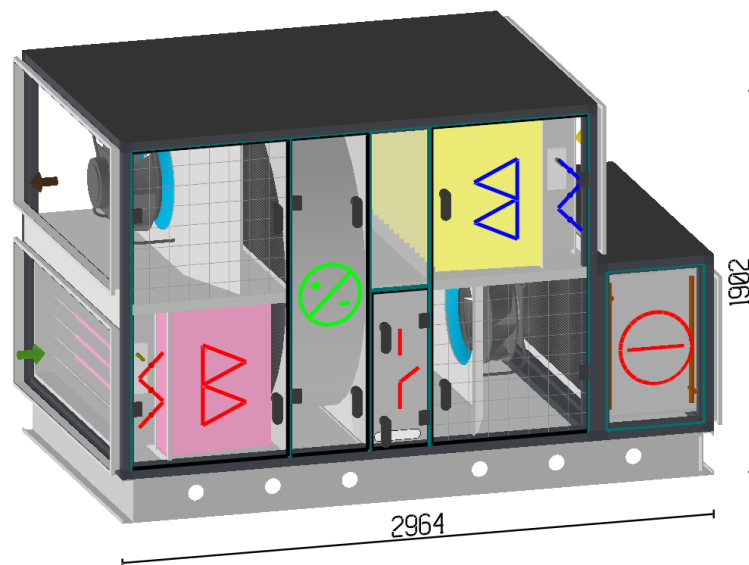


Description: Geniox 16 - Roof (Bitumen membrane)
 Unit width / Weight: 1682 mm / 1157 kg
 Delivery: 1 sections; Mounted on 218 mm base frame

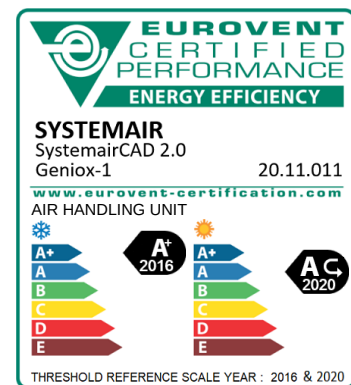


Air/fan data	Supply air	Extract air
Airflow (1.205 kg/m³); Face velocity	2.15 m³/s ; 1.85 m/s	2.15 m³/s ; 1.85 m/s
External pressure	150 Pa	150 Pa
Fans; Voltage; Rated current; RPM	3.50 kW; 3x400 V; 5.60 A; 1493 RPM	3.50 kW; 3x400 V; 5.60 A; 1421 RPM
Unit color; Hygienic; Control system	ZincMagnesium; Standard; With control system	
Power supply	L1 + L2 + L3 + N + PE (3x400V) 50 Hz	
Consumed current	14.2 A	
Supply air, Winter ; Summer	17.0°C / RH 67% ; 18.0°C / RH 88%	
Cooling, DX; Refrigerant R410A	28.7 kW ; 24.0/18.0°C ; Refrigerant 6°C ; Ø 22 mm / 35 mm	
Filter Supply / Extract	F7 - ePM1 60% / M5 - ePM10 60%	
Sound break out; Supply air	57 dB(A); 76 dB(A)	

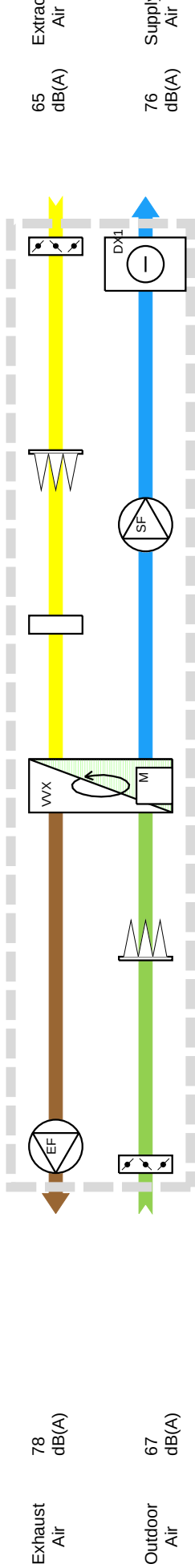
Energy	Dimensioning	Average	Fans [kWh/year 8760 hours]
Heat Recovery (Wet / Dry)	80.1 % / 80.1 %	80.1 % / 80.1 %	
SFPv *)	1.23 kW/(m³/s)	1.23 kW/(m³/s)	23242 kWh
SFPe *)	1.37 kW/(m³/s)	1.37 kW/(m³/s)	25803 kWh
Ecodesign approved (2018)	Yes		

Air handling unit location Southampton, United Kingdom
 (t_{dry} - bulb 26.4 °C, t_{dew} - point 15.1 °C, t_{dry} - bulbw 0.8 °C)

*) Values include speed control; SFPv = clean - and SFPe = dimensional-filter pressure drop



Winter	Temperature after [°C]	0.7	0.7	0.4	22.0	22.0	22.0	22.0	22.0
	Humidity after [%]	98	98	100	60	60	60	60	60
	Pressure drop [pa]	50	24	152	3	88	2	100	100
	Pressure after function [pa]	-	50	-344	-193	-190	-102	-100	-100
			Efficiency 69.9% (Total Pressure)			M5 - ePM10 60% Filter			
Summer	Temperature after [°C]	28.7	28.7	28.4	22.0	22.0	22.0	22.0	22.0
	Humidity after [%]	27	27	27	40	40	40	40	40



