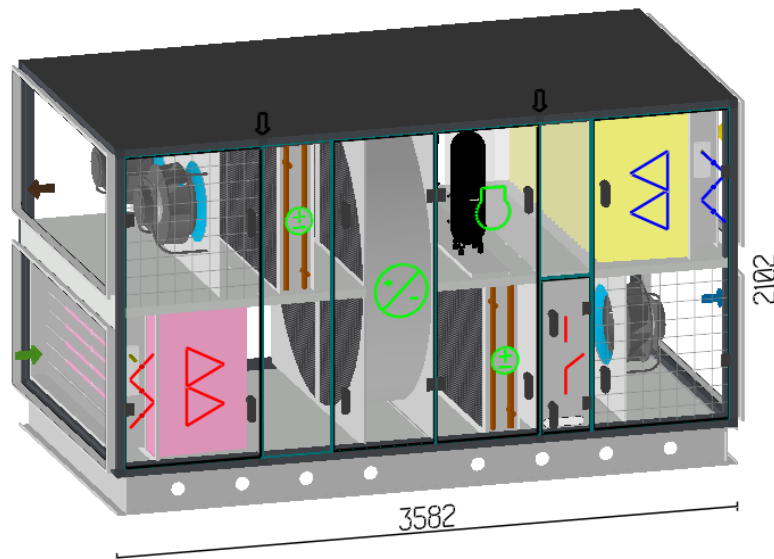
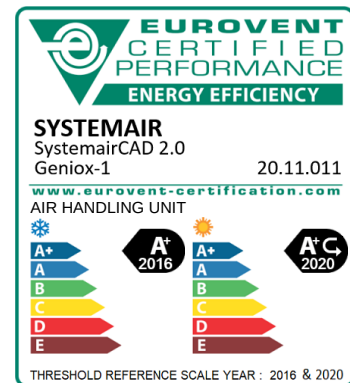


Description: Geniox 18 - Roof (Polyvinyl chloride roof)
Unit width / Weight: 1882 mm / 1876 kg
Delivery: 1 sections; Mounted on 218 mm base frame



Air/fan data	Supply air	Extract air	
Airflow (1.205 kg/m³); Face velocity	1.70 m³/s ; 1.14 m/s	1.70 m³/s ; 1.14 m/s	
External pressure	300 Pa	300 Pa	
Fans; Voltage; Rated current; RPM	(2 x 1.70) 3.40 kW; 3x400 V; (2 x 2.80) 5.60 A; 1378 RPM	(2 x 1.70) 3.40 kW; 3x400 V; (2 x 2.80) 5.60 A; 1432 RPM	
Unit color; Hygienic; Control system	ZincMagnesium; Standard; With control system		
Power supply	L1 + L2 + L3 + N + PE (3x400V) 50 Hz		
Consumed current	46.6 A		
Supply air, Winter ; Summer	20.0°C / RH 32% ; 18.0°C / RH 93%		
Reversible heat pump Winter / Summer	1.9 (7) kW ; COP 4 / 3.9 (19) kW ; EER 4.9; Refrigerant R410A		
Filter Supply / Extract	F7 - ePM1 60% / F9 - ePM1 90%		
Sound break out; Supply air	61 dB(A); 77 dB(A)		
Energy	Dimensioning	Average	Fans [kWh/year 3523 hours]
Heat Recovery (Wet / Dry)	82.1 % / 82.1 %	82.1 % / 82.1 %	
SFPv *)	1.58 kW/(m³/s)	1.58 kW/(m³/s)	9462 kWh

