

## Technical Specification

Project name :	Airovision Builder version: E1.13 (12-4-2022)(R086)/A
Quotation no. : 6.3 AHU Technical Guide / 023	Eurovent identification number: 08.02.251

### GENERAL DATA

Customer reference	6.3.1 35000 RHW 19.10
Number off	1
Location	External (flat roof)
Delivery	In sections
AHU finish	Outside in standard colour (RAL 7035)
Product	Air handling unit
AHU configuration	Double deck (opposite)
Pallet option	Excluded
Lifting Beam	Included
Total weight (each)	kg 4468
(Radiated casework SWL)	dB(A) 69
ErP identification code	NRVU / BVU

### Eurovent energy classification



SFPe	kJ/m <sup>3</sup>	2.59	SFPv	kJ/m <sup>3</sup>	2.44
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Calculations conform to the Regulation for bidirectional ventilation unit (BVU) for delivery after 01.01.2018  
Remarks are needed to be solved to comply with the Regulation.

### Ecodesign 1253/2014 2018 BVU after 01.01.2018

#### Intermediate calculations

E (HR Bonus) (Pa)	24
F (Filter correction) (Pa)	0
SFP int_limit (W/(m <sup>3</sup> /s))	824.0
SFP int_supply air (W/(m <sup>3</sup> /s))	387.2
SFP int_extract air (W/(m <sup>3</sup> /s))	299.2
SFP int (W/(m <sup>3</sup> /s))	686.4

#### Supply air unit data

Airflow (m <sup>3</sup> /s)	9.72
Static pressure (Pa)	974
p fan (kW)	14.52
n fan (%)	65.2
Fine Filter	Yes
dp Fine filter (Pa)	78
nt nrvu (%)	74
dp HRS (Pa)	174

#### Extract air unit data

Airflow (m <sup>3</sup> /s)	9.72
Static pressure (Pa)	718
p fan (kW)	10.63
n fan (%)	65.7
Medium Filter	Yes
dp Medium filter (Pa)	22
nt nrvu (%)	74
dp HRS (Pa)	174

#### Check

Fan is selected with VSD	Passed
Heat recovery	Passed
Thermal by-pass facility	Warning
SFP int	Passed
Filters equipped with pressure gauge	Passed

#### Total check

##### Passed

Remark  
To comply with Regulation EU No 1253 you need to equip the heat wheel with a rotor controller.

### ACCESS DATA

Handle type	L-Handle	Pressure guard at positive pressure doors	Included
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**EXHAUST DATA**

Type	39HQ 19.10	Air volume	m³/s	9.72
Casing construction	GP080 60 mm	Internal sheet		Galvanised 0.80mm
Insulation	Glasswool 23 kg/m³	External sheet		PUR-PA painted galvanized steel 0.80mm
Unit velocity	m/s 2.08	Profile		Steel
SFPe	kJ/m³ 1.09	SFPv	kJ/m³	1.02

Mechanical performance according EN1886	Model box	D1	L1 (-400Pa)	L1 (+400Pa)	L1 (+700Pa)	F9	T2	TB2	
	Real Unit		L2 (-400Pa)	L2 (+400Pa)	L2 (+700Pa)				

(Sound data exhaust SWL)	Hz	125	250	500	1k	2k	4k	8k	dB(A)
	dB	59	66	66	72	72	77	63	80
	dB	59	66	71	75	73	75	61	80

**SUPPLY DATA**

Glasswool 23 kg/m³ Type	39HQ 19.10	Air volume	m³/s	9.72
Casing construction	GP080 60 mm	Internal sheet		Galvanised 0.80mm
Design outdoor temperature	°C 9.0	External sheet		PUR-PA painted galvanized steel 0.80mm
Design outdoor temperature (summer)	°C 37.5	Insulation		Glasswool 23 kg/m³
Design outdoor dew point (summer)	°C 16.8	Profile		Steel
Unit velocity	m/s 2.08			
SFPe	kJ/m³ 1.49	SFPv	kJ/m³	1.42

Mechanical performance according EN1886	Model box	D1	L1 (-400Pa)	L1 (+400Pa)	L1 (+700Pa)	F9	T2	TB2	
	Real Unit		L2 (-400Pa)	L2 (+400Pa)	L2 (+700Pa)				

(Sound data supply SWL)	Hz	125	250	500	1k	2k	4k	8k	dB(A)
	dB	52	65	66	60	57	46	42	66
	dB	59	72	80	86	85	83	78	90