Winter	Temperature after [°C]	-5.0	-5.0	-5.0	16.6	17.0	17.0	17.0	17.0
	Humidity after [%]	100	100	100	69	67	67	67	67
	Pressure drop [pa]	50	2	116	152	24	61	100	100
	Pressure after function [pa]	-50	-52	-169	-320	161	100	-	-
Summer					80.1/80.1% Wet/dry	Efficiency 71.4% (Total Pressure)			
	Temperature after [°C]	30.0	30.0	30.0	23.6	24.0	18.0	18.0	18.0
	Humidity after [%]	50	50	50	73	71	88	88	88
					80.1% wet		28.73 kW		



Commissioning Data

	Supply	Extract	Unit
Pressure drop clean filters	66	44	Pa
Fans absorbed power clean filters	1.37	1.15	kW

Alternative working points

	Dim.										Average
Airflow, Supply, m³/s	2.15										2.15
Airflow, Extract, m³/s	2.15										2.15
External pressure drop, Supply	150										
External pressure, Extract	150										
SFPv, kW/(m³/s)	1.23										1.23
SFPe, kW/(m³/s)	1.37										1.37
Efficiency, Heat exchanger (wet), %	80.1										80.1
Efficiency, Heat exchanger (dry), %	80.1										80.1
Cooling coil, Capacity, kW	28.7										28.7
Sound data dB(A)											
Supply air	76										
Outdoor air	67										
Exhaust air	78										
Extract air	65										
Sound break out	57										
Operation hours	8760										
Operational hours yearly	8760										

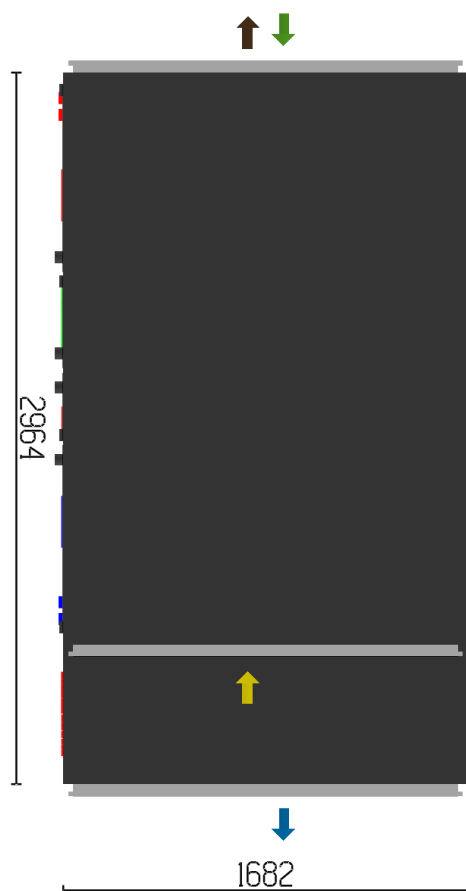
Ecodesign

	2018	Value	Limit
Unit type (Non-residential - Bidirectional)	Approved		
Fan with multispeed or Var.Speed Drive	Approved		
Heat recovery	Approved		
Thermal efficiency of Heat Recov. System	Approved	80	73
Pressure gauge	Approved		
SFP internal in W/(m³/s)	Approved	611	1011
Total check	Approved		

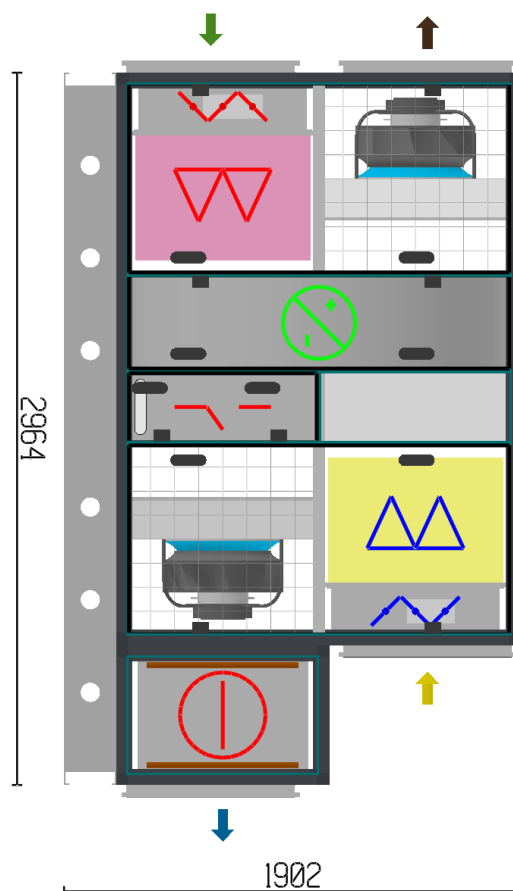
		Supply	Extract	
Manufacturer	Systemair			
Model	Geniox 16			
Typology	NRVU;BVU			
Drive Type		EC Bluefin	EC Bluefin	VSD Ok
Type of Heat Recovery System (HRS)	Rotary heat exchanger			
Thermal efficiency of HRS (dry condition)	80			%
Non Residential unit - flow rate		2.15	2.15	m³/s
Effective electric power input incl. clean filters and variable drive		1.25	1.20	kW
SFP internal in W/(m³/s) 2018	611	318	294	W/(m³/s)
Face velocity		1.85	1.85	m/s
Nominal external pressure		150.00	150.00	Pa
Internal pressure drop of ventilation components		218.07	195.56	Pa
Overall static pressure drop with clean filter		368.07	345.56	Pa
Total fan efficiency by static pressure incl. motor and speed control		68.63	66.63	%
Maximum external leakage rate @ ± 400 Pa	Leakage is less than 10.1 l/s -> Leakage rate is less than 0.5 %			
Maximum internal leakage rate (EATR, ?p = 250 Pa)	Leakage rate is less than 3%.			
Energy class for filters		B	B	
Visual filter warning description	Control display			
Internet address with information about disassembly	techdoc.systemair.dk			

