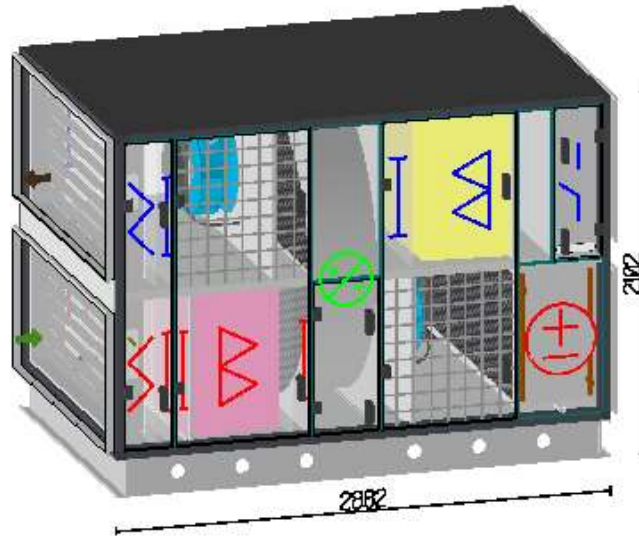
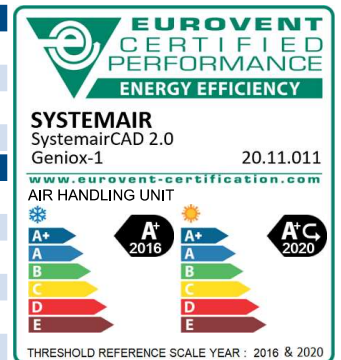


Description: Geniox 18 - Roof (Bitumen membrane)
Unit width / Weight: 1882 mm / 1326 kg
Delivery: 1 sections; Mounted on 218 mm base frame



Unit			
Unit color Insulation Hygienic	ZincMagnesium 60 mm mineral wool / Density 60 kg/m3 Standard		
Control system	Access control system		
Power supply Unit	L1 + L2 + L3 + N + PE (3x400V) 50 Hz / 13.8 A		
Sound break out Supply air	57 dB(A) 74 dB(A)		
Supply Air/fan data	Air density 1.205 kg/m³		
Airflow Face velocity Ext. Δp	2.10 m³/s 1.41 m/s 320 Pa		
Supply air, Winter Summer	22.0°C / RH 44% 20.0°C / RH 83%		
Filter Stages	F7 - ePM1 60%		
Fan Voltage Rated current RPM	3.40 kW 3x400 V 5.40 A 1303 RPM		
Cooling, DX Refrigerant R410A	30.0 kW ; 25.8/20.0°C Refrigerant 6°C ; Ø 2x22 mm / 2x35 mm		
Heating, DX Refrigerant R410A	15.8 kW ; 15.8/22.0°C Refrigerant 6°C ; Ø 2x22 mm / 2x35 mm		
Extract Air/fan data	Air density 1.205 kg/m³		
Airflow Face velocity Ext. Δp	2.05 m³/s 1.38 m/s 270 Pa		
Filter Stages	M5 - ePM10 60%		
Fan Voltage Rated current RPM	3.40 kW 3x400 V 5.40 A 1156 RPM		
Energy	Dimensioning	Average	Fans [8760 hours]
Heat Recovery EN308 (Dry)	81.6 % 82.4 %	81.6 % 82.4 %	
SFPv *)	1.42 kW/(m³/s)	1.42 kW/(m³/s)	26187 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

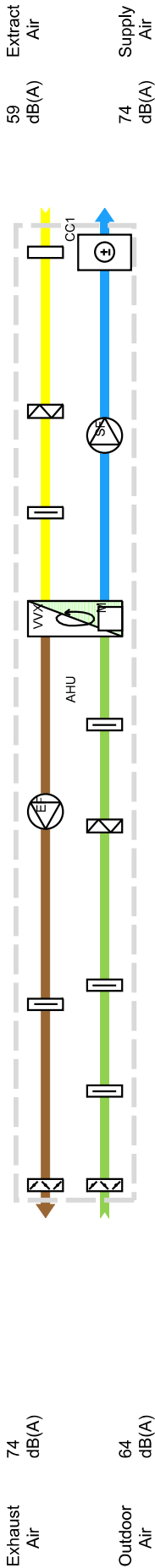


Winter

Temperature after [°C]	-0.6	-0.6	-0.6	-0.6	-0.8	20.0	20.0	20.0	20.0	20.0
Humidity after [%]	98	98	98	98	100	60	60	60	60	60
Pressure drop [pa]	0	1	2	14	111	2	48	2	270	-270
Pressure after function [pa]	-	0	1	3	-433	-322	-321	-273		
					Efficiency 71.6% (Total Pressure)		M5 - ePM10 60% Filter			

