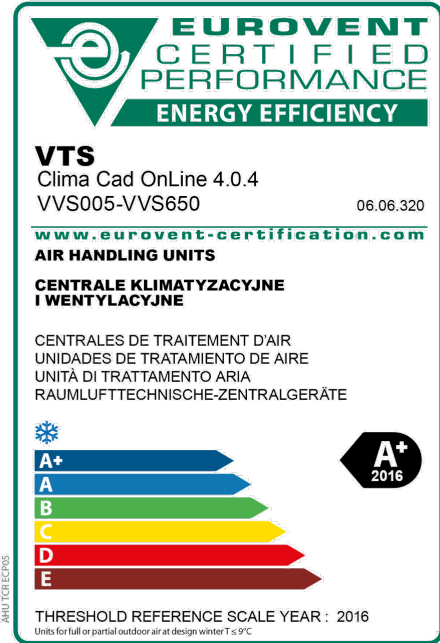
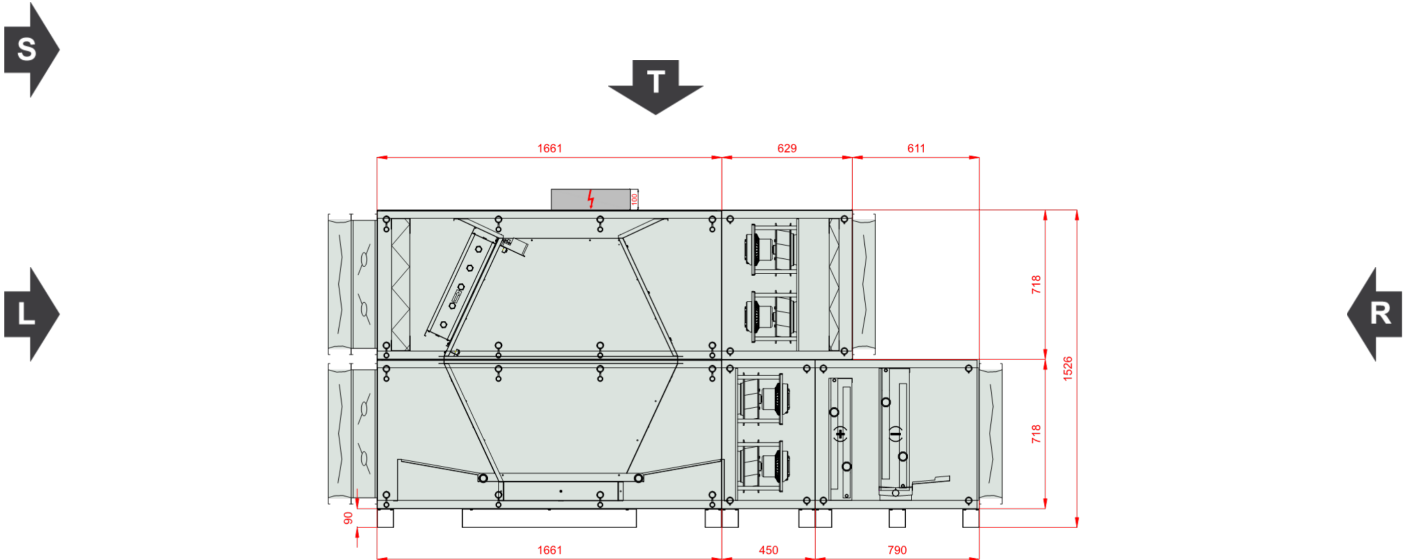


<b>Type</b>	RecoveryHexVerticalCompact
<b>Unit Type:</b>	Indoor
<b>Project Tag</b>	13577220
<b>Size</b>	VVS055c
<b>Set</b>	VVS055c-R-FPVHC/VVS055c-L-FVP_cd
<b>Insulation thickness</b>	40 mm
<b>Insulation</b>	Mineral Wool
<b>Weight of the set (+/- 10%)*</b>	686 Kg
<b>Supply airflow 2</b>	6000.00 m³/h
<b>External pressure</b>	300 Pa
<b>Exhaust airflow 2</b>	6000.00 m³/h
<b>External pressure</b>	300 Pa
<b>SFP Winter</b>	2.27 kW/m³/s
<b>SFP Summer</b>	2.34 kW/m³/s
<b>Ecodesign</b>	Yes (2018 +)
<b>Eurovent Energy efficiency class (Winter 2016 / Summer 2020)</b>	A+ 2016