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

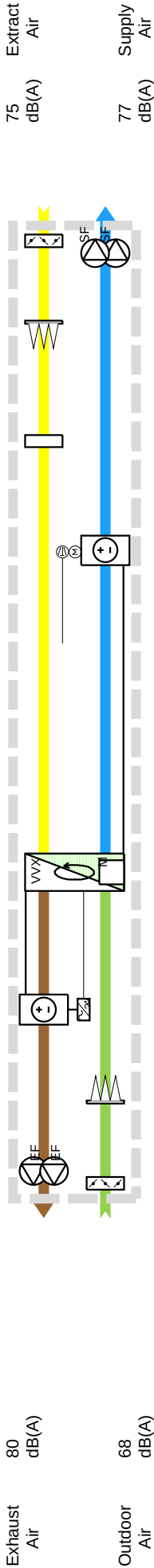


Winter

Temperature after [°C]	-1.6	-1.6	-2.0	-0.3	21.0	21.0	21.0	21.0	21.0
Humidity after [%]	97	97	100	100	40	40	40	40	40
Pressure drop [pa]	0	6	39	75	1	98	1	300	300
Pressure after function [pa]	-	-0	-526	-476	-400	-399	-301	-300	-300
		Efficiency 59.2% (Total Pressure)				F9 - ePM1 90% Filter			

Summer

Temperature after [°C]	39.9	39.9	39.6	28.6	22.0	22.0	22.0	22.0	22.0
Humidity after [%]	14	14	15	27	40	40	40	40	40



Winter

Temperature after [°C]	-5.0	-5.0	-5.0	16.3	19.6	20.0	20.0	20.0	20.0
Humidity after [%]	100	100	100	40	33	32	32	32	32
Pressure drop [pa]	0	1	78	75	28	6	300	300	300
Pressure after function [pa]	-0	-1	-79	-154	-400	300	300	300	300
			F7 - ePM1 60% Filter	82.1/82.1% Wet/dry		Efficiency 60.2% (Total Pressure)			

Summer

Temperature after [°C]	30.0	30.0	30.0	23.4	17.6	18.0	18.0	18.0	18.0
Humidity after [%]	50	50	50	74	95	93	93	93	93
				82.1% wet					



Commissioning Data

	Supply	Extract	Unit
Pressure drop clean filters	39	49	Pa
Fans absorbed power clean filters	1.22	1.33	kW

Alternative working points

	Duty	Min...									Average
Airflow, Supply, m³/s	1.70	1.10									1.70
Airflow, Extract, m³/s	1.70	1.10									1.70
External pressure drop, Supply	300	126									
External pressure, Extract	300	126									
SFPv, kW/(m³/s)	1.58	0.84									1.58
SFPe, kW/(m³/s)	1.73	0.93									1.73
Efficiency, Heat exchanger (wet), %	82.1	81.8									82.1
Efficiency, Heat exchanger (dry), %	82.1	81.8									82.1
Reversible heat pump, Absorbed power, Winter, kW	1.9	1.7									1.9
Reversible heat pump, Absorbed power, Summer, kW	3.9	3.0									3.9
Sound data dB(A)											
Supply air	77	67									
Outdoor air	68	57									
Exhaust air	80	75									
Extract air	75	74									
Sound break out	61	54									
Operation hours	3523	0									
Operational hours yearly	3523										

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	79	86	76	74	72	67	60	55	77
Outdoor air	74	82	67	64	55	49	39	29	68
Exhaust air	80	87	78	76	75	71	68	58	80
Extract air	76	83	69	71	69	67	67	55	75
Sound break out	73	75	55	51	51	47	43	26	61

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	Polyvinyl chloride roof		

Control system

Language in controller menu	English
NaviPad navigation tablet delivered	Yes
External communication	BACnet, IP
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
Fire guards	Preconfigured for ext.fire signal
For selection of sensors - study flow chart in control system printout	

Mains power supply for control system

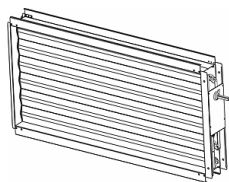
Supply cable	L1 + L2 + L3 + N + PE	
Voltage	3x400	VAC
Hz	50	Hz
Switched power supply	24	V DC
Main switch (Not supplied by Systemair)		
Cable entry position	Cable entry in bottom	
Cable gland for main supply cable	M40	
Fuse for supply air fan (in main cabinet)	10	A
Fuse for extract air fan (in main cabint)	10	A
Fuse for heat pump (in cabinet for heat pump)	40	A
Rated fuse PSCC max (in main cabinet)	6	kA
Max. consumed current	46.6	A
Max. consumed current in neutral wire	5.0	A
Minimum fuses for unit (L1-L2-L3)	50	A
Minimum fuses for unit (L1-L2-L3-N)	50	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