In direction of airflow, the unit comprises:

**DELIVERY SECTION(S)**

Section	Width (mm)	Height (mm)	Length (mm)	Baseframe (mm)	Weight (kg)	Weight (Lifting Beam) (kg)
1	3138	1698	578	62	205	
2	3138	1698	898	62	619	
3	3138	1698	738	62	231	
4	3138	1698	738	62	350	
5	3138	1649	738	-	-	
	3138	1871	738	62	1043	
6	3138	1698	1698	62	980	23
7	3138	1698	1058	62	306	
8	3138	1698	898	62	729	

**EXHAUST COMPONENTS**

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<b>INLET</b>					
Opening Position		Full face		Provided with:	
Number of openings		1		Opening product	Duct spigot
Opening, width x height	mm	3040 x 1600			
Pressure drop	Pa	2			

<b>FILTER</b>					
Filter type		Panel (Synthetic)		Withdrawal method	Side
Test method		EN 779 / ISO 16890		Filter frame material	Galvanised
EN 779 Class		M5		Filter casing material	Galvanised
Eurovent Efficiency Class		NA			
ISO 16890 Class		ISO ePM10 50			
Design pressure drop		Mean pd			
Initial pressure drop	Pa	69			
Mean pressure drop	Pa	119			
Final pressure drop	Pa	169			
Filter length	mm	48			

<b>Filters</b>					
592x592	Qty	10		592x287	Qty 5

**EXTRAS**  
1 x Pressure gauge wall mounted, Magnehelic 2000

<b>INLET PLENUM</b>					
Air pressure drop	Pa	0			

<b>FAN</b>					
Fan type		K3G500PA2375			
Fan arrangement		Fan Wall - 1x4			
Air volume	m <sup>3</sup> /s	4 x 2.43			
External static pressure	Pa	392			
Internal static pressure	Pa	320			
Static pressure ISP+ESP	Pa	712			
System effect	Pa	6			
Extra static pressure	Pa	0			
Total static pressure	Pa	718			
Dynamic pressure	Pa	48			
Total pressure	Pa	767			
Fan speed	rpm	1729			
Max fan speed	rpm	1910			
Efficiency (total)	%	69			
Fan shaft power	kW	2.66			
			Installed motor power	kW	3.45
			Motor		Run
			Motor efficiency class		IE4
			Motor nominal speed	rpm	1910
			Voltage	V	380-480
			Current	A	5.3
			Abs. motor power incl. F.I.	kW	2.66
			Control Signal (0-10V)	V	7.89
			Fan bulkhead material		Galvanised

(Fan sound data SWL)	Hz	63	125	250	500	1k	2k	4k	8k
Total	Inlet dB	39	60	67	67	73	73	79	65
	Outlet dB	42	61	68	74	79	78	81	69

**FAN EXTRAS**  
Inlet cone measuring points

<b>ACCESS</b>					
Access type		Door		Access side	Left

**EXTRAS**  
2 x Measuring nipple, 6mm

4 x Fanwall terminal box

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HEAT WHEEL					
Rotor situation		Build-in			
Winter conditions					
Exhaust air on	°C/%RH	22.0 / 40	Exhaust pressure drop	Pa	174
Exhaust air off	°C/%RH	7.7 / 95			
Summer conditions					
Exhaust air on	°C/%RH	27.0 / 50	Exhaust pressure drop	Pa	174
Exhaust air off	°C/%RH	34.4 / 33			

### SUPPLY COMPONENTS

DOUBLE MIXING BOX					
Opening Position		Full face	Provided with:		
Number of exhaust openings		1	Opening product		None
Exhaust opening, w x h	mm	3040 x 1600	Damper		External, Opposed blades, Aluminium
Pressure drop	Pa	3	Number of Dampers		1
Actuator type		External	Damper Code		DMP2938x1498-200-162-9-D1Y2-0
Actuator Side		Left			
Access side		None	Number of Drive shafts (Total) x Torque for one shaft	Nm	1 x 15
Opening Position		Top	Provided with:		
Number of Recirc openings		1	Opening product		None
Recirc opening, w x h	mm	3040 x 640	Damper		Internal, Opposed blades, Aluminium
Pressure drop	Pa	34	Number of Dampers		1
Actuator type		External	Damper Code		DMP2778x0478-110-162-3-D1Y2-0
Actuator Side		Left			
Access side		None	Number of Drive shafts (Total) x Torque for one shaft	Nm	1 x 7
Opening Position		Full face	Provided with:		
Number of openings		1	Opening product		None
Fresh air opening, w x h	mm	3040 x 1600	Damper		External, Opposed blades, Aluminium
Pressure drop	Pa	3	Number of Dampers		1
Actuator type		External	Damper Code		DMP2938x1498-200-162-9-D1Y2-0
Actuator Side		Left			
Access side		None	Number of Drive shafts (Total) x Torque for one shaft	Nm	1 x 15
Mixing ratio, winter (recirculation air/supply air) in %	%	0			
EXTRAS (SUPPLY)					
1 x Coupling rod for dampers					