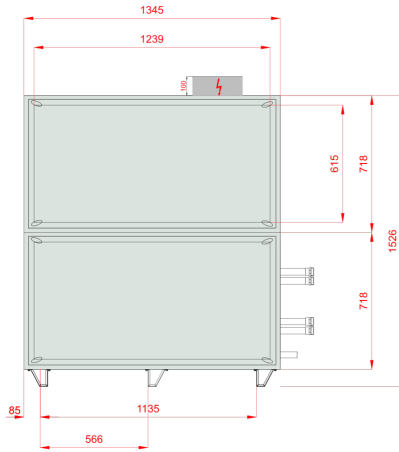


**Inspection Panels**

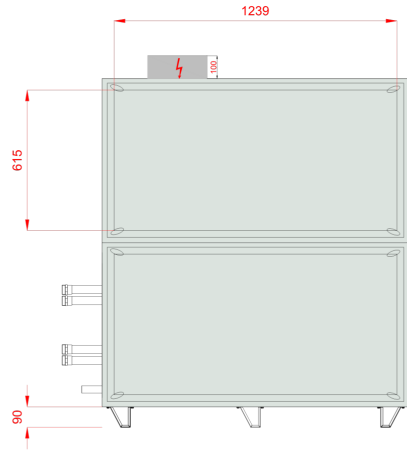


Comment 1:

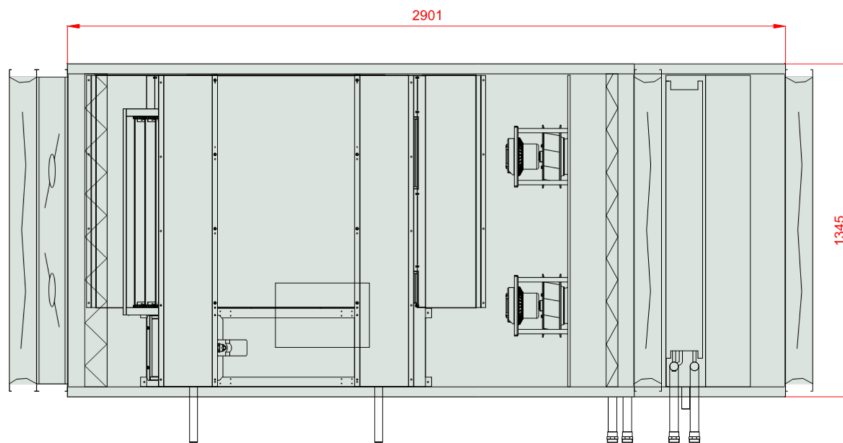
Front View (left)



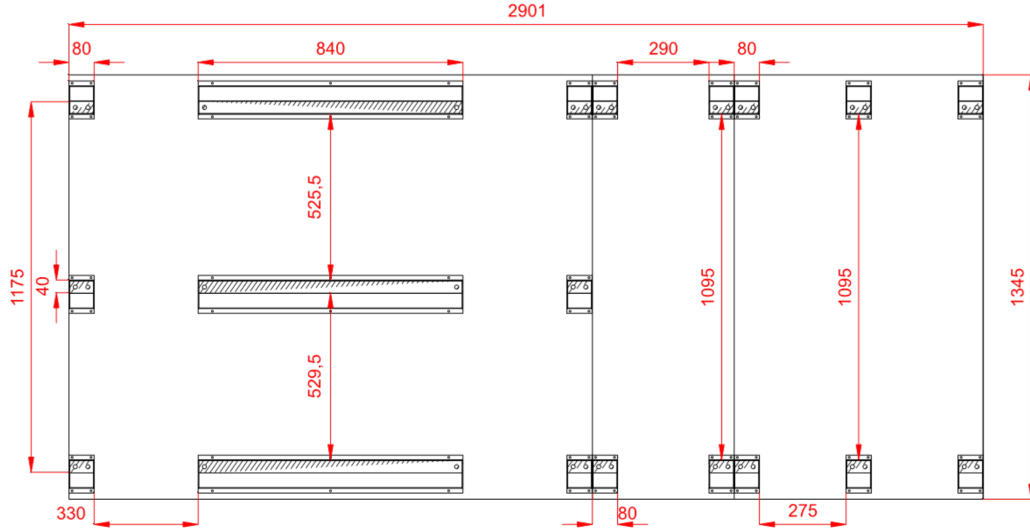
Front View (right)