Summer

Temperature after [°C]	30.6	30.6	30.6	30.6	30.3	24.0	24.0	24.0	24.0	24.0
Humidity after [%]	27	27	27	27	28	40	40	40	40	40



Winter

Temperature after [°C]	-5.0	-5.0	-5.0	-5.0	-5.0	15.4	15.8	22.0	22.0	22.0
Humidity after [%]	100	100	100	100	100	67	65	44	44	44
Pressure drop [pa]	0	1	2	78	2	114	15	74	320	320
Pressure after function [pa]	-0	-1	-3	-83	-84	-198	394	320	-	-
				F7 - ePM1 60% Filter		81.6/82.4% Wet/dry	Efficiency 70.1% (Total Pressure)			

Summer

Temperature after [°C]	31.5	31.5	31.5	31.5	25.4	25.8	20.0	20.0	20.0	20.0
Humidity after [%]	50	50	50	50	71	70	83	83	83	83
					81.6% wet		30.04 kW			



Commissioning Data

	Supply	Extract	Unit
Pressure drop clean filters	39	24	Pa
Fans absorbed power clean filters	1.65	1.19	kW

Alternative working points

	Dim.											Average
Airflow, Supply, m³/s	2.10											2.10
Airflow, Extract, m³/s	2.05											2.05
External pressure drop, Supply	320											
External pressure, Extract	270											
SFPv, kW/(m³/s)	1.42											1.42
SFPe, kW/(m³/s)	1.51											1.51
Efficiency, Heat exchanger (wet), %	81.6											81.6
Efficiency, Heat exchanger (dry), %	82.4											82.4
Change over coil, Heat capacity, kW	15.8											15.8
Change over coil, Cooling capacity, kW	30.0											30.0
Sound data dB(A)												
Supply air	74											
Outdoor air	64											
Exhaust air	74											
Extract air	59											
Sound break out	57											
Operation hours	8760											
Operational hours yearly	8760											

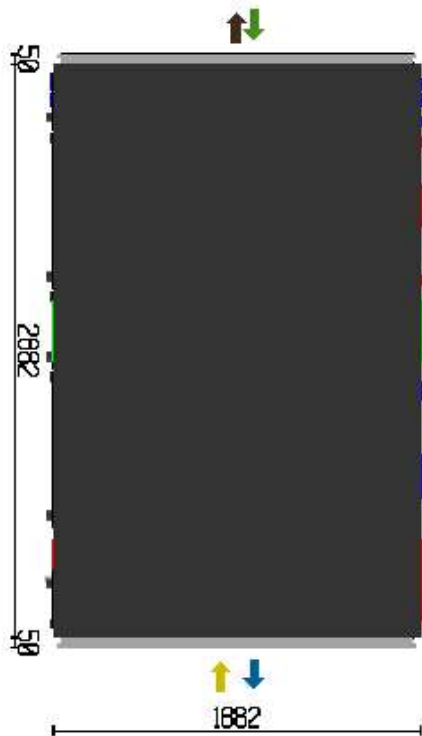
Ecodesign

	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	82	73
Pressure gauge	Approved		
SFP internal in W/(m³/s)	Approved	415	1085
Total check	Approved		

