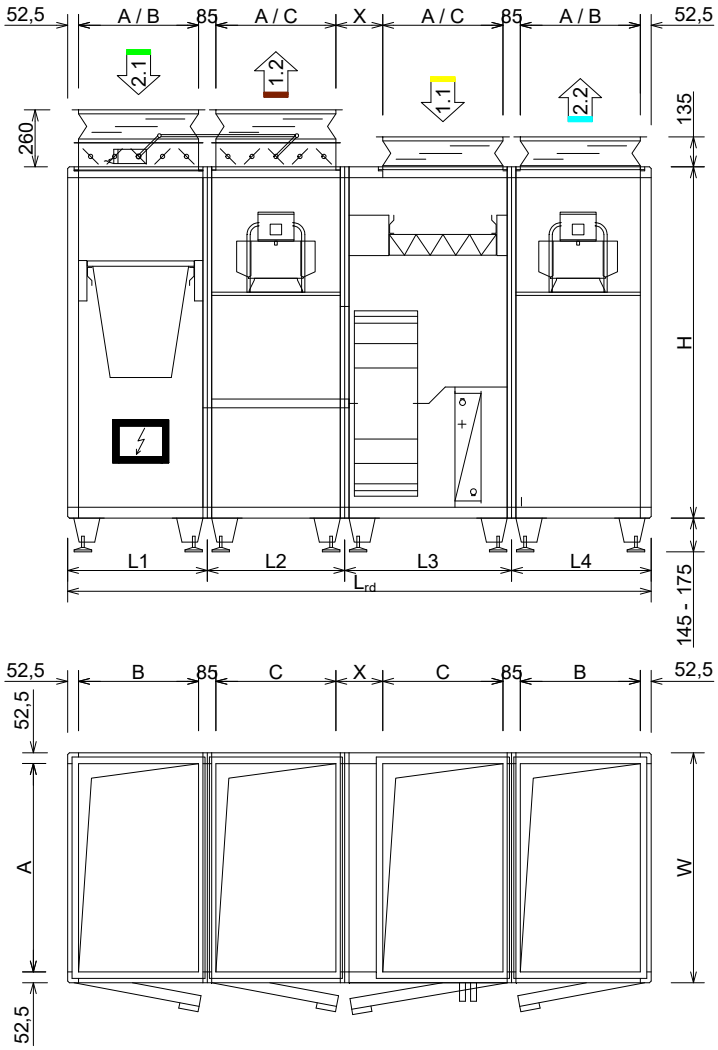
The unit with built in counter flow plate heat exchanger.

The unit is delivered in one piece on a support base along the entire length of the device.

Compact unit in one piece.

2.1 - outdoor air | 1.1 - extract air | 2.2 - supply air | 1.2 - exhaust air

Model	W	H	L	A	B	C	X	Y	Mass
	mm	mm	mm	mm	mm	mm	mm	mm	kg
CLP 1500-V-I-C	750	1340	1905	645	340	340	270	105	375
CLP 3000-V-I-C	1055	1760	2655	950	545	545	200	125	670
CLP 4500-V-I-C	1360	1760	2655	1255	545	545	200	125	790
CLP 6000-V-I-C	1665	1760	2940	1560	645	645	85	105	1110
CLP 8000-V-I-C	1665	2220	3685	1560	950	645	85	240	1305



Vertical devided indoor unit

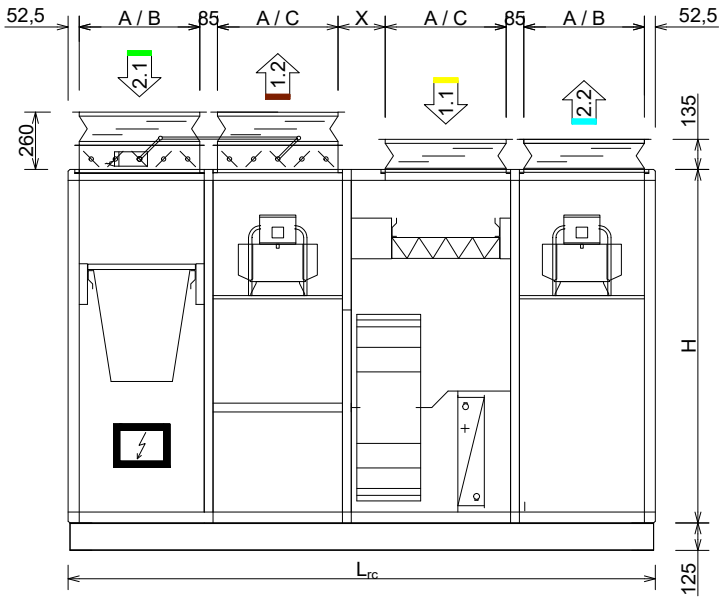
The unit with built in rotary heat exchanger.

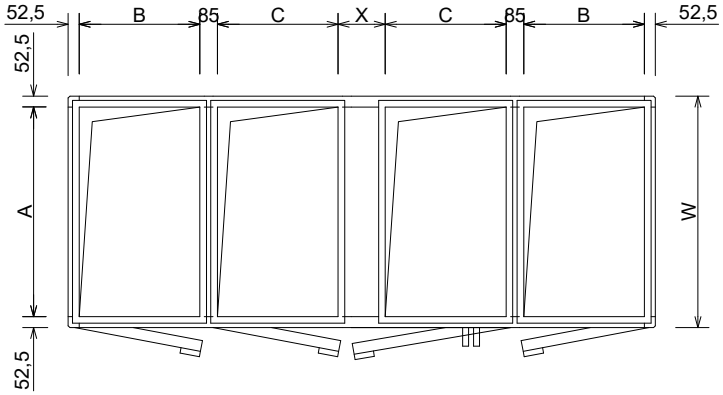
Electrical connections between the modules are made with electrical connectors, which allows easy disassembly and assembly of individual modules.