Top View



**Frame Top View, within the AHU outline contour**



**Sizes [mm]**

<b>Air intake Supply</b> FF	1239x615	<b>Lt</b> 2901	<b>Hi</b> 638	<b>Wi</b> 1265
<b>Air outlet Supply</b> FF	1239x615	<b>LtA</b> 3246	<b>H</b> 808	<b>W</b> 1345
<b>Air inlet Exhaust</b> FF	1239x615	<b>L1</b> 2901	<b>H2</b> 1526	
<b>Air outlet Exhaust</b> FF	1239x615	<b>L2</b> 2290	<b>Hf</b> 90	
		<b>L22</b> 611		

**Unit design**

40mm insulated walls , double skin made of steel

Unit Power Supply 400V/3ph/50Hz

Casing anti-corrosion protection: Aluzinc AZ 150. Corrosion resistance (salt spary test): over 2400 hours

In case of delivery with controls a base unit fully wired, with pre-configured controller and EC motors drives

Energy recovery efficiency exceeding 86% (for EC 1253/2014 conditions)

**Temperature Conditions**

Reference atmospheric pressure 101325 Pa

Winter outdoor reference temperature -20.0 °C

	External air			Return air		
	DBT	RH	DA	DBT	RH	DA
Summer	32.0 °C	45 %	1.2000 kg/m³	20.0 °C	65 %	1.2000 kg/m³
Winter	-20.0 °C	100 %	1.2000 kg/m³	20.0 °C	40 %	1.2000 kg/m³

## Supply

### Panel Filter

#### Type F7/50.EU7MPleat.Int.Sld

ePM2,5 65% (ISO16890) - EFF CLASS E Flat Mini-Pleat Filter[27.0]

Filter Energy Performance Class E

#### Winter operation

50% Dirty Air Pressure Drop 120 Pa  
 Initial Air Pressure Drop 89 Pa  
 100% Dirty Air Pressure Drop 150 Pa  
 Air velocity 2.08 m/s

#### Air Filter Sizes

P.FLT (1-2-0301-0216) 6,000 x Pcs

#### Summer operation

50% Dirty Air Pressure Drop 120 Pa  
 Initial Air Pressure Drop 89 Pa  
 100% Dirty Air Pressure Drop 150 Pa  
 Air velocity 2.08 m/s

## Counter-Flow Recuperator (Hexagonal)

#### Type PCR VVS055c Hex

HIPS 2.0 (SR)

#### Winter operation

##### Supply

Intake air DBT / RH -20.0 °C / 100 %  
 Discharge air DBT / RH 15.5 °C / 6 %  
 Air velocity 2.52 m/s  
 Pressure drop Wet / Dry Wet 193 Pa  
 Air Pressure 101325 Pa  
 Air Density 1.2000 kg/m<sup>3</sup>  
 Air Volume Flow 6000.00 m<sup>3</sup>/h  
 Recovery capacity Sensible / Total Total 71.6 kW  
 Actual efficiency / at balanced flow Real / BalancedFlow 89 % / 89 %  
 Dry efficiency in winter 80 %

#### Winter operation

##### Exhaust

Intake air DBT / RH 20.0 °C / 40 %  
 Discharge air DBT / RH -6.5 °C / 97 %  
 Air velocity 2.52 m/s  
 Pressure drop Wet / Dry Wet 223 Pa  
 Air Pressure 101325 Pa  
 Air Density 1.2000 kg/m<sup>3</sup>  
 Air Volume Flow 6000.00 m<sup>3</sup>/h  
 Recovery Bypass Yes  
 Air Damper Yes

Counter-Flow (Hex)

Max Internal Leakage 0.25%

#### Summer operation

##### Supply

Intake air DBT / RH 32.0 °C / 45 %  
 Discharge air DBT / RH 23.7 °C / 74 %  
 Air velocity 2.52 m/s  
 Pressure drop Wet / Dry Wet 232 Pa  
 Air Pressure 101325 Pa  
 Air Density 1.2000 kg/m<sup>3</sup>  
 Air Volume Flow 6000.00 m<sup>3</sup>/h  
 Recovery capacity Sensible / Total Total -19.4 kW