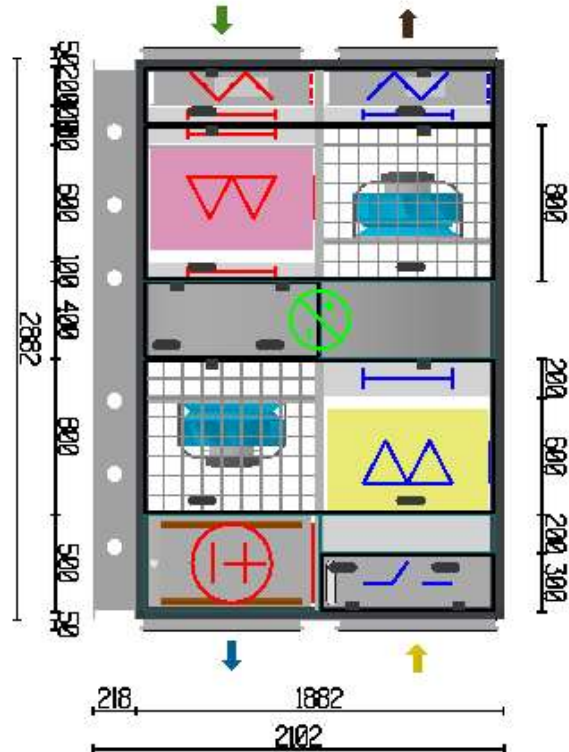
		Supply	Extract	
Manufacturer	Systemair			
Model	Geniox 18			
Typology	NRVU;BVU			
Drive Type		EC Bluefin	EC Bluefin	VSD Ok
Type of Heat Recovery System (HRS)	Rotary heat exchanger			
Thermal efficiency of HRS (dry condition)	82			%
Non Residential unit - flow rate		2.10	2.05	m³/s
Effective electric power input incl. clean filters and variable drive		1.55	1.23	kW
SFP internal in W/(m³/s) 2018	415	222	193	W/(m³/s)
Face velocity		1.41	1.38	m/s
Nominal external pressure		320.00	270.00	Pa
Internal pressure drop of ventilation components		152.40	134.53	Pa
Overall static pressure drop with clean filter		472.40	404.53	Pa
Total fan efficiency by static pressure incl. motor and speed control		68.72	69.78	%
Maximum external leakage rate @ ± 400 Pa	Leakage is less than 9.4 l/s -> Leakage rate is less than 0.4 %			
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.