The unit can be disassembled into 4 individual modules.

2.1 - outdoor air | 1.1 - extract air | 2.2 - supply air | 1.2 - exhaust air

Model	W	H	L	L1	L2	L3	L4	A	B	C	X	Mass
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
CLR 1500-V-I-D	750	1340	1720	435	L2+L3 = 850		435	645	340	340	85	435
CLR 3000-V-I-D	1055	1610	2675	640	630	765	640	950	545	545	220	735
CLR 4500-V-I-D	1360	1760	2675	640	630	765	640	1255	545	545	220	875
CLR 6000-V-I-D	1360	1940	2940	740	730	730	740	1255	645	645	85	1005
CLR 8000-V-I-D	1665	2280	4160	1045	1035	1035	1045	1560	950	950	85	1435





Vertical compact indoor unit

The unit with built in rotary heat exchanger.

The unit is delivered in one piece on a support base along the entire length of the device.

Compact unit in one piece.

2.1 - outdoor air | 1.1 - extract air | 2.2 - supply air | 1.2 - exhaust air

Model	W	H	L	A	B	C	X	Mass
	mm	mm	mm	mm	mm	mm	mm	kg
CLR 1500-H-I-C	750	1340	1720	645	340	340	85	382
CLR 3000-H-I-C	1055	1610	2675	950	545	545	220	675
CLR 4500-H-I-C	1360	1760	2675	1255	545	545	220	820
CLR 6000-H-I-C	1360	1940	2940	1255	645	645	85	955
CLR 8000-H-I-C	1665	2280	4160	1560	950	950	85	1390

Accessiories

The integrated controller supports all aditional accessories such as water or electric heater, reversible water or DX cooler, water pump regulation etc..

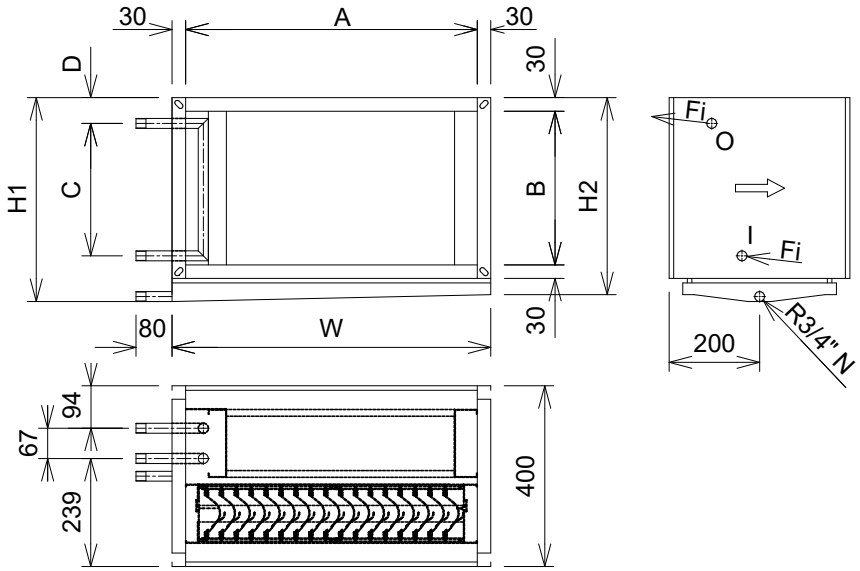
Water cooling coil for duct installation

Air-tight water cooling coil is made of galvanized steel sheet frame, aluminum fins and copper tubes with treated brass connections. The integrated 3-slope drip tray is made of stainless steel and can be removed from the bottom side.

Cooling medium: water, water / antifreeze mixture.

Integrated water droplet eliminator with polypropylene blades can be pulled out of the housing from the bottom side.

Dimensions



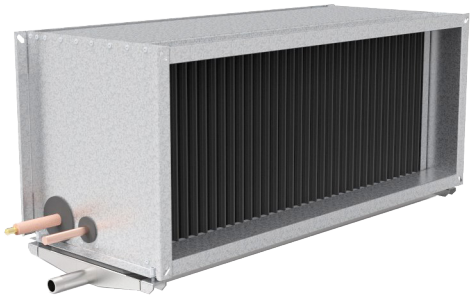
I - cooling medium **in**
O - cooling medium **out**

Unit size	Item no.		W	H1	H2	A	B	C	D	Fi	Mass
	Right air direction	Left air direction	mm	mm	mm	mm	mm	mm	mm	mm (")	kg
CLP 1500 / CLR 1500	9993831	9993832	705	451	436	645	340	293	57	22 x 3/4"	22
CLP 3000 / CLR 3000	9993833	9993834	1010	656	641	950	545	487	62	28 x 1"	37
CLP 4500 / CLR 4500	9993835	9993836	1315	656	641	1255	545	480	65	35 x 11/4"	46
CLR 6000	9993837	9993838	1315	756	741	1255	645	574	68	42 x 11/2"	51
CLP 6000	9993839	9993840	1620	756	741	1560	645	574	68	42 x 11/2"	61
CLP 8000 / CLR 8000	9993841	9993842	1620	1061	1046	1560	950	862	77	54 x 2"	78