#### Summer operation

##### Exhaust

Intake air DBT / RH 20.0 °C / 45 %  
 Discharge air DBT / RH 30.0 °C / 36 %  
 Air velocity 2.52 m/s  
 Pressure drop Wet / Dry Wet 223 Pa  
 Air Pressure 101325 Pa  
 Air Density 1.2000 kg/m<sup>3</sup>  
 Air Volume Flow 6000.00 m<sup>3</sup>/h  
 Eco Design Class Eco Design



## Recovery Additional Info

PlateExchangers

## Plug-Fan Set

### Fan Section PLUG\_DD\_225\_0,74\_1.33

EC_IE4_F_IMB14_71_1.33p_T	771.3.570-2	225 0.74kW 1.33x4
	Qty in section	x 4

Fan Set Designed for wet operating conditions

The fan system effects is taken into account in the fan performances.

### Fan PLUG\_VS\_225\_AF\_Px 4

Total Static Pressure	765 Pa	Impeller efficiency: Static / Total	71 %/76 %
Dynamic pressure	52 Pa	Shaft power	0.45 kW x 4
External pressure	300 Pa	Working revolutions	3916 1/min
Total Pressure	817 Pa		
<b>Winter operation</b>		<b>Summer operation</b>	
Air Volume Flow	6000.00 m³/h	Air Volume Flow	6000.00 m³/h

### Motor EC\_IE4\_F\_71\_IMB14\_1.33p\_0.74\_50x 4

771.3.570-2	EC	50Hz	
	Rated revolutions	4500 1/min	
Operational Voltage	230 V/1 ph	Rated Power	0.74 kW x 4
Name plate RPM	230 V/1 ph/50 Hz		

## EC Motor Controller

EC Controller Settings 44 Hz

### Winter operation

EPC for mean contaminated filters	2.07 kW
EPC for clean filters	2.00 kW
SFP for clean filters	1.20 kW/m³/s

### Summer operation

EPC for mean contaminated filters	2.18 kW
EPC for clean filters	2.10 kW
SFP for clean filters	1.26 kW/m³/s

## Fan Section Power Supply Additional Info

C32/3

**+** Hot Water Coil

**Type** WCL VVS055c 2R DT SH.St.St.Std      **Number of rows** 2      **Connection Supply/Return:** 1 1/4"/1 1/4"

Standard Circuits	4,71 [dm <sup>3</sup> ]		
Medium	Water	Maximum working pressure	16 bar
Intake air DBT / RH	15.5 °C / 6 %	Discharge air DBT / RH	20.0 °C / 4 %
Air velocity	2.57 m/s	Pressure drop Wet / Dry Wet	52 Pa
Air Pressure	101325 Pa	Air Density	1.2000 kg/m <sup>3</sup>
Air Volume Flow	6000.00 m <sup>3</sup> /h		
Total heating capacity	9.0 kW	Medium temperature	70.0 °C/50.0 °C
Medium flow rate	0.39 m <sup>3</sup> /h	Medium pressure drop	0.34 kPa

**-** Chilled Water Coil

**Type** WCL VVS055c 3R DT SH.St.St.Std      **Number of rows** 3      **Connection Supply/Return:** 1 1/4"/1 1/4"

Standard Circuits	7,52 [dm <sup>3</sup> ]		
Medium	Water	Maximum working pressure	16 bar
Intake air DBT / RH	23.7 °C / 73 %	Discharge air DBT / RH	20.0 °C / 83 %
Air velocity	2.56 m/s	Pressure drop Wet / Dry Wet / Dry	100 Pa / 55 Pa
Air Pressure	101325 Pa	Air Density	1.2000 kg/m <sup>3</sup>
Air Volume Flow	6000.00 m <sup>3</sup> /h		
Cooling capacity: Sensible / Total	7.7 kW/14.0 kW	Medium temperature: Inlet / Outlet	7.0 °C/12.0 °C
Medium flow rate	2.40 m <sup>3</sup> /h	Medium pressure drop	6.60 kPa

