Ventservice

Date:	**01-10-2025**
Offer №:	**230269**
Prepared by:	**Dan Musels**

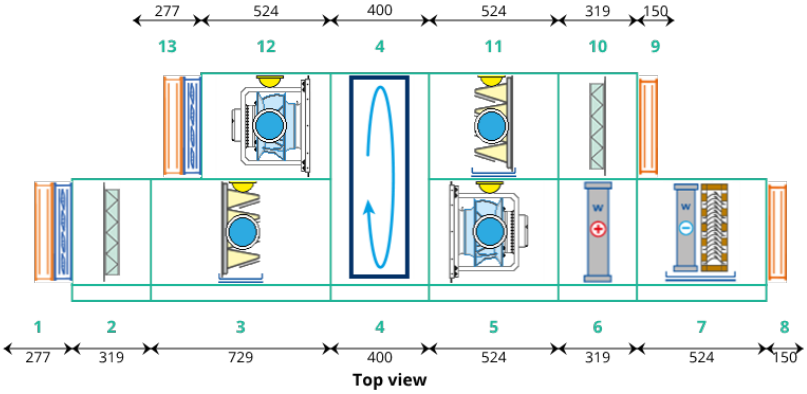
EUROVENT CERTIFIED PERFORMANCE ENERGY EFFICIENCY
VENTSERVICE
Aeroselect selection software
GreenSTR 19.04.077
www.eurovent-certification.com
AIR HANDLING UNITS
ВЕНТИЛЯЦІЙНІ УСТАНОВКИ
CENTRALE WENTYLACYJNE
VĖDINIMO ĮRENGINIAI
(*) A+ A B C D E A 2018
(**) A+ A B C D E A 2023
(*) THRESHOLD REFERENCE SCALE YEAR : 2018
Units for full or partial outdoor air at design winter temperature ≤ 5°C
(**) THRESHOLD REFERENCE SCALE YEAR : 2023
Recirculation units not in Subgroup 1 as per ECP-05 AHU

About project:	SAMPLE
Description:	BVU air handling unit Aerostar PN4
Customer:	ICS
Place:	Riga, Latvia
Prepared for:	ICS

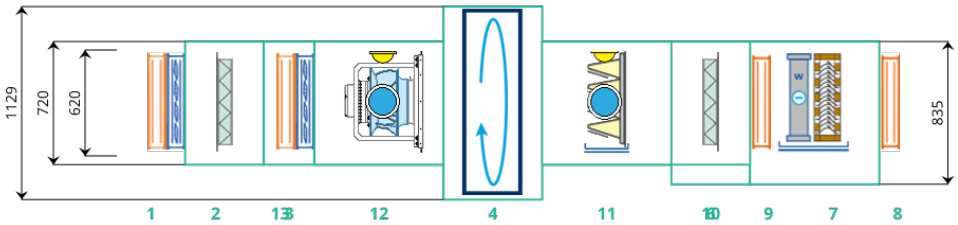
Model: GreenSTR-3

Supply air flow	1300	m^3/h	Supply external static pressure	350	Pa
Extract air flow	1300	m^3/h	Extract external static pressure	350	Pa
Air velocity in the supply section	1.46	m/s	Design winter temperature	-20	°C
			Air velocity in the extract section	1.46	m/s

Side view



Top view



Width	mm	720 + 115 (Frame 670) REC 1129 (Frame 670)	Height	mm	1000 + 120
Length	mm	3242	Total weight	kg	464
			Nominal power input: 2 kW		

AHU's dimensions, weight and divisions are approximate and will be optimized during the executive phase

STRUCTURAL FEATURES

Insulation	**Mineral wool**	Panel thickness	**50 mm**
Roof	**Without roof**	Internal panel	**Painted galvanized steel RAL 373 gloss EPOXY**
Service Side	**Right**	External panel	**Painted galvanized steel RAL7024**
Connection side	**Right**	Internal details	**Painted galvanized steel RAL 373 gloss EPOXY**
		Baseframe 120 mm	