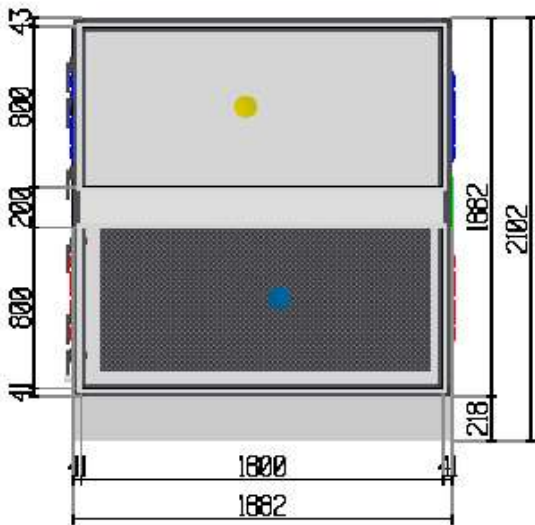
Plan view



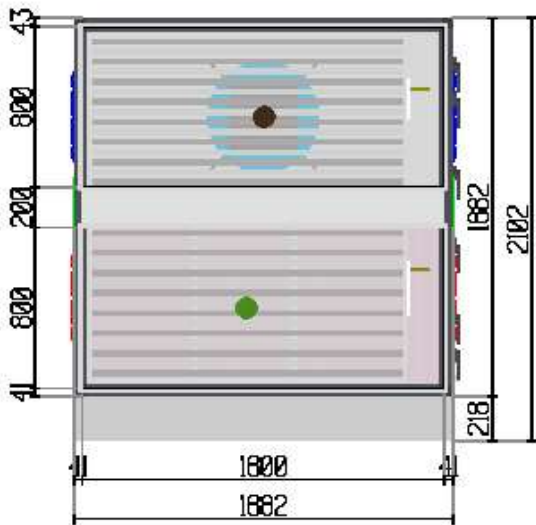
Access side



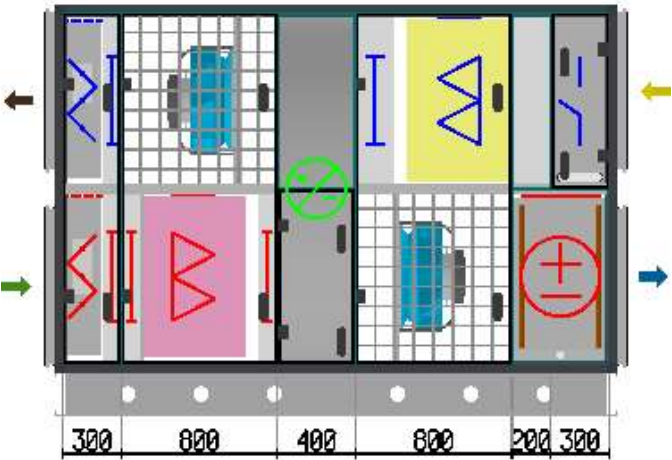
Right end



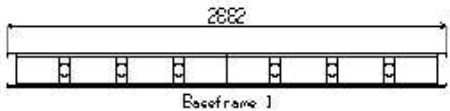
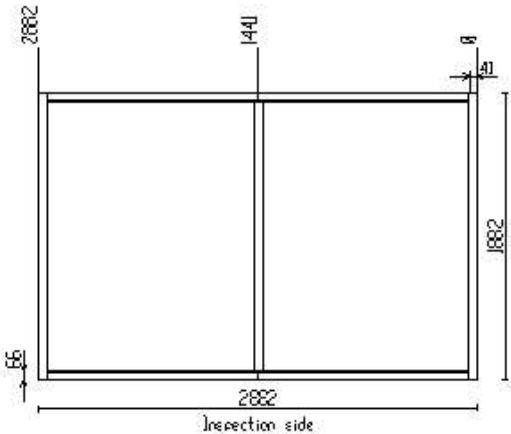
Left end



Doors and panels dimensions



Baseframes



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	82	72	73	69	63	57	48	74
Outdoor air	66	77	65	61	54	47	38	32	64
Exhaust air	74	78	70	72	69	65	61	55	74
Extract air	66	68	62	57	50	42	34	27	59
Sound break out	67	71	50	50	47	41	35	19	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		

* (M) = Classification according to EN1886 Modelbox test

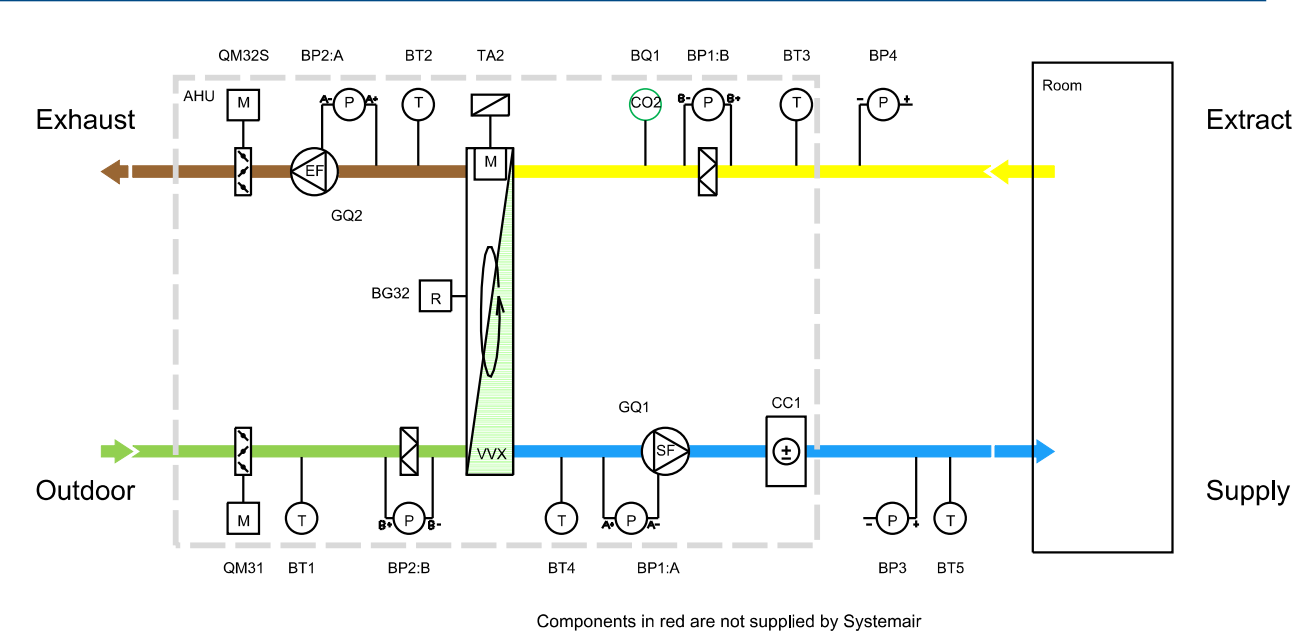
Access control system

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 Access NaviPad control panel (optional) with a graphical user interface. The air handling unit can either run stand-alone or managed from a Building Management System (BMS).