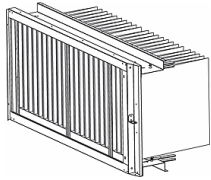
The supply unit consist of

Damper



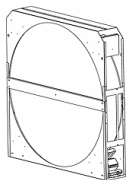
Pressure drop	1	Pa
Damper blades	Standard	
Number of dampers	1	pcs

Filter



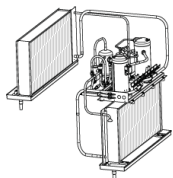
Dimensioning pressure drop	78	Pa
Initial pressure drop/Final pressure drop	39/117	Pa
Velocity, face area	1.60	m/s
Velocity, filter area	0.08	m/s
Filter class	F7 - ePM1 60%	
Filter size	2x[490x392x25] + 4x[592x392x25]	
Filter length	520	mm
Filter description	Camfil Hi-Flo II XLT	

Rotary heat exchanger



	Supply	Extract	
Air flow	1.70	1.70	m³/s
Pressure drop	75	75	Pa
WINTER			
Air temperature before/after	-5.0/16.3	21.0/-0.3	°C
Air relative humidity before/after	100/40	40/100	%
Capacity	55.38		kW
Temperature efficiency	82.1		%
Dry efficiency according to EN 308 at 1.70 m³/s	82.1		%
Humidity efficiency	57.9		%
Energy class for heatrecovery (EN13053)	H1		
SUMMER			
Air temperature before/after	30.0/23.4	22.0/28.6	°C
Air relative humidity before/after	50/74	40/27	%
Capacity	13.90		kW
Temperature efficiency		82.1	%
Humidity efficiency		0.0	%
Heat exchanger type	P - Condensation (Temperature)		
Efficiency (Wave height)	C - Medium		
Wheel Diameter	Ø1680		
Description	P160_430_2-1680*		
Speed controller: Exchanger	Variable speed		
Electrical data	1x230V, 85W, 0.4Amp		
Water trap	1		pcs
Purging sector	1		pcs

Reversible heat pump



	Supply	Extract	
Air flow	1.70	1.70	m³/s
Pressure drop	28	39	Pa
Droplet eliminator		11	Pa
Face velocity for the coil	1.4	1.4	m/s
WINTER			
Air temperature before/after *	16.3/19.6	-0.3/-2.0	°C
Air relative humidity before/after	40.1/32.5	99.9/99.9	%
Capacity *	6.9	5.8	kW
Refrigerant temperature	22.6	-4.8	°C
Condensate		0.1	l/min

Used capacity at working conditions	15.5		%
Absorbed power, at operating point	1.9		kW
COP, compressor system *	3.6		
COP total, compressor system + rotary heat exchanger *	31.2		

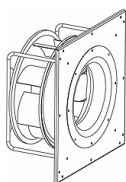
* Energy for the defrosting is not considered in the winter calculation. The heat pumps cannot run continuously with refrigerant temperatures below -2°C without defrosting. The defrosting will cause temperature drop in the supply air for a short period.

SUMMER			
Air temperature before/after	23.4/17.6	28.6/39.6	°C
Air relative humidity before/after	73.7/95.0	27.0/14.7	%
Capacity	19.0	22.9	kW
Refrigerant temperature	14.4	42.7	°C
Sensible cooling in % of total cooling	67		%
Condensate	0.2		l/min
Used capacity at working conditions	28.6		%
Absorbed power, at operating point	3.9		kW
EER, compressor system	4.9		
EER total, compressor system + rotary heat exchanger	8.3		

Tube material	Cu	Cu	
Fin material	Al	Al	
Fin spacing	2.5	2.5	mm
Code for supply air coil	TDZ-18-CD-Z-5-15-775-1558-2.5-Cu-Al-H-1 1/8		
Code for extract air coil	TCZ-18-CD-Z-6-10-775-1558-2.5-Cu-Al-V-1 1/8		
Drip tray material	Stainless steel	Stainless steel	
Diameter of pipe from drip tray	40	40	mm
Refrigerant / Amount	R410A	11.8	kg
Compressor	ZPD91+ZP91		