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Eurovent data:					
AHU temperature range:	-30/50	°C	Air velocity in filter section:	1.5/1.5	m/s
Model box:	GreenSTRMB3		Winter outdoor temperature:	-20	°C
Air density:	1.2	kg/m^3	Heat transfer coefficient:	T2	
Mechanical strength of casing:	D2(M)		Thermal bridges:	TB3	
Filter Bypass:	F9(M)				

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1	End element
Inlet section with front damper	
Control Valve Dimensions L620xH400 mm, air volume 1300 m³/h, Number of drive shaft - 1	
With flexible insert	
Connection 620x400 mm, Mounting rail 20 mm	

2	Synthetic / Metal. Filter
Type - Cassette filter, pleated synthetic / metal	
Manufacturer: Aerostar	
G4(ISO Coarse 70%) N°1 610 x 390 x 48 mm	
Area of filtration material 0.7 m²	
Filter energy efficiency class E	
Air flow 1300 m³/h	
Pressure drop on a clean filter 56 Pa	
Estimated pressure drop across the filter 103 Pa	
Pressure drop on dirty filter 150 Pa	
Filters are not Eurovent certified	

3	Filter
Manufacturer: Aerostar	
F7(ISO ePM1 70%) N°1 610 x 390 x 600 - 7K mm	
Area of filtration material 3.4 m²	
Filter energy efficiency class D	
Air flow 1300 m³/h	
Pressure drop on a clean filter 51 Pa	
Estimated pressure drop across the filter 126 Pa	
Pressure drop on dirty filter 200 Pa	
Inspection door	
Window for panel (W39-53)	
Light 10W	
Stainless steel (AISI 304) drain pan	
Outside diameter of the drain pipe 22 mm	
Filters are not Eurovent certified	

4 Rotary heat exchanger

N°1 RRS-E-E16-800/800-705

Supply air flow	**1300**	**m³/h**	**Exhaust air flow**	**1300**	**m³/h**
Winter conditions					
Inlet air temperature	-20	°C	Inlet air temperature	22	°C
Inlet Relative Humidity	90	%	Inlet Relative Humidity	30	%
Outlet air temperature	14.24	°C	Outlet air temperature	-11.23	°C
Outlet air humidity	33.81	%	Outlet air humidity	95	%
Pressure drop	104	Pa	Exhaust pressure drop	137	Pa
External pressure drop (ρ air 1.2 kg / m3)	136	Pa	Discharge pressure drop (ρ air 1.2 kg / m3)	136	Pa
Air velocity	1.59	m/s	Air velocity	1.86	m/s
Recovery efficiency	17.86	kW	Temperature efficiency	82/79	%
Moisture influx	4.4	kg/h	Moisture efficiency	66/81	%
OACF	1.02				
EATR	9.13	%			
Dry Efficiency for balanced air volume (EN 308)	82.06	%			
Summer conditions					
Inlet air temperature	28	°C	Inlet air temperature	22	°C
Inlet Relative Humidity	50	%	Inlet Relative Humidity	51	%
Outlet air temperature	23.65	°C	Outlet air temperature	26.28	°C
Outlet air humidity	59.99	%	Outlet air humidity	43.48	%
Pressure drop	142	Pa	Exhaust pressure drop	137	Pa
External pressure drop (ρ air 1.2 kg / m3)	136	Pa	Discharge pressure drop (ρ air 1.2 kg / m3)	136	Pa
Air velocity	1.91	m/s	Air velocity	1.86	m/s
Recovery efficiency	3.33	kW	Temperature efficiency	80/80	%
Summer humidity efficiency for balanced volume (EN 308)	32.16	%	Moisture efficiency	34/34	%