Ecodesign is calculated for a reference configuration with ePM1 60% (F7) filter in supply and ePM10 60% (M5) filter in extract.

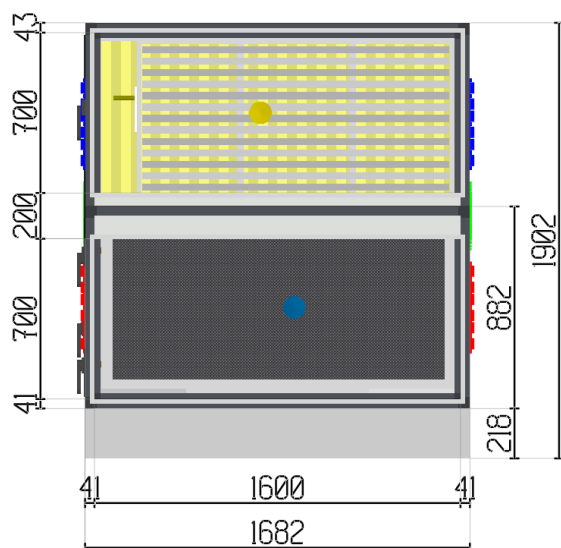
Plan view



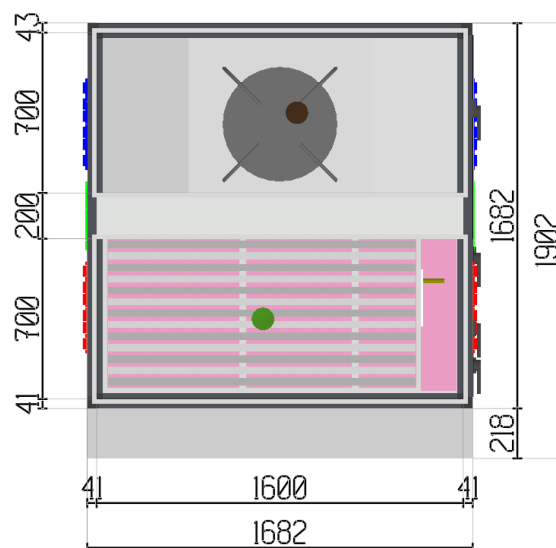
Access side



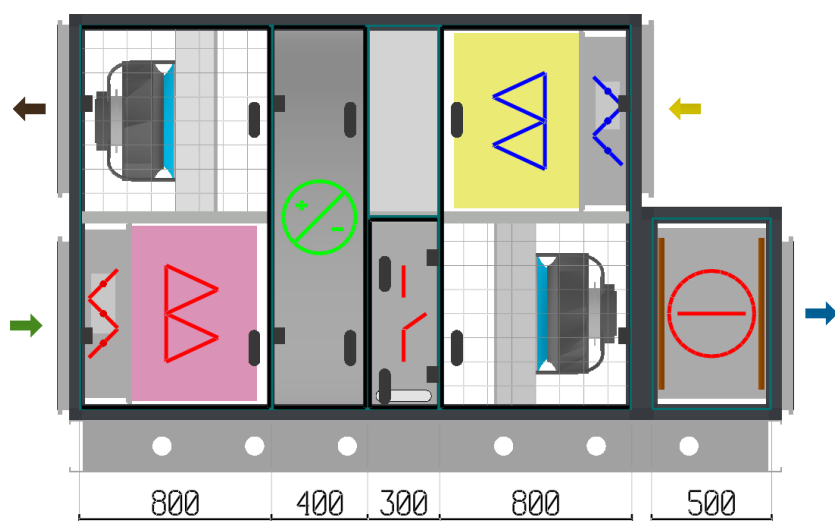
Right end

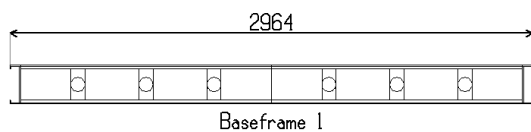
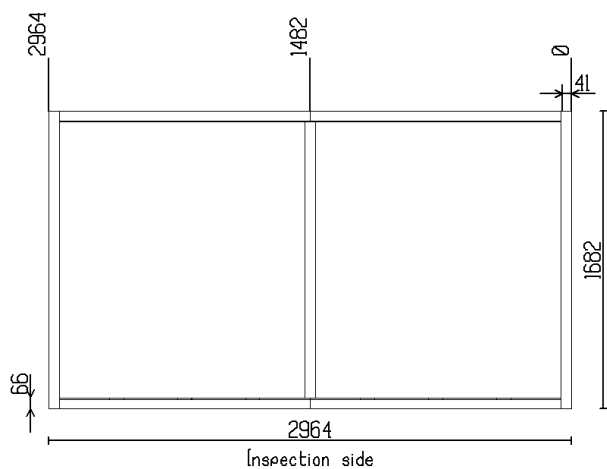