Reversible DX cooling coil for duct installation

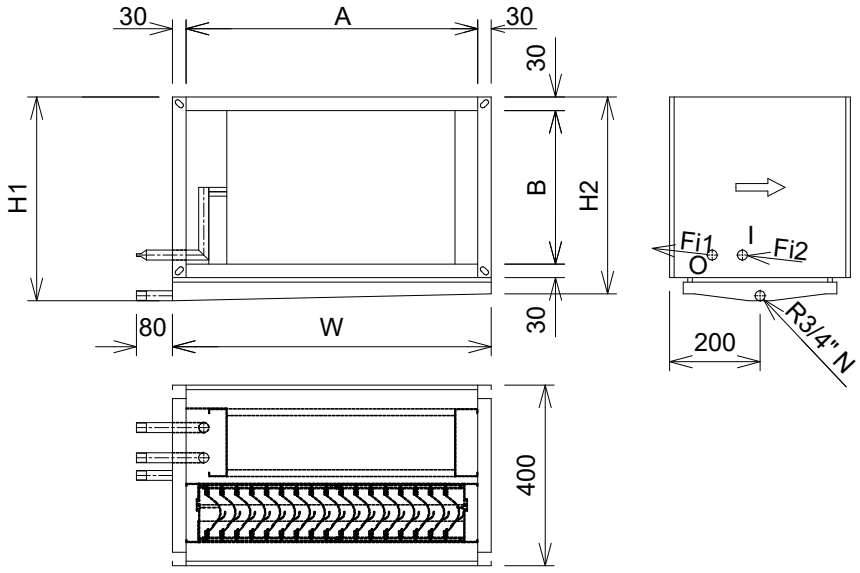
Air-tight reversible DX cooling coil is made of galvanized steel sheet frame, aluminum fin package and air-tight closed copper tubes filled with gass. The integrated 3-slope drip tray is made of stainless steel and can be removed from the bottom side.

Cooling / heating medium: R407C, R410A, R32



Integrated water droplet eliminator with polypropylene blades can be pulled out of the housing from the bottom side.

Dimensions



I - cooling medium **in**
O - cooling medium **out**

Unit size	Item no.	Item no.	W	H1	H2	A	B	Fi1	Fi2	Mass
	Right air direction	Left air direstion	mm	mm	mm	mm	mm	mm	mm	kg
CLP 1500 / CLR 1500	99930272	99930278	705	451	436	645	340	1x11	1x12	21
CLP 3000 / CLR 3000	99930273	99930279	1010	656	641	950	454	1x22	1x16	31
CLP 4500 / CLR 4500	99930274	99930280	1315	656	641	1255	545	1x22	1x18	37
CLR 6000	99930275	99930281	1315	756	741	1255	645	1x28	1x22	40
CLP 6000	99930276	99930282	1620	756	741	1560	645	1x28	1x22	50
CLP 8000 / CLR 8000	99930277	99930283	1620	1061	1046	1560	950	1x35	1x28	61

Electric heater coil for duct installation VFL - MTXL

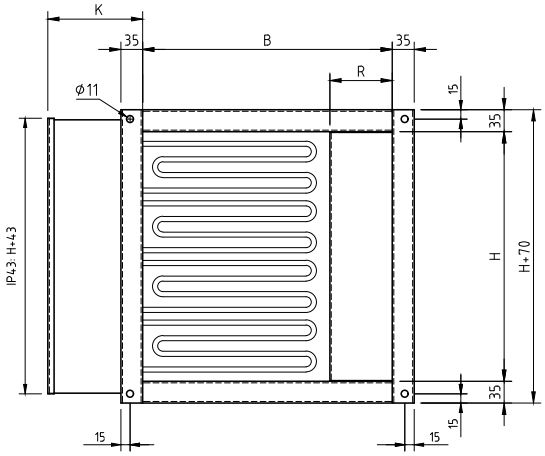
Duct heater for rectangular ducts, designed for the right air flow direction as standard. In the case of the left air flow direction rotate the heater vertically by 180°. Manufactured from Aluzinc (AZ185) coated sheet steel with a stainless steel heating elements. The heater has integrated overheating protection with automatic and manual reset function.

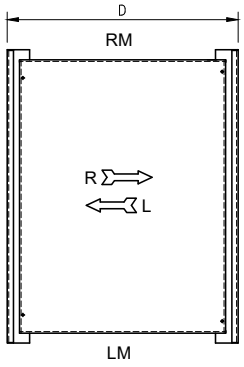
Suitable for connection to an external 0-10V control signal. The minimum air volume is based on minimum air velocity of 1,5 m/s. These duct heaters are designed for a maximum output air temperature of 50°C.
Enclosure class IP43.

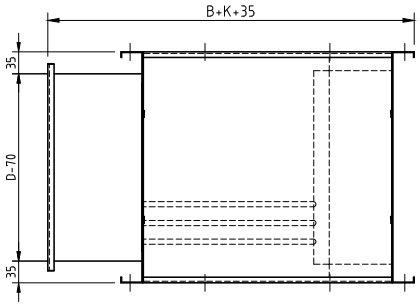
It is mandatory to use a pressure switch for protection (DTV 500 X).