External connections			
Current (is included in the main cabinet)	3*400V+N+PE, 50Hz	32.4	A
Start signal (Heating) / Cooling demand	Potential free contact set		
Control signal		0 - 10	V,DC
Potential-free alarm signal		1	pcs
Water trap		1	pcs

Fan, Plug



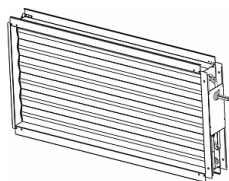
Air flow	1.70	m³/s
External pressure	300	Pa
Pressure drop	6	Pa
Static pressure (Designed at wet conditions)	489	Pa
Total pressure	494	Pa
Fan speed	1378	RPM
Maximum fan speed	1800	RPM
Total efficiency by static pressure, incl. motor and speed control	59.6	%
Total efficiency by total pressure, incl. motor and speed control	60.2	%
K-factor (p=1.2 kg/m³)	(2 x 220) 440	
Fan type - 2xLarge	GR45I-ZID.DC.CR	
ErP efficiency n(stat,A)	74.3	%
ErP efficiency class N(actual)/ N(target)	82.4 / 62	
ErP-conformity	Yes	
Direct drive		

Motor

Motor types	EC motor	
Motor types-size	ZID.DC.CR	
Motor protection	Built-in	
Total power	(2 x 1.70 kW) 3.40	kW
Speed (nominal)	1800	RPM
Total current, Amp.	(2 x 2.80 A) 5.60	A
Voltage	3x400	V
Consumed power from mains power supply, including speed control	1.39	kW
SFPV, clean filters including speed control	0.76	kW/(m³/s)
Winter: Temperature before / after	19.6 / 20.0	°C
Summer: Temperature before / after	17.6 / 18.0	°C
Winter: Humidity before / after	33 / 32	%
Summer: Humidity before / after	95 / 93	%
Safety screen	1	pcs

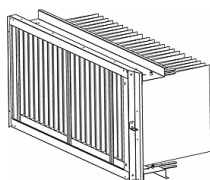
The extract unit consist of

Damper



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

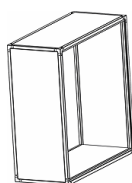
Filter



Dimensioning pressure drop	98	Pa
Initial pressure drop/Final pressure drop	49/147	Pa
Velocity, face area	1.60	m/s
Velocity, filter area	0.09	m/s
Filter class	F9 - ePM1 90%	
Filter size	2x[490x392x25] + 4x[592x392x25]	
Filter length	400	mm
Filter description	Deltrian DELTRI+	

Filters are not installed and ready for operation. Filters are placed in the filter section wrapped in plastic to secure lifespan.

Empty section



Pressure drop	1	Pa
Length	300	mm

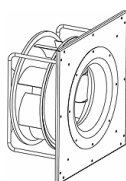
Reversible heat pump

Data are stated on supply.

Rotary heat exchanger

Data are stated on supply.

Fan, Plug



Air flow	1.70	m³/s
External pressure	300	Pa
Pressure drop	6	Pa
Static pressure (Designed at wet conditions)	532	Pa
Total pressure	537	Pa
Fan speed	1432	RPM
Maximum fan speed	1800	RPM
Total efficiency by static pressure, incl. motor and speed control	58.6	%
Total efficiency by total pressure, incl. motor and speed control	59.2	%
K-factor (p=1.2 kg/m³)	(2 x 220) 440	
Fan type - 2xLarge	GR45I-ZID.DC.CR	
ErP efficiency n(stat,A)	74.3	%
ErP efficiency class N(actual)/ N(target)	82.4 / 62	
ErP-conformity	Yes	
Direct drive		

Motor

Motor types	EC motor	
Motor types-size	ZID.DC.CR	
Motor protection	Built-in	
Total power	(2 x 1.70 kW) 3.40	kW
Speed (nominal)	1800	RPM
Total current, Amp.	(2 x 2.80 A) 5.60	A
Voltage	3x400	V
Consumed power from mains power supply, including speed control	1.54	kW
SFPv, clean filters including speed control	0.82	kW/(m³/s)
Winter: Temperature before / after	-2.0 / -1.6	°C
Summer: Temperature before / after	39.6 / 39.9	°C
Winter: Humidity before / after	100 / 97	%
Summer: Humidity before / after	15 / 14	%
Safety screen	1	pcs