Left end



Doors and panels dimensions





Technical specification

Unit

Frequency band [Hz]	63	125	250	500	1K	2K	4K	8K	Total
Sound power level	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB(A)]
Supply air	73	79	74	75	72	66	61	53	76
Outdoor air	69	76	69	66	55	49	42	35	67
Exhaust air	75	80	75	76	73	70	67	62	78
Extract air	70	75	68	65	54	48	43	35	65
Sound break out	68	70	54	52	50	45	41	25	57

Casing

Panels	Steel sheets coated with ZM310, corrosion class C5		
Frame profiles	Steel profiles coated with Z225 painted, corrosion class C4		
Mullion profiles	Steel profiles coated with ZM310, corrosion class C5		
Corners	PA6 fiber reinforced		
Insulation	60 mm mineral wool / Density 60 kg/m3		
Corrosion protection	Class C4 according to EN ISO 12944-2:2018		
Operating pressure	0 - 2000 Pa (Geniox10 - Geniox31)		
Operating temperatures	-40/+40 °C (Standard)		
	-40/+60 °C (Special design)		
Classifications	EN 1886, 2. edition 2008		
Mechanical Strength	Class D1(M)		
Casing air leakage	-400 Pa: Class L1(M)		
	+700 Pa: Class L1(M)		
Filter by-pass leakage	-400 Pa: Class G1-F9		
	+400 Pa: Class G1-F9		
Thermal transmittance	Class T2(M)		
Thermal bridging factor	Class TB2(M)		
Acoustic insulation of casing	Octave band Hz	Insulation dB	
		63	10
		125	17
		250	24
		500	27
		1000	28
		2000	28
		4000	32
		8000	40
Roof	Bitumen membrane		

Control system

Language in controller menu	English	
NaviPad navigation tablet delivered	Yes	
External communication	MODBUS RTU, RS485	
Temperature control	Cascaded extract air temperature control	
Fan control	Air flow control m³/h	
Damper motor supply air	Motor ON/OFF	
Damper motor extract air	Motor ON/OFF	
Free cooling	Yes	
Coil configuration	Cooling	
DX cooling control signals	Cooling capacity of DX by 0-10 V signal	

For selection of sensors - study flow chart in control system printout

Mains power supply for control system

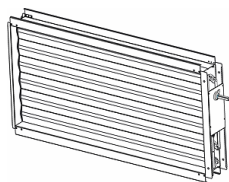
Supply cable	L1 + L2 + L3 + N + PE	
Voltage	3x400	VAC
Hz	50	Hz
Switched power supply	24	V DC
Main switch (Not supplied by Systemair)		
Cable entry position	Cable entry in bottom	
Cable gland for main supply cable	M25	
Fuse for supply air fan (in main cabinet)	10	A
Fuse for extract air fan (in main cabinet)	10	A
Rated fuse PSCC max (in main cabinet)	6	kA
Max. consumed current	14.2	A
Max. consumed current in neutral wire	3.0	A
Minimum fuses for unit (L1-L2-L3)	16	A
Minimum fuses for unit (L1-L2-L3-N)	16	A

The installer must ensure that protection of the mains power supply relating to frequency converters is according to local statutory requirements. By one or more 400 VAC motors, Residual Current Circuit Breaker type B must be installed. By one or more 400 VAC motors, HPFI type B must be installed.

The electrical installation (wiring, mounting of components, connection plugs, etc.) for the unit is done as an machine installation according to 60204-1

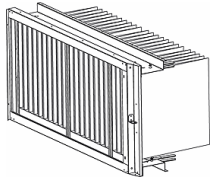
The supply unit consist of

Damper



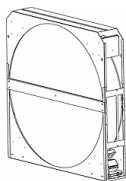
Pressure drop	2	Pa
Damper blades	Standard	
Number of dampers	1	pcs

Filter



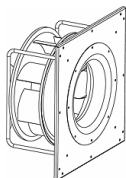
Dimensioning pressure drop	116	Pa
Initial pressure drop/Final pressure drop	66/166	Pa
Velocity, face area	2.47	m/s
Velocity, filter area	0.14	m/s
Filter class	F7 - ePM1 60%	
Filter size	3x[490x592x25]	
Filter length	520	mm
Filter description	Camfil Hi-Flo II XLT	

Rotary heat exchanger



	Supply	Extract	
Air flow	2.15	2.15	m³/s
Pressure drop	152	152	Pa
WINTER			
Air temperature before/after	-5.0/16.6	22.0/0.4	°C
Air relative humidity before/after	100/69	60/100	%
Capacity	93.54		kW
Temperature efficiency	80.1		%
Dry efficiency according to EN 308 at 2.15 m³/s	80.1		%
Humidity efficiency	75.7		%
Energy class for heatrecovery (EN13053)		H1	
SUMMER			
Air temperature before/after	30.0/23.6	22.0/28.4	°C
Air relative humidity before/after	50/73	40/27	%
Capacity	17.14		kW
Temperature efficiency		80.1	%
Humidity efficiency		0.0	%
Heat exchanger type	P - Condensation (Temperature)		
Efficiency (Wave height)	B - High		
Wheel Diameter	Ø1480		
Description	P140_380_2-1480*		
Speed controller: Exchanger	Variable speed		
Electrical data	1x230V, 85W, 0.4Amp		
Purging sector	1		pcs