RM - the position of cable glands at the right air flow direction
LM - the position of cable glands at the left air flow direction

Dimensions







Electric Pre-heater – duct installation

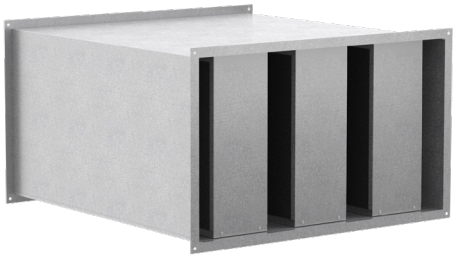
Unit size	Item no.	B	H	D	K	R	Gland position	Capacity	Voltage	Mass
		mm	mm	mm	mm	mm		kW		kg
CLP 1500 / CLR 1500	9993819	636	331	370	200	190	RM	6	3x400V	20
CLP 3000 / CLR 3000	9993820	941	536	370	200	320	RM	12	3x400V	29
CLP 4500 / CLR 4500	9993821	1246	536	370	200	440	RM	16,5	3x400V	34
CLR 6000	9993822	1246	636	370	200	350	RM	22,5	3x400V	38
CLP 6000	9993823	1551	636	370	200	650	RM	22,5	3x400V	42
CLP 8000 / CLR 8000	9993824	1551	941	370	200	745	RM	27	3x400V	75

Electric Post-heater – duct installation

Unit size	Item no.	B	H	D	K	R	Gland position	Capacity	Voltage	Mass
		mm	mm	mm	mm	mm		kW		kg
CLP 1500 / CLR 1500	9993825	636	331	370	200	190	RM	10,5	3x400V	22
CLP 3000 / CLR 3000	9993826	941	536	370	200	320	RM	24	3x400V	33
CLP 4500 / CLR 4500	9993827	1246	536	370	200	440	RM	27	3x400V	41
CLR 6000	9993828	1246	636	370	200	350	RM	40,5	3x400V	47
CLP 6000	9993829	1551	636	370	200	650	RM	40,5	3x400V	51
CLP 8000 / CLR 8000	9993830	1551	941	370	200	745	RM	54	3x400V	85

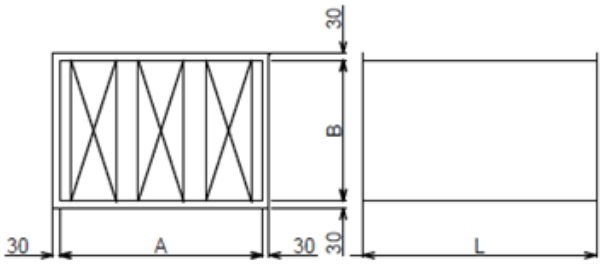
Sound attenuator for duct installation

Casing is made of ZnAlMg coated steel.
The splitter frames are made of of ZnAlMg coated steel and the filler material is mineral wool protected with water-repellent glass silk fabric resistant to decay and abrasion.



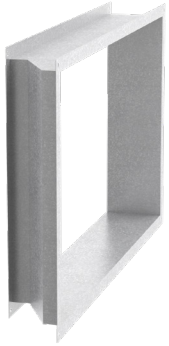
Dimensions

Unit size	Item no.	A	B	L	Mass
		mm	mm	mm	kg
CLP 1500 / CLR 1500	9995283	645	340	1050	37
CLP 3000 / CLR 3000	9995284	950	545	1050	67
CLP 4500 / CLR 4500	9995285	1255	545	1050	85
CLR 6000	9995286	1255	645	1050	95
CLP 6000	9995287	1560	645	1050	116
CLP 8000 / CLR 8000	9995288	1560	950	1050	151



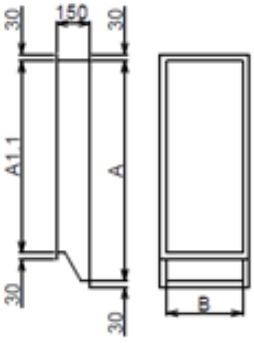
Adapter for sound attenuator connection

Made of ZnAlMg coated steel, suitable for direct connection of the duct sound attenuator to a flexible connection on the extract air opening at the horizontal compact execution of Compact-Line units.



Dimensions

Unit size	Item no.	A	A1.1	B	L	Mass
		mm	mm	mm	mm	kg
CLP 1500 / CLR 1500	9995289	645	520	340	150	3
CLP 3000 / CLR 3000	9995290	950	825	545	150	3
CLP 4500 / CLR 4500	9995291	1255	1130	545	150	6
CLR 6000	9995292	1255	1130	645	150	6
CLP 6000	9995293	1560	1435	645	150	7
CLP 8000 / CLR 8000	9995294	1560	1435	950	150	8