Engine: Rotor control unit 0.4 kW

Speed: 10 rpm

Purge sector 5*

5 **Supply fan**

FAN			ENGINE		
ZIEHL					
Fan type RH28C-6ID.BD.CR - 115391			Power supply	EC MOTOR 0.78	kW
Size	280		Supply	1~ 230V 50Hz	
Air flow	**1300**	**m³/h**	Motor type	EC	
External pressure drop	**350**	**Pa**	Insulation class	F	
Internal pressure drop	411	Pa	Protection class	IP54	
Total pressure	774	Pa	Motor efficiency	53.42	%
Total static pressure	761	Pa	Maximum fan speed	2960	rpm
Dynamic pressure	13	Pa	power consumption(summer)	0.53	kW
Fan speed	2696	rpm	power consumption(winter)	0.5	kW
Power consumption	0.53	kW	Current at operating point	2.33	A
Sound power level	80.48	dB(A)	Maximum current	3.9	A
Operating voltage	230	V			
SFP class	4/1461	W/m³/s			
ERP class	2015				

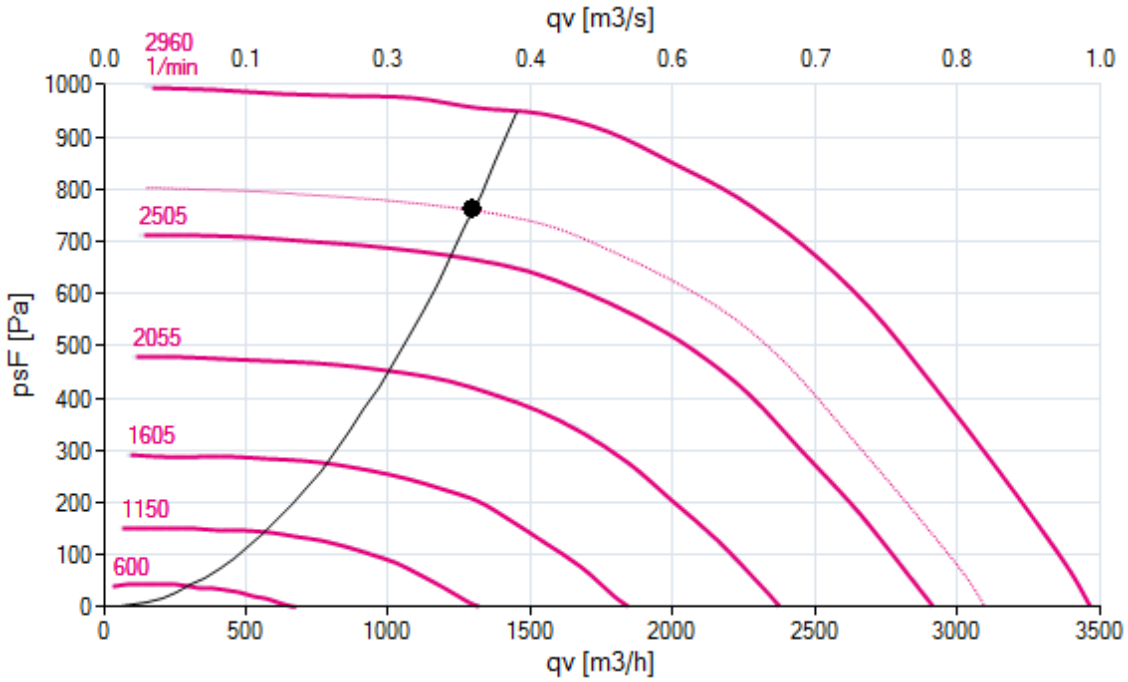
Sound level. octave band power (dB)

F[Hz] - dB	General	63	125	250	500	1000	2000	4000	8000
Supply-Lw(A)6	80	54	61	73	72	75	75	69	63
Suction-Lw(A)5	74	52	57	69	69	66	66	64	56

Sound pressure at a distance of 1 m in dB (A) with hemispherical propagation - Tolerance +/- 4 dB

F[Hz]	dB(A)	63	125	250	500	1000	2000	4000	8000
Supply	73	46	54	65	64	67	67	61	55
Suction	66	44	49	61	61	58	59	56	48
External	51	38	44	48	42	38	40	30	19

Fan graph



Fan system efficiency calculated according to fan performance
For wet conditions
Inspection door
Ілюмінатори для панелі (W 39-53)
Прожектор 10W
Fan speed control required