Fan, Plug



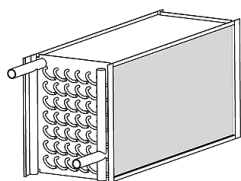
Air flow	2.15	m³/s
External pressure	150	Pa
Pressure drop	24	Pa
Static pressure (Designed at wet conditions)	508	Pa
Total pressure	528	Pa
Fan speed	1493	RPM
Maximum fan speed	1950	RPM
Total efficiency by static pressure, incl. motor and speed control	68.6	%
Total efficiency by total pressure, incl. motor and speed control	71.4	%
K-factor (p=1.2 kg/m³)	280	
Fan type - Large	GR50I-ZID.GG.CR	
ErP efficiency n(stat,A)	75.2	%
ErP efficiency class N(actual)/ N(target)	80.0 / 62	

ErP-conformity	Yes
Direct drive	

Motor

Motor type	EC motor	
Motor types-size	ZID.GG.CR	
Motor protection	Built-in	
Rated power	3.50	kW
Speed (nominal)	1950	RPM
Current, Amp.	5.60	A
Voltage	3x400	V
Consumed power from mains power supply, including speed control	1.60	kW
SFPv, clean filters including speed control	0.67	kW/(m³/s)
Winter: Temperature before / after	16.6 / 17.0	°C
Summer: Temperature before / after	23.6 / 24.0	°C
Winter: Humidity before / after	69 / 67	%
Summer: Humidity before / after	73 / 71	%
Safety screen	1	pcs

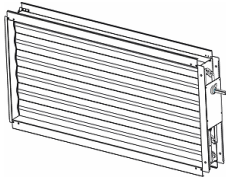
Cooling coil



Air flow	2.15	m³/s
Pressure drop air, wet coil with condensate droplets	61	Pa
Pressure drop air, dry coil	39	Pa
Air temperature before/after	24.0/18.0	°C
Air relative humidity before/after	71/88	%
Total cooling capacity	28.73	kW
Sensible cooling in % of total cooling	54	%
Face velocity	2.59	m/s
Condensate	0.3	l/min
Refrigerant	R410A	
Refrigerant temperature	6.0	°C
Coil volume	12.8	l
Connection side	Service side	
Connection size inlet/outlet	22 mm / 35 mm	
Number of circuits	1	
Tube material	Cu	
Fin material	Al	
Fin thickness	0.11	mm
Fin spacing	2.5	mm
No. of rows	3	
Drip tray material	Stainless steel	
Coil code	GXX-16-D65-5-3-8-640-1343-2.5-CU-AL11-H-22 mm	
Coil is for heat pump use		

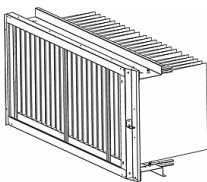
The extract unit consist of

Damper



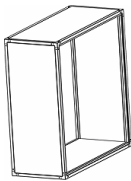
Pressure drop	2	Pa
Damper blades	Standard	
Number of dampers	1	pcs

Filter



Dimensioning pressure drop	88	Pa
Initial pressure drop/Final pressure drop	44/132	Pa
Velocity, face area	2.47	m/s
Velocity, filter area	0.14	m/s
Filter class	M5 - ePM10 60%	
Filter size	3x[490x592x25]	
Filter length	520	mm
Filter description	Camfil Hi-Flo II XLT	

Empty section

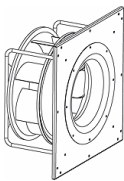


Pressure drop	3	Pa
Length	300	mm

Rotary heat exchanger

Data are stated on supply.

Fan, Plug



Air flow	2.15	m³/s
External pressure	150	Pa
Pressure drop	24	Pa
Static pressure (Designed at wet conditions)	418	Pa
Total pressure	438	Pa
Fan speed	1421	RPM
Maximum fan speed	1950	RPM
Total efficiency by static pressure, incl. motor and speed control	66.6	%
Total efficiency by total pressure, incl. motor and speed control	69.9	%
K-factor (p=1.2 kg/m³)	280	
Fan type - Large	GR50I-ZID.GG.CR	
ErP efficiency n(stat,A)	75.2	%
ErP efficiency class N(actual)/ N(target)	80.0 / 62	
ErP-conformity	Yes	
Direct drive		

Quotation no.
Project
Plant no.

2348603
Barton Art Block
MVHR01/Externally Mounted

Unit no.: 10
Date 28/02/2023
Page 13/21

Motor		
Motor type	EC motor	
Motor types-size	ZID.GG.CR	
Motor protection	Built-in	
Rated power	3.50	kW
Speed (nominal)	1950	RPM
Current, Amp.	5.60	A
Voltage	3x400	V
Consumed power from mains power supply, including speed control	1.35	kW
SFPv, clean filters including speed control	0.56	kW/(m³/s)
Winter: Temperature before / after	0.4 / 0.7	°C
Summer: Temperature before / after	28.4 / 28.7	°C
Winter: Humidity before / after	100 / 98	%
Summer: Humidity before / after	27 / 27	%
Safety screen	1	pcs

Other parts

Feet or baseframe		
Feet or baseframe	Baseframe	
Baseframe height	218	mm
Corrosion protection	Painted	