Sound attenuator section

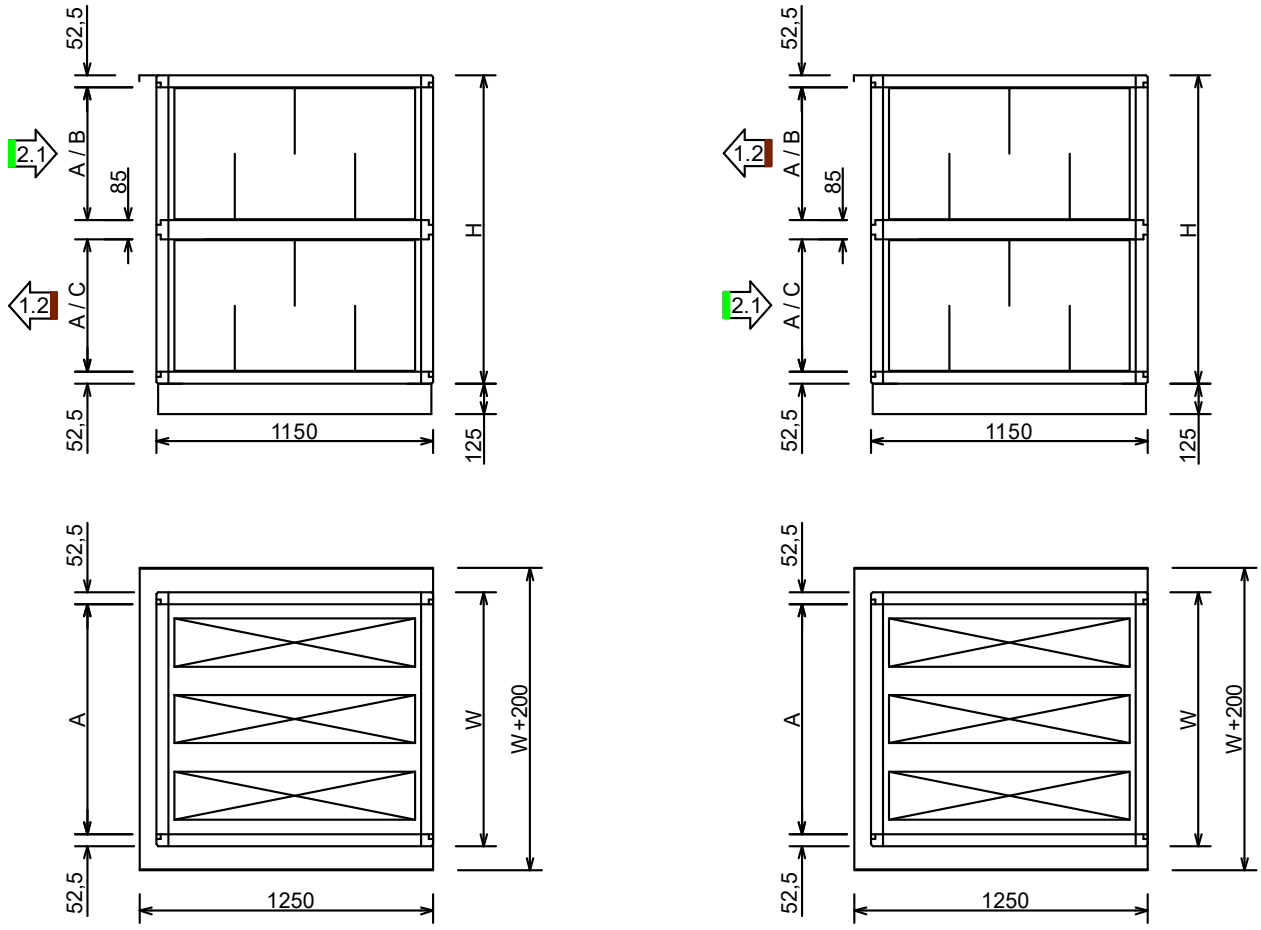
Available only for the connection to openings for the outdoor and exhaust air at horizontal compact execution intended for outdoor installation.

The casing properties are the same as for the base unit.

The splitter frames are made of of ZnAlMg coated steel and the filler material is mineral wool protected with water-repellent glass silk fabric resistant to decay and abrasion. Splitters are removable as standard for either installation and connection of the unit or later on for cleaning.

NOTE: This option can only be ordered together with the CL unit.

Dimensions

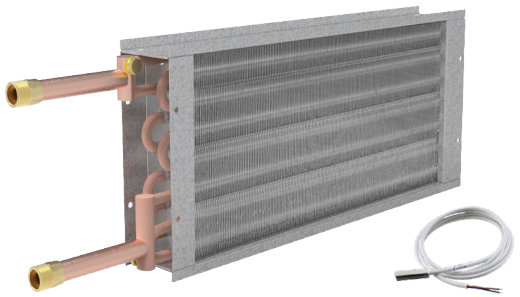


Unit size	Item no.	W	H	A	B	C	Mass
		mm	mm	mm	mm	mm	kg
CLP1500; CLR1500	9995323	750	870	645	340	340	226
CLP3000; CLR3000	9995324	1055	1280	950	545	545	340
CLR4500; CLR4500	9995325	1360	1280	1255	545	545	416
CLP6000	9995326	1665	1480	1560	645	645	516
CLR6000	9995327	1360	1480	1255	645	645	437
CLP8000	9995328	1665	1785	1560	950	645	555
CLR8000	9995329	1665	2090	1560	950	950	593

Water heating coil

Water heating coil is made of galvanized steel sheet frame, aluminum fins and copper tubes with treated brass connections. Factory installed together with surface temperature sensor TG-B440/PT1000.

Heating medium: water, water/antifreeze mixture.