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FILTER					
Filter type		Panel (Synthetic)	Withdrawal method		Side
Test method		EN 779 / ISO 16890	Filter frame material		Galvanised
EN 779 Class		G4	Filter casing material		Galvanised
Eurovent Efficiency Class		NA			
ISO 16890 Class		ISO Coarse 60			
Design pressure drop		Mean pd			
Initial pressure drop	Pa	63			
Mean pressure drop	Pa	88			
Final pressure drop	Pa	113			
Filter length	mm	48			
Filters					
592x592	Qty	10	592x287	Qty	5

### EXTRAS

1 x Pressure gauge wall mounted, Magnehelic 2000

EMPTY SECTION					
Pressure drop	Pa	0			

HEAT WHEEL					
Rotor Model RRS-P-E18 2915/2995-2755					
Rotor type		Condensation	Rotor frame material		Galvanised
Rotor material		Aluminium	Rotor purging sector		Excluded
Rotor situation		Build-in	Delivery requirement		Supply/Exhaust Split Half Moon
Component mountings		Galvanised	Rotor Motor Type		Gear Motor-Ready to connect Micromax
Winter conditions					
Supply air on	°C/%RH	2.5 / 62	Supply pressure drop	Pa	174
Supply air off	°C/%RH	16.9 / 27	Supply latent efficiency	%	10
Supply dry efficiency	%	74	Supply latent effectiveness	%	10
Supply dry effectiveness	%	74			
Total duty	kW	180.46			
Summer conditions					
Supply air on	°C/%RH	37.5 / 30	Supply pressure drop	Pa	174
Supply air off	°C/%RH	30.1 / 45	Supply latent efficiency	%	0
Supply dry efficiency	%	70	Supply latent effectiveness	%	0
Supply dry effectiveness	%	70	Dry efficiency at equal airflow	%	74
Total duty	kW	87.67			
Housing coated		No			

### EXTRAS

1 x Syphone

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<b>FILTER</b>					
Filter type		Bag (Glassfibre)	Withdrawal method		Side
Test method		EN 779 / ISO 16890	Filter frame material		Galvanised
EN 779 Class		F7	Filter casing material		Galvanised
Eurovent Efficiency Class		D			
ISO 16890 Class		ISO ePM1 50			
Design pressure drop		Mean pd			
Initial pressure drop	Pa	84			
Mean pressure drop	Pa	134			
Final pressure drop	Pa	184			
Filter length	mm	500			
<b>Filters</b>					
592x592	Qty	10	592x287	Qty	5
<b>ACCESS</b>					
Access type		Door	Access side		Right
<b>EXTRAS</b>					
1 x Pressure gauge wall mounted, Magnehelic 2000					

<b>CHILLED WATER COIL</b>					
Coil Code		P40-16AR-5R-37T-2743A-2.0PA-32NC-Cu	Number of coils		1
Air volume	m <sup>3</sup> /s	9.72	Fluid	100%	Water
Duty	kW	219.71	Fluid flow rate	l/s	10.46
Air on db	°C	27.0	Fluid on	°C	7.0
Air on wb/RH	°C/%	19.0/47	Fluid off	°C	12.0
Air off db	°C	13.0	Fluid content	l	112.57
Air off wb/RH	°C/%	12.4/94	Fluid pressure drop	kPa	34
Sensible duty	kW	163.33			
Air pressure drop coil (Dry)	Pa	96	Air pressure drop elim.	Pa	14
Tubes/fins/connections		Cu / Al / Fe	Connection type		Threaded (Right)
Coil frame		Galvanised	Connection size		4"
Tube thickness	mm	0.41	Fin spacing	mm	2.0
Tube Diameter	mm	14.1872	Fin thickness	mm	0.13
Face velocity	m/s	2.3			
Eliminator		Plastic – side withdrawal	Eliminator frame		Galvanised
Drainpan type		Recessed (sloped)	Drainpan material		Stainless steel 304
Drain pipes on drainpan		1	Intermediate drainpan		No
Condensed Water	l/min	1.2	Syphon Type		Negative
Coil Weight	kg	323.52	Xin/Yin/Xout/Yout	mm/mm/ mm/mm	244/110/106/106
<b>EXTRAS</b>					
1 x Syphone					