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6 Heating coil

AIR PARAMETERS			LIQUID		
Air flow	1300	m^3/h	Water + Ethylene Glycol 40 %		
Inlet temperature	14.24	°C	Inlet temperature	80	°C
Relative humidity inlet	33.81	%	Outlet temperature	60	°C
Outlet temperature	20.1	°C	Fluid flow rate	139.4	l/h
Relative humidity outlet	23.3	%	Pressure drop	0.1	kPa
Power	**2.58**	**kW**			
Power reserve	70.3	%			
Air pressure drop (ρ air 1.2 kg/m3)	14.6	Pa			
Air pressure drop (dry coil)	14.6	Pa			
Air velocity	1.72	m/s			
			MOD AQ 60x35/2R CC EPOXY		
Number of heat exchangers	1		Number of circuits	7	
Number of rows	2		Connection diameter	1"	
Heat transfer area	7.3	m^2	Coil dimensions	600x350	mm
Heat exchanger volume	1.82	dm^3	Collector	Copper	
			Type	Epoxy	
Additional width +115 mm					

7 Cooling coil

AIR PARAMETERS			LIQUID		
Air flow	1300	m^3/h	Water + Ethylene Glycol 40 %		
Inlet temperature	23.65	°C	Inlet temperature	7	°C
Relative humidity inlet	59.99	%	Outlet temperature	12	°C
Outlet temperature	19.99	°C	Fluid flow rate	304.7	l/h
Relative humidity outlet	74.98	%	Pressure drop	1.4	kPa
Power	**1.63**	**kW**			
Power reserve	35.8	%			
Air pressure drop (ρ air 1.2 kg/m3)	22	Pa			
Air pressure drop (dry coil)	22	Pa			
Air velocity	1.72	m/s			
			MOD AQ 60x35/3R CC EPOXY		
Number of heat exchangers	1		Number of circuits	7	
Number of rows	3		Connection diameter	1"	
Heat transfer area	10.9	m^2	Coil dimensions	600x350	mm
Heat exchanger volume	2.44	dm^3	Collector	Copper	
			Type	Epoxy	
Drop eliminator			**Pressure drop**	**3.8**	**Pa**
Additional width +115 mm					
Sloped Stainless steel (AISI 304) drain pan					
Outside diameter of the drain pipe 22 mm					

8 End element

With flexible insert
Dimensions: L620xH400 mm
Connection 620x400 mm, Mounting rail 20 mm

9 End element

With flexible insert
Dimensions: L620xH400 mm
Connection 620x400 mm, Mounting rail 20 mm

10 Synthetic / Metal. Filter

Type - Cassette filter, pleated synthetic / metal
Manufacturer: Aerostar
G4(ISO Coarse 70%) N°1 610 x 390 x 48 mm
Area of filtration material 0.7 m²
Filter energy efficiency class E
Air flow 1300 m³/h
Pressure drop on a clean filter 56 Pa
Estimated pressure drop across the filter 103 Pa
Pressure drop on dirty filter 150 Pa
Filters are not Eurovent certified

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11	Filter
Manufacturer: Aerostar	
M5(ISO ePM10 85%) N°1 610 x 390 x 360 - 6K mm	
Area of filtration material 1.8 m²	
Filter energy efficiency class E	
Air flow 1300 m³/h	
Pressure drop on a clean filter 32 Pa	
Estimated pressure drop across the filter 116 Pa	
Pressure drop on dirty filter 200 Pa	
Inspection door	
Window for panel (W39-53)	
Light 10W	
Stainless steel (AISI 304) drain pan	
Outside diameter of the drain pipe 22 mm	
Filters are not Eurovent certified	

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12 Exhaust fan

FAN			ENGINE		
ZIEHL					
Fan type RH28C-6ID.BD.CR - 115391			Power supply	EC MOTOR 0.78	kW
Size	280		Supply	1~ 230V 50Hz	
Air flow	**1300**	**m³/h**	Motor type	EC	
External pressure drop	**350**	**Pa**	Insulation class	F	
Internal pressure drop	356	Pa	Protection class	IP54	
Total pressure	719	Pa	Motor efficiency	54.6	%
Total static pressure	706	Pa	Maximum fan speed	2960	rpm
Dynamic pressure	13	Pa	power consumption(summer)	0.48	kW
Fan speed	2603	rpm	power consumption(winter)	0.48	kW
Power consumption	0.48	kW	Current at operating point	2.13	A
Sound power level	79.36	dB(A)	Maximum current	3.9	A
Operating voltage	230	V			
SFP class	4/1335	W/m³/s			
ERP class	2015				