Rigid duct connection, 20 mm		
Product	Dimensions (width x height)	
Outdoor	1600x700 mm	
Supply	1600x700 mm	
Extract	1600x700 mm	
Exhaust	1600x700 mm	

Section about shipping

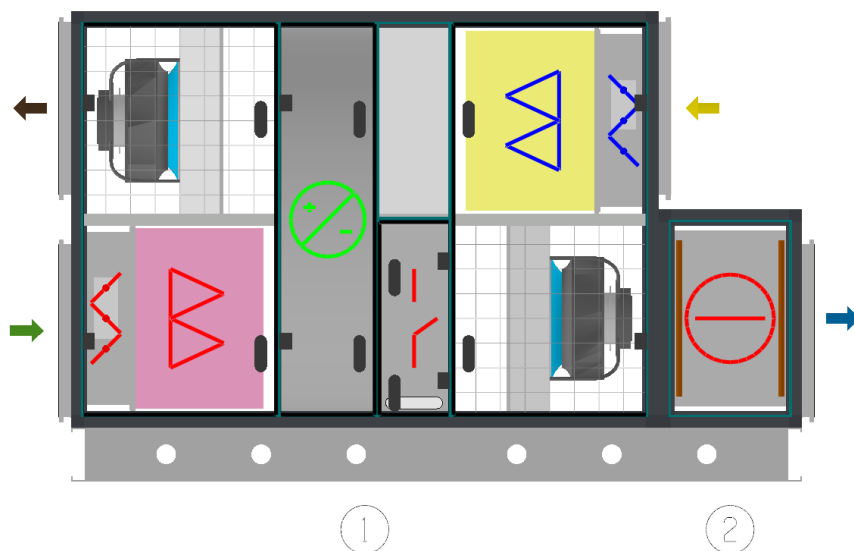
Product	Dimensions (width x height x length), incl. packaging	Weight, Inc. Packaging	Weight of unit
AHU1-3164	1782 x 2020 x 3164 mm	1158 kg	1156 kg
The unit sections are delivered mounted on base frame.			

Systemair Ltd
Unit 28, Gravelly Industrial Park,
Birmingham
B24 8HZ

Telephone :+44 121 322 0258
www.systemair.co.uk
josh.peschel@systemair.co.uk



Weights



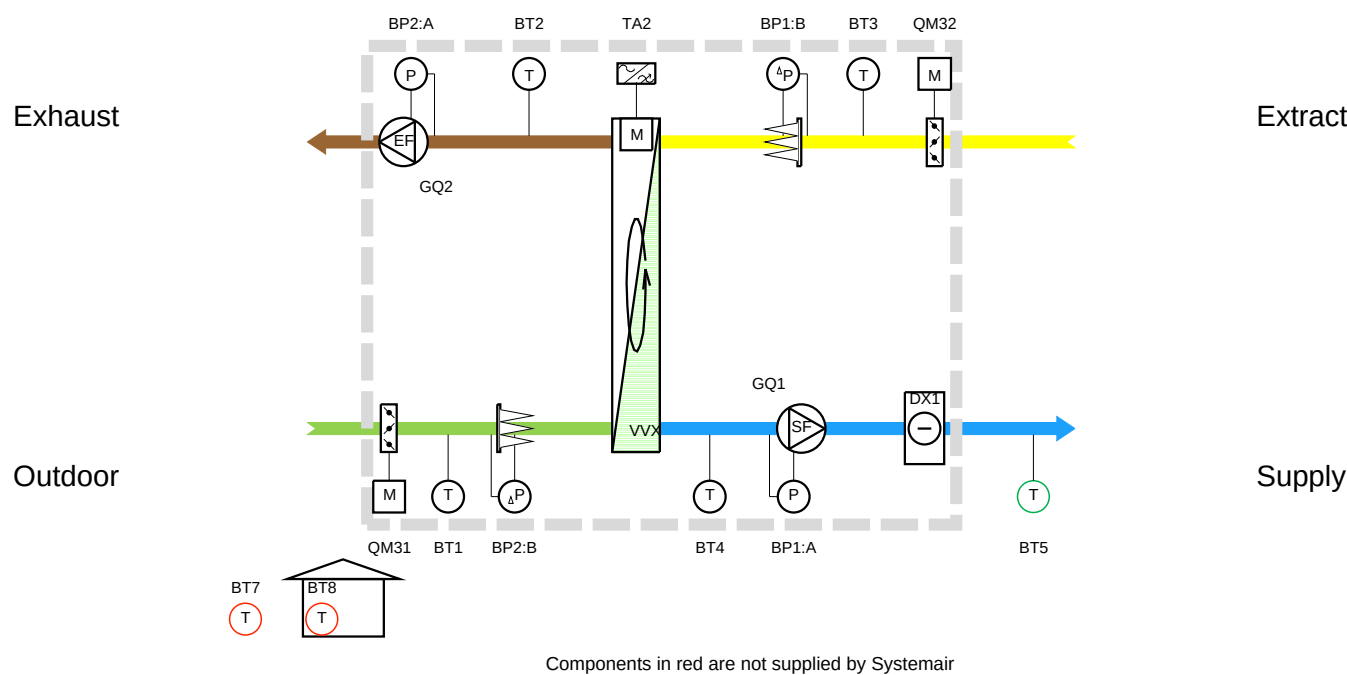
Section No	Section Code	Function Code	Weight of function kg	Weight of section kg
1	Casing Length 2382 mm			800
		Casing	413	
		Damper	22	
		Filter	26	
		Rotary heat exchanger	145	
		Control system	19	
		Fan	64	
		Damper	22	
		Filter	26	
		Empty section	0.1	
		Fan	64	
2	Casing Length 582 mm			150
		Casing	69	
		Cooling coil	82	
3	Baseframe Length 2964 mm			121
	Other components			86
	Weight of unit			1157

Integrated Systemair Access control system

The air handling unit is built with a complete and fully integrated control system - based on the Access control unit mounted in the control cabinet and the NaviPad control panel with a graphical user interface. The air handling unit can either run stand alone or handled from a building management system.