Type	Item no.
Unit size	Item no.
CLP 1500 / CLR 1500	9993814
CLP 3000 / CLR 3000	9993398
CLP 4500 / CLR 4500	9993815
CLR 6000	9993816
CLP 6000	9993817
CLP 8000 / CLR 8000	9993818

ZMD 3-way valve

For heating and cooling coils

The control valves ZMD is a 3-way valve. The body is manufactured in brass and spindle in stainless steel, the plug in brass and O-ring in EPDM.
The valves have equal percentage flow characteristics.

- Media temperature 1...110°C
- Pressure class PN16
- Rangeability better than 50:1
- Differential pressure up to 350 kPa
- No leakage when the valve is closed
- For water and cooling media (max 30% glycol)

The valves are intended to be used together with actuator, RVAZ4-24A

Valve type	Item no.
ZMD315-0.25	24774
ZMD315-0.4	24775
ZMD315-0.6	24776
ZMD315-1.0	24777
ZMD315-1.6	84652
ZMD315-2.5	84653

Valve type	Item no.
ZMD315-4.0	84654
ZMD320-6.3	84655
ZMD325-10	84656
ZMD332-16	84657
ZMD340-25	84658

RVAZ4 24A Actuator 0-10V

Item Number: 9862

RVAZ4 is a range of valve actuators for control of Regin's zone valves in the ZMD range. Force 400 N. This product conforms with the EMC requirements of European harmonised standards EN60730-1:2000 and EN60730-2-8:2002 and carries the CE mark.

- 0...10 V control signal
- 24 V AC supply voltage
- Manual manoeuvring
- Easy to mount on the valve
- Stroke 5,5 mm
- Position indication

RCO2-W room CO_2 sensor

Item number: 993305

Maintenance-free room sensor RCO2 - W with active/ switching output, automatic calibration (can be deactivated), in an elegant plastic housing with snap-on lid, optional with traffic light indicator (five coloured LEDs), for determining the CO_2 content of the air (0...2000 ppm/0...5000 ppm). The measuring transducer converts the measured values into a standard signal of 0 -10 V or 4...20 mA (switchable).

The sensor is used in offices, hotels, convention centres, apartments, shops, etc. for the purpose of evaluating the indoor climate. This enables energy-saving room ventilation on an as-needed basis, thereby reducing operating costs and improving well-being.

The CO_2 measurement is performed using an optical NDIR sensor (non-dispersive infra-red technology). The detection range is calibrated for standard applications such as monitoring residential rooms and conference rooms.

QPA2002D room air quality sensor

Item number: 994027

- maintenance-free CO2 sensing element (depending on type) based on optical infrared absorption measurement (NDIR1))
- or with VOC2) sensing element based on a heated tin dioxide semiconductor
- CO2 temperature (active or passive) and CO2 humidity-temperature multisensor
- No recalibrations required
- Operating voltage AC 24 V or DC 15...35 V
- Signal outputs DC 0...10 V or DC 0...5 V adjustable
- Selectable passive temperature sensing element

For use in ventilation and air conditioning plants to enhance room comfort and optimize energy consumption by providing demand-controlled ventilation. The sensor acquires:

- CO2 concentrations as an indication of occupancy in rooms where smoking is prohibited.
- VOC concentrations as an indication of odors such as tobacco smoke, body odor, or material fumes in the room.
- Relative humidity in the room.
- Room temperature.

RTF1 PT1000 room temperature sensor

Item number: 993136

Room temperature sensor RTF 1 with passive output, in an elegant housing made of plastic, with snap-on lid, base with 4-hole attachment, for installation on vertically or horizontally installed flush-mounted boxes, with predetermined breaking point for on-wall cable entry or in housing made of stainless steel (top and bottom parts are stainless steel, the cover is screwed on), vandal-proof version e.g. for schools, barracks and public buildings. This residential room temperature sensor is used to detect/ display temperatures in closed, dry rooms, in apartments, in cinemas, supermarkets, storage rooms, office and business facilities.

Systemair-2 CO2 duct sensor

Item number: 14907

CO2-transmitter for duct mounting (200 mm)

- CO2-level 0...2000 ppm measuring range
- Good long term stability
- Simple installation and service friendly housing
- Probe 31mm diameter
- Auto-calibration

Duct transmitter for measuring carbon dioxide concentration in air. Measuring range 0...2000 ppm and output signal 0...10 V DC

QPM2102 duct CO2 + VOC sensor

Item number: 993301

The QPM Series Indoor Air Quality Duct Sensors are designed for applications where precise, stable sensing of carbon dioxide (CO2), temperature, or relative humidity sensing is required. Model QPM2102 senses both volatile organic compounds (VOCs) and CO2, with the output signal automatically switching to reflect the higher of the two values.
These sensors are directly wired to the controller with 18 to 22 AWG (recommended) multi-conductor shielded cable. The number of conductors required depends on the model selected. All field wiring is terminated in a terminal block on the sensor body.
The output signal is field selectabe for 0 to 10V or 0 to 5V. Siemens CO2 + VOC sensors are designed to help maximize occupant comfort and are not suitable for use in life safety applications.

DTV 500 X - pressure switch

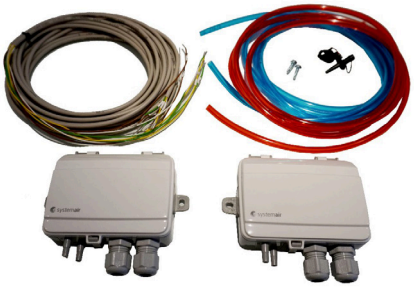
Item number: 71661

For air, non-combustible and non-aggressive gases only. Relay output max. 1 A (0.4 A), 250 V AC, change-over contact. Connection pipes for 6 mm tube.
Pressure range 50...500Pa.