Access 5 have integrated Bluetooth (BLE) and WiFi communication enabling a secure and robust plug-and-play solution. With the user-friendly Access Connect app, available for Android and IOS, it's easy to connect, configure and control the air handling unit using a smartphone or tablet.

Order-specific functions are configured, and all settings are stored as factory settings in the control unit from factory. Component labels inside the air handling unit do not have project specific reference naming

Flow chart



Component list

Project reference	Component reference	Internal components	Type	Delivered options
	BG32	Rotor guard: exchanger		Factory installed and connected
	BP1:A	Pressure transmitter: Supply air Fan (flow)	DPT DUAL-MOD	Factory installed and connected
	BP1:B	Pressure transmitter: Extract air filter	DPT DUAL-MOD	Factory installed and connected
	BP2:A	Pressure transmitter: Extract air Fan (flow)	DPT DUAL-MOD	Factory installed and connected
	BP2:B	Pressure transmitter: Supply air filter	DPT DUAL-MOD	Factory installed and connected
	BQ1	CO2 transmitter: Extrair air	HDK	Factory installed and connected
	BT1	Temperature sensor: Intake air	PT1000	Factory installed and connected
	BT2	Temperature sensor: Exhaust air	PT1000	Factory installed and connected
	BT3	Temperature sensor: Extract air	PT1000	Factory installed and connected
	BT4	Temperature sensor: Efficiency	PT 1000	Factory installed and connected
	GQ1	EC fan: Supply air		Factory installed and connected
	GQ2	EC fan: Extract air		Factory installed and connected
	QM31	Damper actuator: Outdoor (supply) air	SM24A-MOD	Factory installed and connected
	QM32S	Damper actuator: Extract air, spring return	SF24A-MOD	Factory installed and connected

	TA2	Speed controller: Exchanger	NOVA 370	Factory installed and connected
Project reference	Component reference	External components	Type	Delivered options
	BP3	Pressure transmitter: Supply air Duct (pressure)	DPT 2500-R8	Supplied
	BP4	Pressure transmitter: Extract air Duct (pressure)	DPT 2500-R8	Supplied
	BT5	Temperature sensor: Supply air	TG-KH/PT1000	Supplied with cable
	HMI	HMI Control panel	PD70-C	Supplied with cable

Configuration		
Control system	Access control system - dialogue 2.0 HMI display: NaviPad control panel	Cable entry position: Cable entry in bottom User language: English
Temperature control	Type: Extract air cascade	Room temperature sensor: None Outdoor temperature sensor: None
Heat Exchanger	Defrosting exchanger: None	EATR-control: No
Fan control	Type: Duct pressure controlled (VAV)	Air quality - Start high speed: CO2
Fan speed levels	Time schedule program: Normal	
Fan compensation	Curve 1: None	
Extended operation		Normal speed: Digital input normal speed Support control: No
Shut-off damper actuator	Outdoor air: Without spring return	Exhaust air: Spring return
Fire / smoke alarm	Fire alarm (priority 1): External fire alarm Smoke alarm (priority 2): None	Fire damper (priority 1): None

Detailed feature		
Temperature control	Actual control type: Extract air cascade Cooling recovery: Yes	Effeciency presentation: Yes
Fan compensation	Curve 1: None	
Night operation	Free cooling: No	Air quality - Force to outdoor air: Yes
Fire/smoke alarm		Operation mode when fire alarm priority 1: Stopped both fans
Energy insight	Calculation of energy usage: Yes	
Change over coil		
Change over coil	Feedback signal: Alarm	Reduction of min limit supply air if active DX-cooling: 0-10V
Fan setpoint compensation	Type of compensation: None	
Extra indications & outputs	Summery alarm: A/B-alarm (1-DO) Alarm acknowledge: No	Running indication: No External stop: No

Access control unit CU40-C2 WiFi

Physical Inputs/Outputs	40 (10 AI, 12 DI, 4 UI, 6 AO, 8 DO)
-------------------------	-------------------------------------



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Degree of protection	IP20	
Operation temperatures	0...50	°C
Storage temperature	-20...+70	°C
Input voltage	24	V DC
External communication	Modbus RS485, Modbus TCP/IP or BACnet IP, Systemair connect (Cloud service)	

Access Application Tool

PC based tool for managing the Access application. The tool provides a complete range of functions for software upgrade, backup and restore, configuration, automated commissioning record and trend logg. Access Application Tool is available for download at www.systemair.com

Access Connect (App)

Access Connect by Systemair is a mobile app for control of air handling units using Access 5 control system. Download the app on Google Play for Android or Apple App Store for iOS.