Before shipment the unit has been assembled and has passed a final functional test and inspection. Order-specific parameters are stored in the control unit during this process. The test report is delivered with the air handling unit.

Flow chart



Detailed technical specification

External components	Symbol Name	Cable number	Page/ Column	Terminals	HW I/O
Temperature sensor: Supply air	BT5	W355	14 : 5	T81	UI1
Normal speed	Ext. Sig.	W581	10 : 2	T31	DI2
Control input: Extended run at low speed		W580	10 : 1	T32	DI1
Control input: Unit stop		W583	10 : 3	T30	DI3
External sensors not delivered but needed for function of system					
Temperature sensor: Room	BT8	W508	14 : 7	T83	UI3
Temperature sensor: Outdoor air	BT7	W507	14 : 9	T84	UI4
Internal components					
Speed controller: Exchanger	TA2	W232	37 : 6	F3: L1-N	BUS Adr. 7
		W642	37 : 6	Link 2	

Temperature sensor: Efficiency	BT4	W343	29 : 1	BP1	DPT BP1: In2
Damper actuator: Outdoor (Supply) air	QM31	W631	33 (35) : 1 (1)	Link 1	BUS Adr. 21 (31)
Pressure transmitter: Supply air filter	BP2:B	W662	30 : 2		DPT BP2: B
Temperature sensor: Intake air	BT1	W341	30 : 1	BP2	DPT BP2: In1
Pressure transmitter: Supply air Fan (flow)	BP1:A	W661	29 : 1	Link 1	BUS Adr. 5
EC fan: Supply air 1	GQ1	W601	29 : 3	Link 1	BUS Adr. 1
		W101	23 : 2	F1: L1-L2-L3	
Damper actuator: Extract (Exhaust) air	QM32	W632	34 (35) : 2 (5)	Link 2	BUS Adr. 22 (32)
Pressure transmitter: Extract air filter	BP1:B	W661	29 : 2		DPT BP1: B
Temperature sensor: Extract air	BT3	W444	29 : 1	BP1	DPT BP1: In1
Temperature sensor: Exhaust air	BT2	W442	30 : 1	BP2	DPT BP2: In2
Pressure transmitter: Extract air Fan (flow)	BP2:A	W662	30 : 1	Link 2	BUS Adr. 6
EC fan: Extract air 1	GQ2	W602	30 : 3	Link 2	BUS Adr. 2
		W102	24 : 2	F2: L1-L2-L3	

Control cabinet and mains supply

The control cabinet is placed as indicated in order confirmation material. The control cabinet holds necessary components including terminal blocks, fuses, 24V DC power supply and the Access control unit. The controller is configured according to the customer's order and confirmed in the order confirmation. Specification is also delivered with the unit. On site mains power supply must be connected to the cabinet. The installer on site has full responsibility to ensure that any unit/installation which requires additional protection of the mains power supply relating to frequency converters or any other such device is all carried out according to local statutory requirements.

The supply disconnecting device for the unit is not included.

External electrical components

Temperature sensor for the supply air is delivered with 10 metres of cable, and must be connected to the terminals in the control cabinet by the installer on site.

The Access control unit is prepared for connection of delivered components and extra sensors that could be needed.

Control panel with 3 m cable is not connected to controller.

Depending on the customer's choice, external components are delivered, such as:

- pressure transmitters in ducts for pressure control
- valve for heating with heating coil
- temperature sensor for frost protection of the hot water heating coil
- electrical heating coil
- valve for cooling with chilled water.

NaviPad control panel with 3 m cable is not connected to the Access control unit from the factory.

Access control unit and NaviPad control panel.

The NaviPad control panel with 7" capacitive touch panel and 3 m cable must be connected to the Access control unit in the control cabinet. All normal handling and configuration is carried out from the graphical user interface on the NaviPad control panel. The protection class of the NaviPad control panel is IP 54 and 0-50 C° permitted temperature. The NaviPad enclosure is not UV resistant and the NaviPad is not for outdoor mounting. Communication between the panel and the controller in the cabinet is possible with up to 100 meters of cable. The installer must use Standard PDS LAN network cable AWG23 (path cable) for extension.

If several units are connected to a local network (on the same subnet), the NaviPad will be able to connect and monitor up to nine units. Please see separate instruction for details

If more units are connected to a local network (same subnet), the panel will be able to connect and handle up to nine units. Please see separate instruction for details

Schedules

The controller has individual schedules for start, stop and normal/reduced/high airflow rate for each weekday as well as schedules for holidays.

The controller has automatic summer-winter-time change over.

Outside normal operating hours, free cooling is available according to settings.