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HOT WATER COIL			Number of coils		
Coil Code	P40-16AR-2R-37T-2768A-2.0PA-26NC-Cu 0.41/AI 0.13-3"		1		
Air volume	m <sup>3</sup> /s	9.72	Fluid	100%	Water
Duty	kW	175.00	Fluid flow rate	l/s	8.46
Air on db	°C	10.0	Fluid on	°C	45.0
Air off db	°C	25.0	Fluid off	°C	40.0
Air pressure drop	Pa	32	Fluid content	l	51.22
			Fluid pressure drop	kPa	12
Tubes/fins/connections	Cu / AI / Fe		Connection type	Threaded (Right)	
Coil frame	Galvanised		Connection size	3"	
Tube thickness	mm	0.41	Fin spacing	mm	2.0
Tube Diameter	mm	14.1872	Fin thickness	mm	0.13
Face velocity	m/s	2.3	Xin/Yin/Xout/Yout	mm/mm/ mm/mm	198/98/92/92
Coil Weight	kg	158.05			

EXTRAS  
1 x Syphone

STEAM HUMIDIFIER			Humidifier supplier		
Air volume	m <sup>3</sup> /s	9.72	Number of steam lances	4	
Moisture addition	kg/h	163	Steam lance length	mm	2500
Air on db	°C	25.0			
Air on moisture content	g/kg	2.8			
Air on rh	%	32			
Air off db	°C	25.7			
Air off moisture content	g/kg	6.6			
Air off rh	%	32			
Steam boiler type 1		EL180	Power each	kW	4 x 33.8
Max steam capacity, each	kg/h	180	Current each	A	4 x 48.7
Number off		1	Voltage	V	3x400V, 50/60Hz
Boiler weight, each	kg	120			
Section length	mm	960	Drainpan material	Stainless steel 304	
Drainpan		Included			

Note: Electric boilers will be delivered separately (not mounted on the unit). Boiler weights not included in unit weights.

ACCESS  
Access type Door Access side Right

EXTRAS  
1 x Syphone

ANY COMPONENT		
Pressure drop	Pa	0

INLET PLENUM		
Air pressure drop	Pa	0

ACCESS  
Access type Door Access side Right

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#### FAN

Fan type		K3G400PA2775							
Fan arrangement		Fan Wall - 1x5		Installed motor power	kW	3.35			
Air volume	m³/s	5 x 1.94		Motor		Run			
External static pressure	Pa	392		Motor efficiency class		IE4			
Internal static pressure	Pa	572		Motor nominal speed	rpm	2750			
Static pressure ISP+ESP	Pa	964		Voltage	V	380-480			
System effect	Pa	10		Current	A	5.2			
Extra static pressure	Pa	0		Abs. motor power incl. F.I.	kW	2.90			
Total static pressure	Pa	974		Control Signal (0-10V)	V	9.21			
Dynamic pressure	Pa	75		Fan bulkhead material		Galvanised			
Total pressure	Pa	1049							
Fan speed	rpm	2604							
Max fan speed	rpm	2750							
Efficiency (total)	%	69							
Fan shaft power	kW	2.90							

(Fan sound data SWL)	Hz	63	125	250	500	1k	2k	4k	8k
Total	Inlet dB	42	59	72	75	76	77	77	75
	Outlet dB	46	59	72	80	86	85	83	78

#### FAN EXTRAS

Inlet cone measuring points

#### ACCESS

Access type Door Access side Right

#### EXTRAS

2 x Measuring nipple, 6mm 4 x Fanwall terminal box

#### OUTLET

Opening Position		Full face	Provided with:	
Number of openings		1	Opening product	Duct spigot
Opening, width x height	mm	3040 x 1600		
Pressure drop	Pa	2		