Access NaviPad



Panel type	IPS, capacitive	
Resolution	1024x600 (16:9)	
Colors	16.7M	
Screen size (diagonal)	7"	
Degree of protection	IP54, shock resistance 1m drop	
Operation temperatures	0...50	°C
Storage temperature	-20...+70	°C
Input voltage (20 to 48VDC)	24	V DC
Cable length (max total length 100m)	3	m

Control cabinet

Voltage	3x400	VAC
Hz	50	Hz
Switched power supply	24	V DC
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	13.8	A
Max. consumed current in neutral wire	3.0	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.

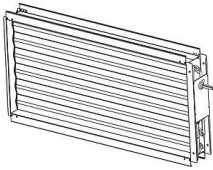
The electrical installation (wiring, mounting of components, connection plugs, etc.) for the unit is done as an machine installation according to 60204-1

Power supply connections

Object	Pre fuse	I max	* Main switch	Rated voltage
Control cabinet	gG/C 16 A	14 A	No	3x400V + N + PE

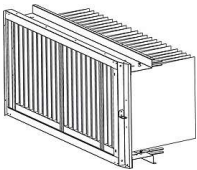
*) Main switch; Yes= loose delivered from Systemair, No= Not supplied from systemair, Mounted = Factory installed and connected

The supply unit consist of

Damper			
	Pressure drop	1	Pa
	Damper blades	Standard	
	Number of dampers	1	pcs
	Number of shafts	1	
	Damper actuator - On/Off	1	pcs
	Damper actuator - Voltages	24	V
	Damper actuator - Torque	10	Nm

Inspection section			
	Pressure drop	2	Pa
	Length	100	mm

Inspection section			
	Pressure drop	2	Pa
	Length	100	mm

Filter			
	Dimensioning pressure drop	78	Pa
	Initial pressure drop/Final pressure drop	39/117	Pa
	Velocity, face area	1.60	m/s
	Velocity, filter area	0.09	m/s
	Filter class	F7 - ePM1 60%	
	Filter size	2x[490x392x25] + 4x[592x392x25]	
	Filter length	520	mm
	Filter description	Camfil Hi-Flo II XLT	

Order no.
Project
Plant no.

0021473463
3391582 - Barton Art Block
MVHR01/Externally Mounted

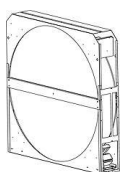
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Inspection section



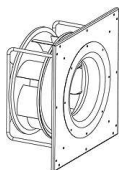
Pressure drop	2	Pa
Length	100	mm

Rotary heat exchanger



	Supply	Extract	
Air flow	2.10	2.05	m³/s
Pressure drop	114	111	Pa
WINTER			
Air temperature before/after	-5.0/15.4	20.0/-0.8	°C
Air relative humidity before/after	100/67	60/100	%
Capacity	82.51		kW
Temperature efficiency	81.6		%
Dry efficiency according to EN 308 at 2.10 m³/s	82.4		%
Humidity efficiency	76.0		%
Energy class for heatrecovery (EN13053)		H1	
SUMMER			
Air temperature before/after	31.5/25.4	24.0/30.3	°C
Air relative humidity before/after	50/71	40/28	%
Capacity	16.00		kW
Temperature efficiency		81.6	%
Humidity efficiency		0.0	%
Heat exchanger type	P - Condensation (Temperature)		
Efficiency (Wave height)	B - High		
Wheel Diameter	Ø1680		
Description	P140_380_2-1680*		
Speed controller: Exchanger	Variable speed		
Electrical data	1x230V, 85W, 0.4Amp		
Purging sector	1		pcs