**Acoustic data**

Acoustic power level [dB(A)]	Frequency	125 [Hz]	250 [Hz]	500 [Hz]	1000 [Hz]	2000 [Hz]	4000 [Hz]	8000 [Hz]	Lw [dB(A)]
Inlet	[dB(A)]	59.1	65.2	63.1	58.0	54.5	58.1	55.2	69.1
Outlet	[dB(A)]	56.4	63.4	48.7	52.6	44.6	38.3	33.6	64.7
Environment	[dB(A)]	42.3	53.6	51.6	45.9	38.2	30.7	17.1	56.4

Acoustic pressure level at 1 meter distance [dB(A)]	Frequency	125 [Hz]	250 [Hz]	500 [Hz]	1000 [Hz]	2000 [Hz]	4000 [Hz]	8000 [Hz]	Lp [dB(A)]
	[dB(A)]	35.3	46.6	44.6	38.9	31.2	23.7	10.1	49.4



## Exhaust airflow 3

### Panel Filter

#### Type M5/50.EU5MPleat.Int.Sld

ePM10 40% - ISO 16890 - EFF CLASS E Flat Mini-Pleat Filter[26.0]

Filter Energy Performance Class E

#### Winter operation

50% Dirty Air Pressure Drop 108 Pa  
 Initial Air Pressure Drop 67 Pa  
 100% Dirty Air Pressure Drop 150 Pa  
 Air velocity 2.08 m/s

#### Summer operation

50% Dirty Air Pressure Drop 108 Pa  
 Initial Air Pressure Drop 67 Pa  
 100% Dirty Air Pressure Drop 150 Pa  
 Air velocity 2.08 m/s

#### Air Filter Sizes

P.FLT (1-2-0301-0204) 6,000 x Pcs

### Plug-Fan Set

#### Fan Section PLUG\_DD\_225\_0,74\_1.33

EC\_IE4\_F\_IMB14\_71\_1.33p\_T 771.3.570-2 225|0.74kW|1.33x3

Qty in section x 3

Fan Set Designed for wet operating conditions

The fan system effects is taken into account in the fan performances.

#### Fan PLUG\_VS\_225\_AF\_Px 3

Total Static Pressure	632 Pa	Impeller efficiency: Static / Total	65 %/74 %
Dynamic pressure	93 Pa	Shaft power	0.54 kW x 3
External pressure	300 Pa	Working revolutions	4433 1/min
Total Pressure	725 Pa		

#### Winter operation

Air Volume Flow 6000.00 m³/h

#### Summer operation

Air Volume Flow 6000.00 m³/h

#### Motor EC\_IE4\_F\_71\_IMB14\_1.33p\_0.74\_50x 3

771.3.570-2 EC 50Hz

Operational Voltage	230 V/1 ph	Rated revolutions	4500 1/min
Name plate RPM	230 V/1 ph/50 Hz	Rated Power	0.74 kW x 3

### EC Motor Controller



EC Controller Settings 49 Hz

**Winter operation**

EPC for mean contaminated filters 1.89 kW  
 EPC for clean filters 1.79 kW  
 SFP for clean filters 1.08 kW/m<sup>3</sup>/s

**Summer operation**

EPC for mean contaminated filters 1.89 kW  
 EPC for clean filters 1.79 kW  
 SFP for clean filters 1.08 kW/m<sup>3</sup>/s

**Fan Section Power Supply Additional Info**

C25/3

**Acoustic data**

Acoustic power level [dB(A)]	Frequency	125 [Hz]	250 [Hz]	500 [Hz]	1000 [Hz]	2000 [Hz]	4000 [Hz]	8000 [Hz]	Lw [dB(A)]
Inlet	[dB(A)]	55.6	69.0	74.9	75.2	73.6	68.1	62.5	80.2
Outlet	[dB(A)]	58.3	71.7	77.6	77.9	76.3	71.7	66.1	82.9
Environment	[dB(A)]	43.3	54.7	52.6	46.9	39.3	31.7	18.1	57.5

Acoustic pressure level at 1 meter distance [dB(A)]	Frequency	125 [Hz]	250 [Hz]	500 [Hz]	1000 [Hz]	2000 [Hz]	4000 [Hz]	8000 [Hz]	Lp [dB(A)]
	[dB(A)]	36.3	47.7	45.6	39.9	32.3	24.7	11.1	50.5