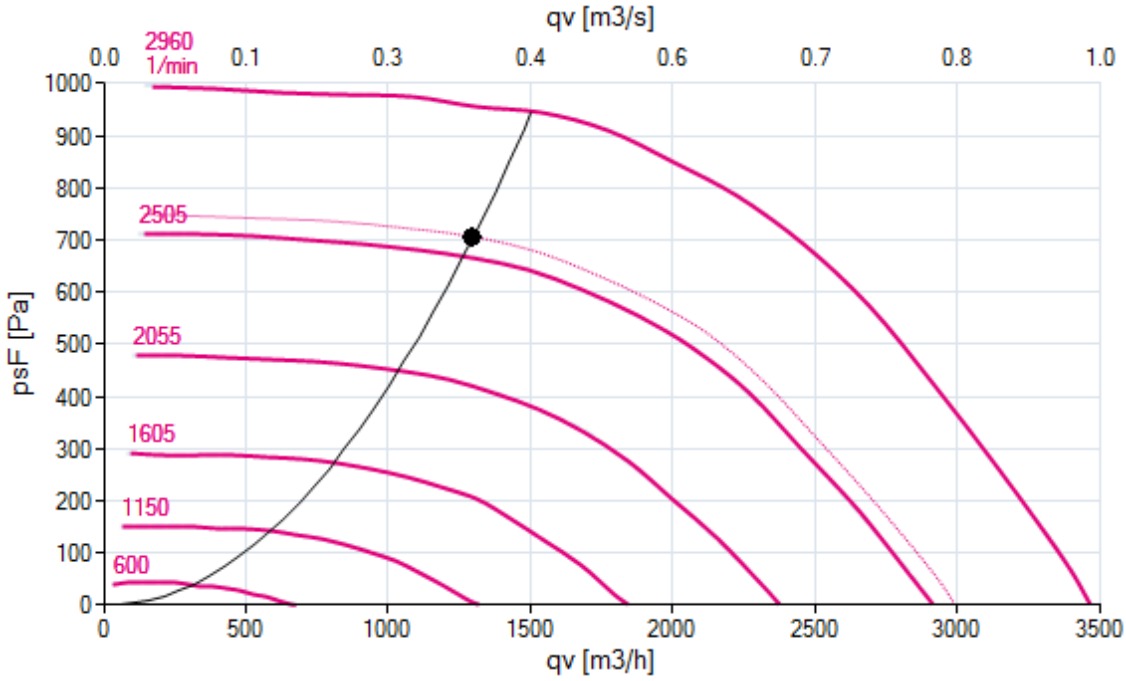
Sound level. octave band power (dB)

F[Hz] - dB	General	63	125	250	500	1000	2000	4000	8000
Supply-Lw(A)6	79	52	59	71	71	74	74	68	62
Suction-Lw(A)5	73	50	54	68	67	65	66	63	55

Sound pressure at a distance of 1 m in dB (A) with hemispherical propagation - Tolerance +/- 4 dB

F[Hz]	dB(A)	63	125	250	500	1000	2000	4000	8000
Supply	71	44	51	64	63	66	66	60	54
Suction	65	42	46	60	59	57	58	55	47
External	49	36	41	47	41	37	39	29	18

Fan graph



Fan system efficiency calculated according to fan performance
For wet conditions
Inspection door
Ілюмінатори для панелі (W 39-53)
Прожектор 10W
Fan speed control required

13 End element

Inlet section with front damper
Control Valve Dimensions L620xH400 mm, air volume 1300 m³/h, Number of drive shaft - 1
With flexible insert
Connection 620x400 mm, Mounting rail 20 mm