VAV Air Volume Control

Item number: 9993247

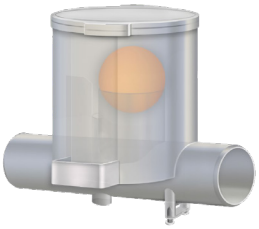
The VAV Duct pressure control kit is used for VAV control of Air Handling Units.
Included in the kit are: 2pcs of settable diff. pressure transmitters, taps, tubes, electrical cables and installation instruction.



Universal siphon set

Item number: 9995282

The siphon set includes all the necessary elements so that it can be connect to the drain pipe Ø28 and Ø40 mm. Suitable for ovepressure and underpressure installation with all available drainage connections.



Siphon heater

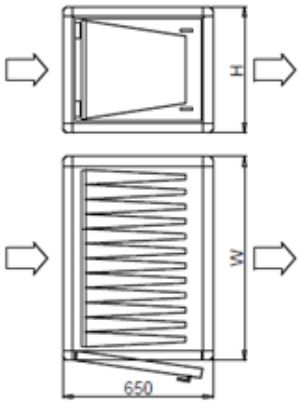
Item number: 9995295

This option is not possible to define in the selection program. An additional order is required.

Second filter section

Independent section for the installation on to the supply air side.
The casing has the same properties as the casing of the basic Compact-Line unit. Without base frame or feet.
Possible to install directly to the horizontal units or between the duct elements.
Mounting material is not supplied with the section.
There are two filter options available:

- Clasic bag filter ePM1 90%
- Deltri+ bag filter ePM1 90% (virus neutralization filter)



Unit size	Item no.	Item no.	W	H	Mass
	ePM1 90%	ePM1 90% Deltri+	mm	mm	kg
CLP1500; CLR1500	9995330	9995336	750	445	69
CLP3000; CLR3000	9995331	9995337	1055	650	90
CLR4500; CLR4500	9995332	9995338	1360	650	103
CLR6000	9995334	9995340	1360	750	110
CLP6000	9995333	9995339	1665	750	124
CLP8000; CLR8000	9995335	9995341	1665	1055	144

Filters

Available filters

Filter	Item no.	Size (mm)
Panel -M6 (ePM10 70%)	98357	592x592x97
Panel -M6 (ePM10 70%)	98358	592x490x97
Panel -M6 (ePM10 70%)	98359	592x287x97
Panel -M6 (ePM10 70%)	98361	287x490x97
Panel -M6 (ePM10 70%)	98360	287x287x97
Panel - F7 (ePM1 60%)	98362	592x592x97
Panel - F7 (ePM1 60%)	98363	592x490x97
Panel - F7 (ePM1 60%)	98364	592x287x97
Panel - F7 (ePM1 60%)	98366	287x490x97
Panel - F7 (ePM1 60%)	98365	287x287x97
Bag - F7 (ePM1 60%)	269851	592x592x535
Bag - F7 (ePM1 60%)	269852	592x490x535
Bag - F7 (ePM1 60%)	269856	592x287x535
Bag - F7 (ePM1 60%)	269853	287x592x535
Bag - F7 (ePM1 60%)	269854	287x490x535
Bag - F7 (ePM1 60%)	269855	287x287x535
Bag - F9 (ePM1 90%)	98465	592x592x535
Bag - F9 (ePM1 90%)	98466	592x490x535
Bag - F9 (ePM1 90%)	98470	592x287x535
Bag - F9 (ePM1 90%)	98467	287x592x535
Bag - F9 (ePM1 90%)	98468	287x490x535
Bag - F9 (ePM1 90%)	98469	287x287x535
Bag - Deltri+ (F9; ePM1 90%)	890792	592x592x400
Bag - Deltri+ (F9; ePM1 90%)	890791	592x490x400
Bag - Deltri+ (F9; ePM1 90%)	890789	592x287x400
Bag - Deltri+ (F9; ePM1 90%)	890785	287x592x400
Bag - Deltri+ (F9; ePM1 90%)	890784	287x490x400
Bag - Deltri+ (F9; ePM1 90%)	890783	287x287x400

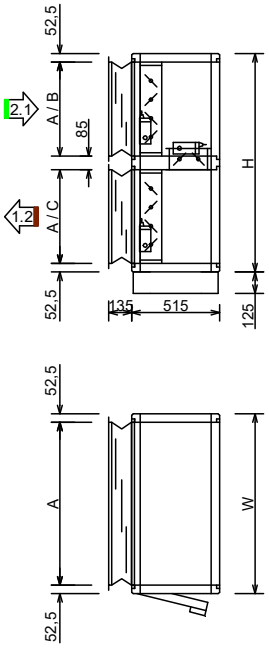
Mixing sections

This option can only be ordered together with the CL unit.