Other parts

Feet or baseframe

Feet or baseframe	Baseframe	
Baseframe height	218	mm
Corrosion protection	Painted	

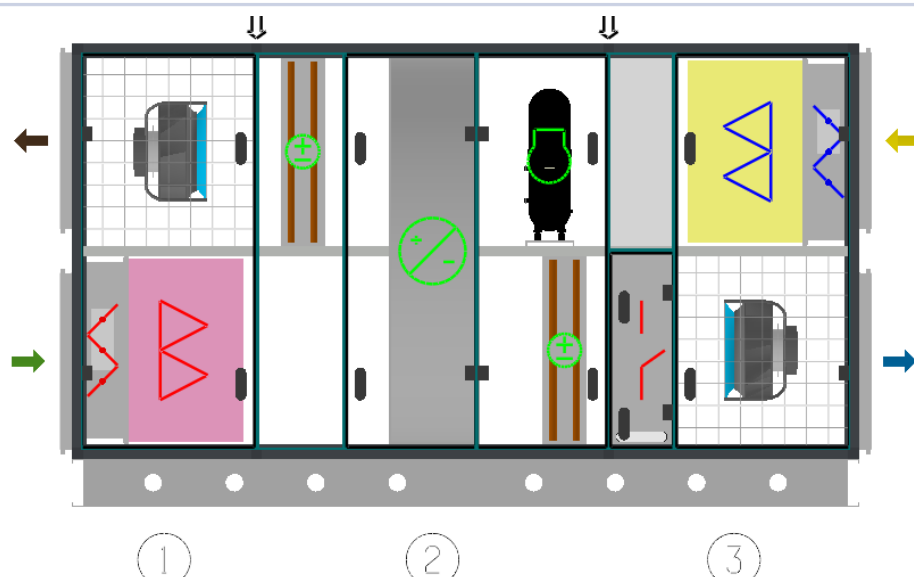
Rigid duct connection, 20 mm

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

Section about shipping

Product	Dimensions (width x height x length), incl. packaging	Weight, Inc. Packaging	Weight of unit
AHU1-3782	1982 x 2220 x 3782 mm	1879 kg	1875 kg
The unit sections are delivered mounted on base frame.			