Cooling recovery

If the extract air temperature is lower than the outdoor air temperature, and there is a cooling demand in the rooms, the cooling recovery will be activated. The heat exchanger signal is reversed to give increasing cooling recovery on increasing demand.

Access rights - passwords

There are 3 different user levels

- End-user - (no password) - access to read values on the start page, see the flow diagram, possibility to start/stop the unit, adjust the temperature setpoint and activate extended running.
- Operator level (password) - access to read values, change user relevant settings concerning schedules, temperature, air flow and also to acknowledge alarms and to restart the system after having removed the reason that triggered the alarm.
- Service (special password) - access to make changes in configuration menus, access to store new settings, access to restart the unit according to user's own settings or original factory settings.

Alarms and safety functions

If an alarm condition occurs, a circular light appear at the bottom of the control panel.

- Fixed green — Status ok (no active alarms).
- Flashing red — Active/returned alarms in one or more controllers.

- Fixed red — Acknowledged/blocked alarms in one or more controllers, alarms not reset

Alarms are logged in an alarm list. The list shows the type of alarm, date and time for the alarm and alarm class:

- Class A alarm - Needs to be acknowledged
- Class B alarm - Needs to be acknowledged
- Class C alarm - Returns when the cause of the alarm disappear

Flexible System

A qualified service technician - on the site and at the request of the user - will be able to adapt the regulation further to the requirements of the users;

- The air flow regulation can be changed between several methods that are constant air volume through the fans, constant pressure in the ducts, CO2 dependant control or humidity dependant control. Temperature controlled airflow, which either decrease or increase airflow to achieve heating or cooling demand.
- The temperature control mode can be changed between room temperature control, supply air temperature control, extract temperature control and outdoor compensation of the selected temperature. Summer/winter dependent switching between extract air/room temperature control and supply air temperature control.
- In addition to the fixed schedule, an external start signal for extended operation is available, 3 levels
- In addition or as an alternative to the fixed schedule, an external stop input signal is available.
- A large number of other alternative functions are also optional.

Recovery with rotary heat exchanger

The capacity of the rotary heat exchanger is steplessly controlled via the modulated control of rotor speed.

Free cooling

If the outdoor/intake temperature exceeded a settable limit (22 degrees) during the previous day, the fans will start to cool down the building during the night (settable time period with default values 00.00 07.00) as long time as the outdoor temperature is within af settable interval (default 18 degrees 10 degrees). The function is only active before and after time scheduled operation. All parameters can be set individually. Default stop conditions is when extract/room temperature goes below 18 degrees (settable value) or if outdoor temperature goes outside the allowed interval. After 1 hour the system will start up again if all start conditions are met. Optional room- and outdoor temperature sensors will improve performance of this function.

Extended running - normal, reduced speed, high speed and stop

Extended running can be activated in 3 ways:

- Digital input for normal, reduced, high, stop.
- From the start page of the NaviPad at normal speed.
- Signal from BMS system for normal, reduced, high, stop.

Communication to BMS systems via MODBUS RTU, RS485

The controller has been prepared for communication via RS485 with MODBUS RTU based BMS system (Building Management System).

The controller can work as a stand-alone system without any support from other controllers or BMS systems.

Cascaded extract temperature control

The control of the supply air temperature is based on the values from 2 temperature sensors:

- a sensor inside the extract section giving the mixed average temperature from the rooms
- a sensor installed by the installer in the supply air duct.

The supply air temperature is controlled by a cascaded temperature controller to achieve a constant, settable extract temperature. The set points for the extract temperature as well as the temperature limits for the supply air temperature can be adjusted from the control panel. The output from the extract temperature PI-loop controls the supply air temperature.

Air flow control - m³/h, l/s, m³/s, CFM

The air flow rates of supply and extract air are controlled separately. The supply and extract air at low, normal, high airflow are set separately on the control panel.

On each fan a pressure transmitter measures the difference between the pressure before the fan and the pressure at the measuring probe in the inlet cone. Through a formula with a factor for each fan size, the output signal from the pressure transmitter is used to calculate the actual airflow.

A PID-controller maintains the set point value by controlling the speed of the fans.

Supply fan with EC motor

The supply air fan is driven by an EC motor with the impeller mounted directly on the motor. All parameters in the motor speed control have been configured and tested from factory.

Extract fan with EC motor

The extract air fan is driven by an EC motor with the impeller mounted directly on the motor. All parameters in the motor speed control have been configured and tested from factory.

Cooling coil with direct expansion of refrigerant.

The unit is delivered with DX coil, ready for connection to an external condenser unit.

Control signals are available from terminals in the switchboard - a 0-10 V DC signal for modulated capacity control. A number of settings is available for adapting to external units functionality. A digital potential free cooling demand signal is available on terminals in the switchboard.

Damper motors

Supplied and installed as in flow chart specification. Spring return models (S) will have running time of about 150/16 seconds. Non spring about 150 seconds. Modulated models indicated by round symbol.

Filter guards

Filter guards over bag filters are modulated. Pressure limit is depending on the flow. Low flow = low pressure limit, high flow = high limit. Transmitters are connected to the controller. From the display you can see actual pressure and set limits for alarm. Transmitters placed as indicated in flow chart.

Panel filter will have a pressure switch to give signal to the controller when set limit is exceeded.

DX-cooling - control of capacity

Signal from the controller is 0-10 V DC

IX diagram