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ACOUSTIC CHARACTERISTICS

Octave bands (Hz)	63	125	250	500	1000	2000	4000	8000	General level
Lw at S.A. Input [dB]	52	57	69	69	66	66	64	56	74
Lw at S.A. Output [dB]	54	61	73	72	75	75	69	63	80
Lw at E.A. Input [dB]	50	54	68	67	65	66	63	55	73
Lw at E.A. Output [dB]	52	59	71	71	74	74	68	62	79
Environment Lw	45	50	48	36	35	29	22	17	53

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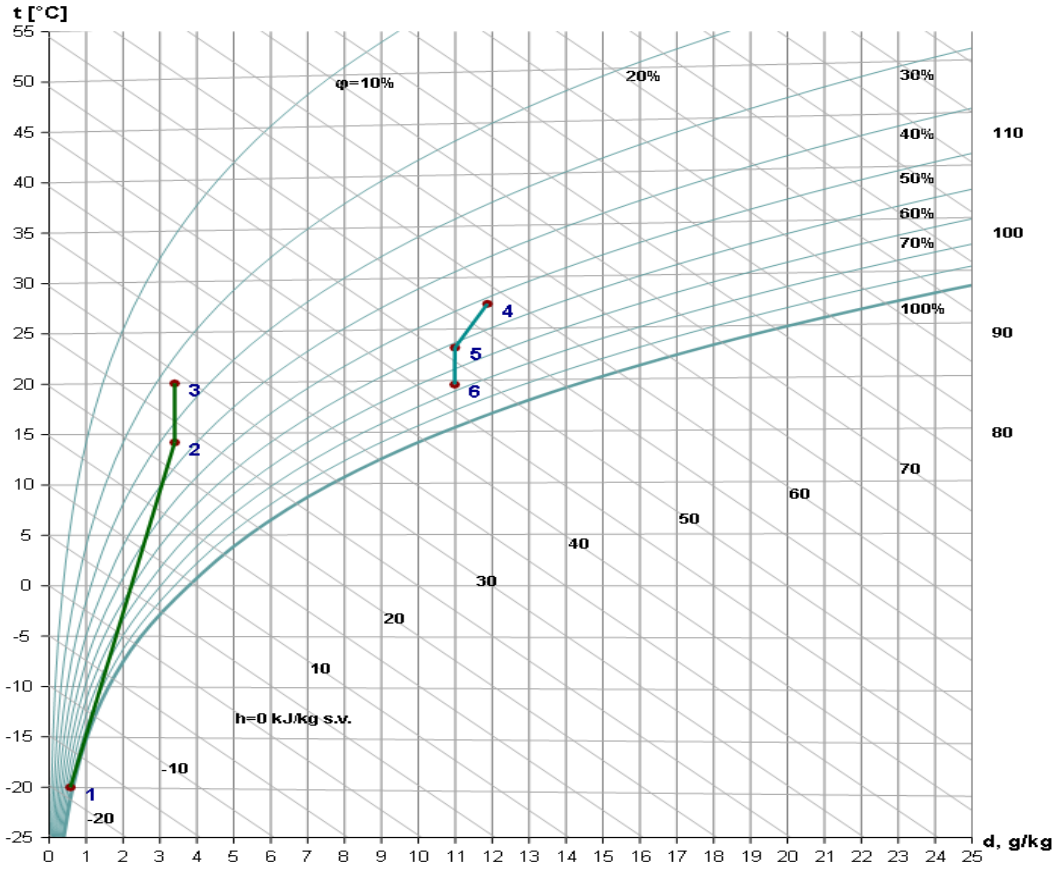
ID-Diagram



Winter			1	2	3
Temperature	t	°C	-20	14.24	20.1
Humidity	Φ	%	90	33.81	23.3
Moisture content	x	g/kg s.v.	0.57	3.4	3.4
Enthalpy	h	kJ/kg s.v.	-18.79	22.97	28.92
Air volume	Vs	m3/h	1300	1300	1300

Summer			4	5	6
Temperature	t	°C	28	23.65	19.99
Humidity	Φ	%	50	59.99	74.98
Moisture content	x	g/kg s.v.	11.87	10.99	10.98
Enthalpy	h	kJ/kg s.v.	58.58	51.86	48.07
Air volume	Vs	m3/h	1300	1300	1300