Fan, Plug



Air flow	2.10	m³/s
External pressure	320	Pa
Pressure drop	15	Pa
Static pressure (Designed at wet conditions)	606	Pa
Total pressure	619	Pa
Fan speed	1303	RPM
Maximum fan speed	1610	RPM
Total efficiency by static pressure, incl. motor and speed control	68.7	%
Total efficiency by total pressure, incl. motor and speed control	70.1	%
K-factor (p=1.2 kg/m³)	355	
Fan type - Medium - Impeller ZAMid	GR56I-ZID.GG.CR	
ErP efficiency n(stat,A)	73.8	%
ErP efficiency class N(actual)/ N(target)	78.7 / 62	
ErP-conformity	Yes	
Direct drive		

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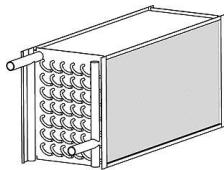
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0021473463
3391582 - Barton Art Block
MVHR01/Externally Mounted

Unit no.: 10
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Motor			
Motor type	EC motor		
Motor types-size	ZID.GG.CR		
Motor protection	Built-in		
Rated power	3.40		kW
Speed (nominal)	1610		RPM
Current, Amp.	5.40		A
Voltage	3x400		V
Consumed power from mains power supply, including speed control	1.85		kW
SFPv, clean filters including speed control	0.83		kW/(m³/s)
Winter: Temperature before / after	15.4 / 15.8		°C
Summer: Temperature before / after	25.4 / 25.8		°C
Winter: Humidity before / after	67 / 65		%
Summer: Humidity before / after	71 / 70		%
Safety screen	1		pcs

Change over coil



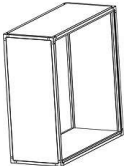
	Heating	Cooling	
Air flow	2.10	2.10	m³/s
Pressure drop air, wet coil	-	56	Pa
Pressure drop air, dry coil	36	36	Pa
Air temperature before/after	15.8/22.0	25.8/20.0	°C
Air relative humidity before/after	65/44	70/83	%
Total capacity	15.84	30.04	kW
Sensible cooling in % of total cooling		49	%
Face velocity		1.73	m/s
Condensate		0.4	l/min
Refrigerant		R410A	
Evaporation temperature	-	6.0	°C
Condensation temperature	30.1	45.0	°C
Internal coil pressure, dim mode	18.9	9.6	Bar(a)
Refrigerant pressure	0.6	6.1	kPa
Refrigerant velocity	0.72	0.12	m/s
Number of external circuits		2	
Coil internal volume / external circuit		5.8	l
Connection side		Service side	
Connection size inlet/outlet		2x22 mm / 2x35 mm	
Tube material		Cu	
Fin material		Al	
Fin thickness		0.10	mm
Fin spacing		2.0	mm
No. of rows		3	
Drip tray material		Stainless steel	
Diameter of pipe from drip tray		40	mm
Coil code	GXHK-18-D65-3-3-23-775-1563-2.0-CU-AL10-H-2x22 mm		
Droplet eliminator	17	17	Pa

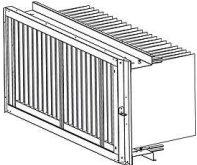
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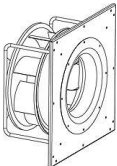
The extract unit consist of

Empty section			
	Pressure drop	2	Pa
	Length	200	mm

Filter			
	Dimensioning pressure drop	48	Pa
	Initial pressure drop/Final pressure drop	24/72	Pa
	Velocity, face area	1.56	m/s
	Velocity, filter area	0.09	m/s
	Filter class	M5 - ePM10 60%	
	Filter size	2x[490x392x25] + 4x[592x392x25]	
	Filter length	520	mm
	Filter description	Camfil Hi-Flo II XLT	

Inspection section			
	Pressure drop	2	Pa
	Length	200	mm

Rotary heat exchanger	
Data are stated on supply.	

Fan, Plug			
	Air flow	2.05	m³/s
	External pressure	270	Pa
	Pressure drop	14	Pa
	Static pressure (Designed at wet conditions)	450	Pa
	Total pressure	462	Pa
	Fan speed	1156	RPM
	Maximum fan speed	1610	RPM
	Total efficiency by static pressure, incl. motor and speed control	69.8	%
	Total efficiency by total pressure, incl. motor and speed control	71.6	%
	K-factor (p=1.2 kg/m³)	355	
	Fan type - Medium - Impeller ZAmid	GR56I-ZID.GG.CR	
	ErP efficiency n(stat,A)	73.8	%
	ErP efficiency class N(actual)/ N(target)	78.7 / 62	
	ErP-conformity	Yes	