**AHU Discharge and Intake Opening Sizes & Unit Accessories**

**Supply**

**Exhaust**

Controls Selection Mode: Functional set

**AHU Discharge and Intake Opening Sizes**

	Supply	Exhaust
Air Inlet	Front 1239x615	Front 1239x615
Air Outlet	Front 1239x615	Front 1239x615

**Air Damper**

	Supply	Exhaust
Air Inlet	Provided	Not Provided
Air Outlet	Not Provided	Provided

**Flexible Connection**

	Supply	Exhaust
Air Inlet	Provided	Provided
Air Outlet	Provided	Provided

**Control application**

**Functional Code** AP|1|1|0|0|0|0|0|6|3|0|0|0|0|0|1  
**APP Code** uPC3 (AP-165)  
**Main Temp. Sensor** Duct Exhaust

**Human Machine Interface**

**Options**

BMS	Yes	Differential Pressure Transducer	CAV
HMI Advanced (Settings)	Yes		
HMI Basic (User)	Yes		
Control Box	Yes		

**Air damper actuators**

Name	Code	Set
------	------	-----





Air Damper Actuator ON-OFF S 10Nm	ADMP.ACT.SET ON-OFF S 10Nm	1
Air Damper Actuator ON-OFF 10Nm	ADMP.ACT.SET ON-OFF 10Nm	1
Air Damper Actuator 0-10 2Nm	ADMP.ACT.SET 0-10 2Nm	1
Air Damper Actuator 0-10 10Nm	ADMP.ACT.SET 0-10 10Nm	1

#### Temperature sensor

Name	Code	Set
Resp_Controls_TempSensors_Temp. Sensor NTC10k (Outdoor)	Temp. Sensor NTC10k (Outdoor)	3
Duct temperature sensor NTC 10k	Temp. Sensor NTC10k (Duct)	1
Strap-on temperature sensor NTC 10k	Temp. Sensor NTC10k (Strap-on)	1

#### Hydronic Coils Controls

Name	Code	Set
3-way Valve	VLV.SET-3W-6,3	1
3-way Valve	VLV.SET-3W-10	1

#### Transducers and Switches

Name	Code	Set
Frost Switch	FRST.SWTC	1
Differential Pressure Transducer CAV	PRSS.TRDC_CAV	1

### AHU Connection Box

#### AHU Connection Box

Rated Power	5.18 kW	Full Load Amps	26.0 A
Power Connection	3x400V AC +N+PE	Power Cord	5 x 6,00 mm <sup>2</sup>

### DECLARATION OF PERFORMANCE - Product information - (EU) 1253/2014 annex V as referred to in art. 4(2)

No.	Parameter	Unit	Value
1	Manufacturer's name		VTS sp. z o.o.
2	Manufacturer's product code		VVS055c-F-P-V-H-C
3	Declared type		NRVU, BVU
4	Type of drive installed		VFD(AC) or Controller(EC)
5	Type of energy recovery		Other
6	Thermal efficiency of heat recovery	%	81.00
7	Nominal NRVU flow rate		1.67 / 1.67
8	Effective electric power input	kW	2.07 / 1.89
9	Internal Specific Fan Power (SFPint)	w/m <sup>3</sup> /s	458.14 / 519.65
10	Face velocity	m/s	2.08
11	Nominal external pressure	Pa	300.00 / 300.00
12	Internal Pressure Drop of ventilation components Δps,int	Pa	281.61 / 289.92
13	Internal pressure drop of non-ventilation components Δps,add	Pa	183.44 / 42.25
14	Maximum Leakage Rate	%	0.01 / 0.01
15	Energy performance of filters (declared information about the calculated annual energy consumption)		EU7MPleat / F7 / - / EU5MPleat / M5 / -
16	Description of visual filter warning for NRVUs		Supported by control application
17	Casing sound power level LWA	dBA	57
18	Internet address for disassembly instructions		<a href="http://www.vtsgroup.com">http://www.vtsgroup.com</a>
19	Ecodesign Compliance		Yes (2018 +)



### Section splits

Transport Sections	Mass [Kg]	LENGTH [mm]	WIDTH [mm]	HEIGHT [mm]
1	354	1661	1345	1526
2	86	450	1345	808
3	109	790	1345	808
4	100	629	1345	718

Transport Sections Dims