1	Outdoor air
2	After rotary heat exchanger
3	After water heating coil
4	Outdoor air
5	After rotary heat exchanger
6	After water cooling coil

Additional items

№	Vendor code	Title	Quantity
1	Offer №865618	Automation kit PN4	1

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Brief unit characteristics		
Factory manufacturer	VENTSERVICE	
Unit model	GreenSTR-3	
Typology	NRVU; BVU	
Type of HRS	Rotary	
Dry Efficiency for balanced air volume (EN 308)	82.06	
Nominal air flow [m3/s]	0.36	
Class of casing leakage at -400Pa	L1(R)	
Class of casing leakage at +400Pa	L1(R)	
Class of casing leakage at +700Pa	L1(R)	
Max. internal air leakage rate [%]	< 5	
FsPref (winter)	0.87	
FsPref (summer)	0.99	
Ashrae WMO reference	333450 (KIEV ZHULIANYINTL, UKRAINE)	
SFP total [W/m³/s]	2796	
	Supply	**Extract**
Nominal air flow [m3/s]	0.36	0.36
Type of drive	Variable Speed Drive Installation	Variable Speed Drive Installation
Consumed electrical power [kW] winter / summer	0.5/0.53	0.48/0.48
Flow velocity [m/s]	1.46	1.46
Disposable pressure [Pa]	350	350
Internal dP of ventilation components [Pa] winter / summer	373/411	356/356
Fan static efficiency [%] winter / summer	52.2/51.9	53.1/53.1
Energy efficiency of filtration	E/D	E
Pressure drop across clean filters [Pa]	56, 51	56, 32
Internet address for disassembly instructions:		
Ecodesign	2018	

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Automation kit PN4 (Offer № 865618)

Name	Type	Manufacturer	Article	Q-ty	Note
Controller	IQSTAR IQ150	Aerostar (IQ)	108430	2	Delivery time 4 weeks
Plastic control panel	Mureva, 54mod. 3x18, 160x448x610 IP65	Schneider Electric	107494	1	Outdoor mounting of the control panel is prohibited!
Control panel	Aerostar IQPro5-Wifi IP20	Aerostar	110473	1	Delivery time 3 weeks
Duct temperature sensor(with mount and tube)	WF269(NTC 10k)+(MF-08)+(MFL-150/06) IP67	Aerostar (IQ)	109765, 109761, 106299	3	
Valve actuator + adapter	MOD-RM24 (t/jet), AC/DC 24V, DC 0-10V, 6 Nm, IP54 (no spring)	Aerostar	110399	2	Delivery time 6 weeks
Pump	GPA25-8(130) (Ск. 3)	Aerostar	110803	1	
Valve 3-way D15, 0,4kVs	RM03-15-0,4	Aerostar	110430	1	Delivery time 6 weeks
Valve 3-way D15, 1,0kVs	RM03-15-1,0	Aerostar	110432	1	dP=9 kPa; S=0,47 m/s; Delivery time 6 weeks
Aerostar air damper actuator	Aerostar SADA-230-04, AC 230V, 4 Nm, IP 54 (spring)	Aerostar	110794	1	Delivery time 4 weeks
Aerostar air damper actuator	GSD341.1A, AC 230 V, 2 Nm, IP 54 (no spring)	Siemens	107646	1	Delivery time 2 weeks
Differential pressure sensor	LF32-05 IP54	Aerostar	109596	5	Delivery time 2 weeks
Overhead temperature sensor	WF269-WT, NTC 10k, IP67	Aerostar (IQ)	109765, 109769	1	

Total DLLs - 8 PCS
Roen Est 1.3.38
EBMpapst 3.0.3.275
Karyer 4.01.2021
Klingenburg(Rotor) 5.0.20, 07/2025
Recutech 7.2.0.13
Ziehl-abegg FANselect V 1.01 (241016) (1.24.10.16) AMCA V 1.03 September, 2021 RLT V 1.00 Dezember, 2021
Zern 1.0.0.0
Recuperator - 2.6.0.0

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