Horizontal execution with plate heat exchanger

Compact housing

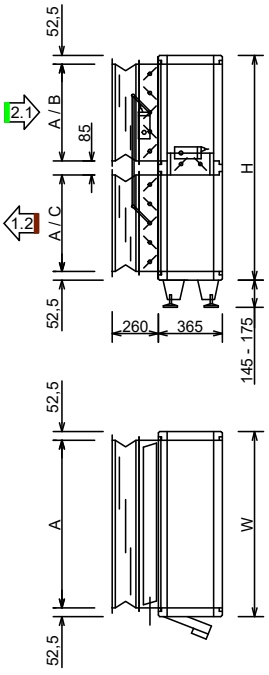
Unit size	W	H	A	B	C	Mass
	mm	mm	mm	mm	mm	kg
CLP 1500-H	750	870	645	340	340	59
CLP 3000-H	1055	1280	950	545	545	85
CLR 4500-H	1360	1280	1255	545	545	101
CLP 6000-H	1665	1480	1560	645	645	125
CLP 8000-H	1665	1785	1560	950	645	136



Horizontal execution with plate heat exchanger

Devided housing

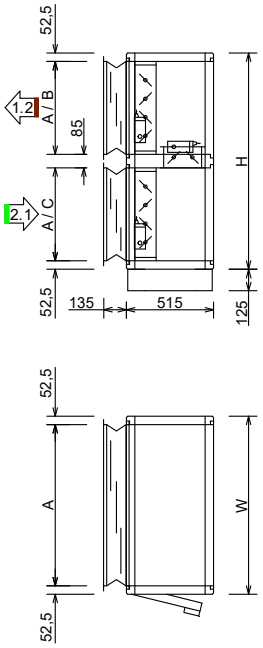
Unit size	W	H	A	B	C	Mass
	mm	mm	mm	mm	mm	kg
CLP 1500-H	750	870	645	340	340	57
CLP 3000-H	1055	1280	950	545	545	77
CLR 4500-H	1360	1280	1255	545	545	88
CLP 6000-H	1665	1480	1560	645	645	105
CLP 8000-H	1665	1785	1560	950	645	118



Horizontal execution with rotary heat exchanger

Compact housing

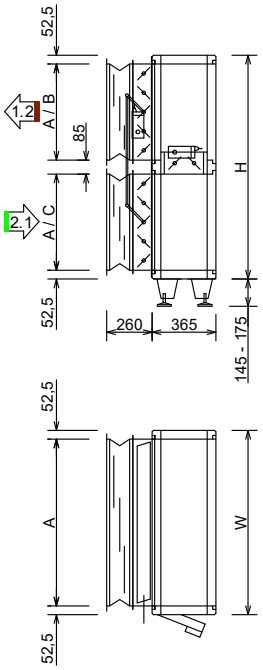
Unit size	W	H	A	B	C	Mass
	mm	mm	mm	mm	mm	kg
CLR 1500-H	750	870	645	340	340	59
CLR 3000-H	1055	1280	950	545	545	85
CLR 4500-H	1360	1280	1255	545	545	101
CLR 6000-H	1360	1480	1255	645	645	109
CLR 8000-H	1665	2090	1560	950	950	150



Horizontal execution with rotary heat exchanger

Devided housing

Unit size	W	H	A	B	C	Mass
	mm	mm	mm	mm	mm	kg
CLR 1500-H	750	870	645	340	340	57
CLR 3000-H	1055	1280	950	545	545	77
CLR 4500-H	1360	1280	1255	545	545	88
CLR 6000-H	1360	1480	1255	645	645	98
CLR 8000-H	1665	2090	1560	950	950	127



CL configuration with airCalc++

Effective and powerful selection tool.

Quick selection and thermodynamic calculation of the unit can be made in **airCalc++**. By using this application we can provide useful information about the unit such as:

- **technical data for all modules,**
- **heat recovery and coil calculations,**
- **energy consumption,**
- **acoustics information,**
- **detailed technical drawings, dimensions and weights,**
- **Mollier diagram,**
- **prices.**

ErP 2018

Calculation is performed according to ErP 2018.

Directives and certifications

Eurovent certification
Eurovent certification ensures conformity between the calculated performance in airCalc++ and the measured performance at independent test laboratories.

Ecodesign Directive
The Ecodesign Directive 1253/2014 prescribes the minimum requirements regarding heat recovery efficiency, fan efficiency, SFP internal values, and operation of the air handling unit. The airCalc++ selection software will tell you if the requirements for 2018 are fulfilled.

Machinery Directive
CL air handling units are manufactured according to the safety demands of the EU Machinery Directive 2006/42/EC. This is confirmed through the issuance of corresponding Declaration of Conformity and CE label.

Standards

EN 1886:2007
Ventilation for buildings – Air handling units – Mechanical performance.

EN 13053:2019
Ventilation for buildings – Air handling units – Rating and performance for units, components and sections.

EN 16798-3:2017
Energy performance of buildings – Ventilation of buildings – Part 3: For non-residential buildings – Performance requirements for ventilation and room-conditioning systems.

EN 1751:2014
Ventilation for buildings – Air terminal devices – Aerodynamic testing of damper and valves.

EN 308:1997
Heat exchangers – Test procedures for establishing the performance of air-to-air and flue gas heat recovery devices.

EN ISO 12100:2010
Safety of machinery – General principles for design – Risk assessment and risk reduction.

EN ISO 13857:2019
Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs.

EN 60204-1:2018
Safety of machinery – Electrical equipment of machines – Part 1: General requirements.

EN 60034-1:2010
Rotating electrical machines – Part 1: Rating and performnace.

EN 16890-1:2016
Air filters for general ventilation - Part 1: Technical specifications, requirements and classification system based upon particulate matter efficiency (ePM).

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