Weights



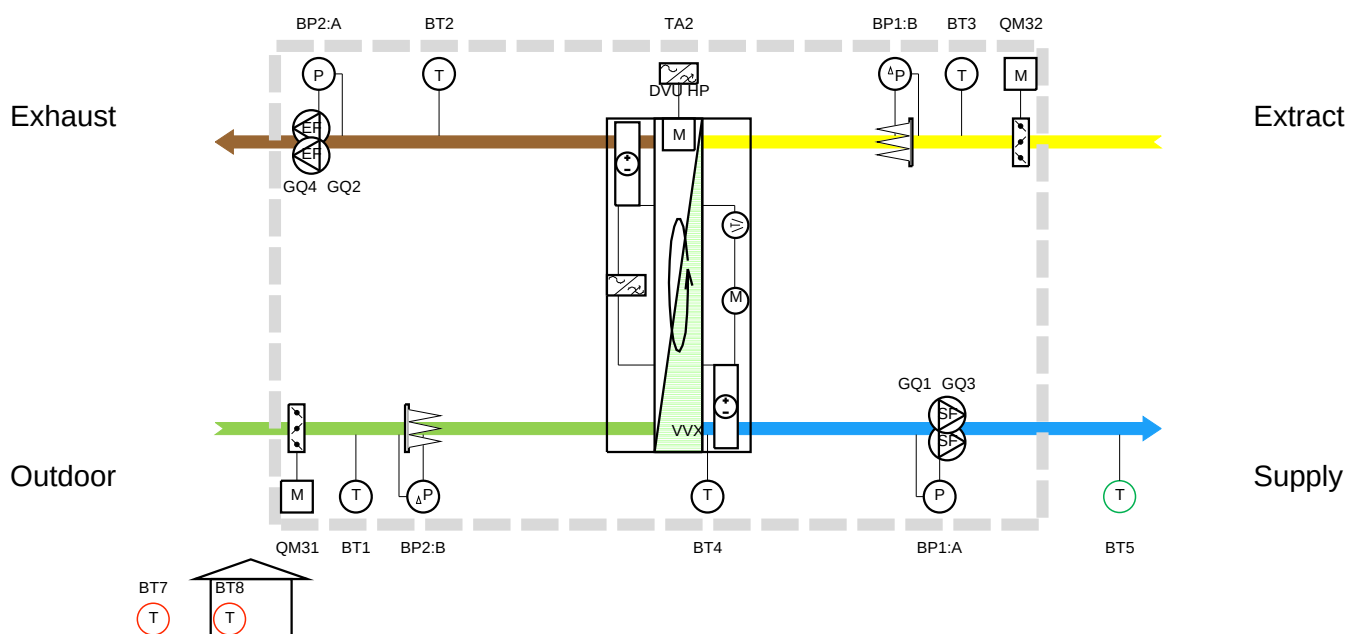
Section No	Section Code	Function Code	Weight of function kg	Weight of section kg
1	Casing Length 841 mm			306
		Casing	171	
		Damper	29	
		Filter	28	
		Fan	78	
2	Casing Length 1600 mm			979
		Casing	20	
		Rotary heat exchanger	192	
		Integrated cooling	767	
3	Casing Length 1141 mm			388
		Casing	233	
		Control system	19	
		Fan	78	
		Damper	29	
		Filter	29	
		Empty section	0.1	
4	Baseframe Length 3582 mm			142
	Other components			61
	Weight of unit			1876

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



Components in red are not supplied by Systemair

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
Control input: Fire alarm Priority 1			11 : 5	T25	DI8
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	
EC fan: Supply air 2	GQ3	W603	29 : 5	Link 1	BUS Adr. 3
		W103	23 : 3	F1: L1-L2-L3	
Reversible heat pump	DVU HP	W529	19 : 8		
		W528	10 : 5	T29	DI4
			15 : 4	T62	DO2
			10 : 8	T28	DI5
			16 : 4	T66	DO6
			17 : 5	T72	AO2
Temperature sensor: Efficiency	BT4	W343	29 : 1	BP1	DPT BP1: In2
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	
EC fan: Extract air 2	GQ4	W604	30 : 5	Link 2	BUS Adr. 4
		W104	24 : 3	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 BACnet, IP

The controller has been prepared for BACnet via TCP/IP (LAN).

This can be used for communication with a BMS system (Building Management System).

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.

Geniox HP compressor system with cooling recovery, cooling and heating function

The complete compressor system is in a separate section with rotary heat exchanger, coils and the system for the control of safety functions as well as the capacity. The system is able to provide cooling or heating of the supply air.

The main controller in the cabinet for the air handling unit delivers a start/stop signal and 0-10V DC signal for control of the capacity between 5 % and 100 %. The separate controller in this section converts the signal to the capacity required.

To promote maximum reliability, the system has an automatic capacity reduction system for reduction of the risk of cut off due to overheating. The system is provided with refrigerant and tested for easy start up on the site.

The power supply for the compressor system is delivered from the main cabinet for the air handling unit.

The main controller in the cabinet for the air handling unit is able to control the cooling recovery by the rotary heat exchanger with the advantage that the outdoor air is pre-cooled by the rotary heat exchanger, when the extract air temperature is lower than the outdoor air temperature. Due to the reduced outdoor air temperature before the cooling coil, the electricity consumption of the compressor system is reduced. The condenser is in the extract airflow after the rotary heat exchanger.

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.

Prepared for external fire signal

The unit is prepared for external fire signal. When the unit receives a fire signal the unit shuts down, default. Many other operation modes can be selected from the control panel. When the unit has been shut down by a fire signal, the unit has to be restarted on the control panel. There are 2 terminals for external fire signal in the cabinet.