Direct drive

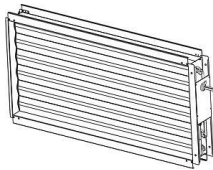
Motor		
Motor type	EC motor	
Motor types-size	ZID.GG.CR	
Motor protection	Built-in	
Rated power	3.40	kW
Speed (nominal)	1610	RPM
Current, Amp.	5.40	A
Voltage	3x400	V
Consumed power from mains power supply, including speed control	1.32	kW
SFPv, clean filters including speed control	0.61	kW/(m³/s)
Winter: Temperature before / after	-0.8 / -0.6	°C
Summer: Temperature before / after	30.3 / 30.6	°C
Winter: Humidity before / after	100 / 98	%
Summer: Humidity before / after	28 / 27	%
Safety screen	1	pcs

Inspection section



Pressure drop	2	Pa
Length	100	mm

Damper



Pressure drop	1	Pa
Damper blades	Standard	
Number of dampers	1	pcs
Number of shafts	1	
Damper actuator - Spring return	1	pcs
Damper actuator - Voltages	24	V
Damper actuator - Torque	10	Nm

Other parts

Feet or baseframe

Feet or baseframe	Baseframe	
Baseframe height	218	mm
Corrosion protection	Painted	

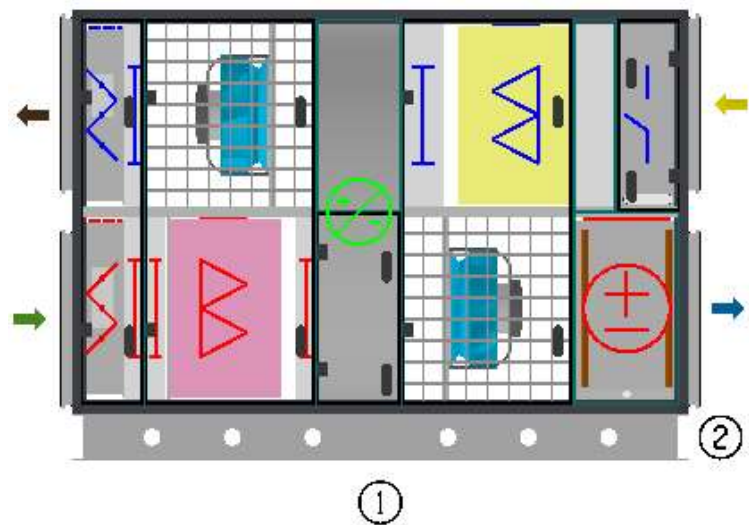
Rigid duct connection, 20 mm

Product	Dimensions (width x height)	
Outdoor	1800x800 mm	
Supply	1800x800 mm	
Extract	1800x800 mm	
Exhaust	1800x800 mm	

Section about shipping

Unit sections	Dimensions (width x height x length), incl. packaging	Weight, Inc. Packaging	Weight of unit
Section 1	1982 x 2220 x 3082 mm	1365 kg	1326 kg
The unit sections are delivered mounted on base frame.			

Weights



Section No	Section Code	Function Code	Weight of function kg	Weight of section kg
1	Casing Length 2882 mm			1109
		Casing	560	
		Damper	29	
		Inspection section	0.1	
		Inspection section	0.1	
		Filter	24	
		Inspection section	0.1	
		Rotary heat exchanger	185	
		Fan	76	
		Cooling coil	86	
		Control system	19	
		Empty section	0.1	
		Filter	25	
		Inspection section	0.1	
		Fan	76	
		Inspection section	0.1	
		Damper	29	
2	Baseframe Length 2882 mm			129
	Other components			87

	Weight of unit	1326
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Summary of notes for printout to customers

Note

The supply unit consist of

- Damper
- Inspection section
- Inspection section
- Filter
- Inspection section
- Rotary heat exchanger
- Fan, Plug
- Change over coil

The extract unit consist of

- Control system
- Empty section
- Filter
- Inspection section
- Rotary heat exchanger
- Fan, Plug
- Inspection section
- Damper

Summary of notes for print-out to production

Note

The supply unit consist of

- Damper
- Inspection section
- Inspection section
- Filter
- Inspection section
- Rotary heat exchanger
- Fan, Plug
- Change over coil

The extract unit consist of

- Control system
- Empty section
- Filter
- Inspection section
- Rotary heat exchanger
- Fan, Plug
- Inspection section
- Damper

IX diagram

