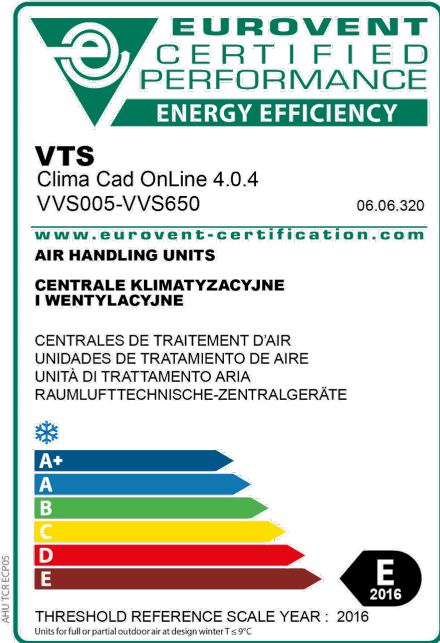
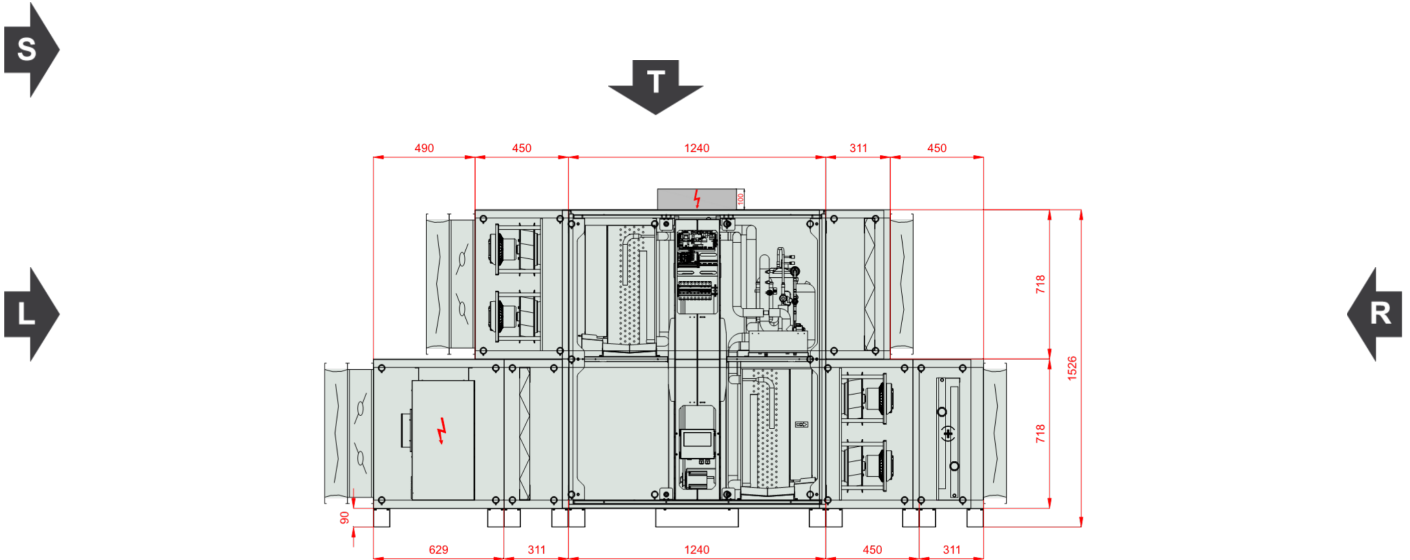


<b>Type</b>	RecoveryRotaryWithHeatPumpVertical
<b>Unit Type:</b>	Indoor
<b>Project Tag</b>	13577240
<b>Size</b>	VVS055c
<b>Set</b>	VVS055c-R-HFXVH/VVS055c-L-FXV_cd
<b>Insulation thickness</b>	40 mm
<b>Insulation</b>	Mineral Wool
<b>Weight of the set (+/- 10%)*</b>	783 Kg
<b>Supply airflow 2</b>	4700.00 m³/h
<b>External pressure</b>	300 Pa
<b>Exhaust airflow 2</b>	4700.00 m³/h
<b>External pressure</b>	300 Pa
<b>SFP Winter</b>	2.02 kW/m³/s
<b>SFP Summer</b>	2.04 kW/m³/s
<b>Ecodesign</b>	Yes (2018 +)
<b>Eurovent Energy efficiency class (Winter 2016 / Summer 2020)</b>	E 2016



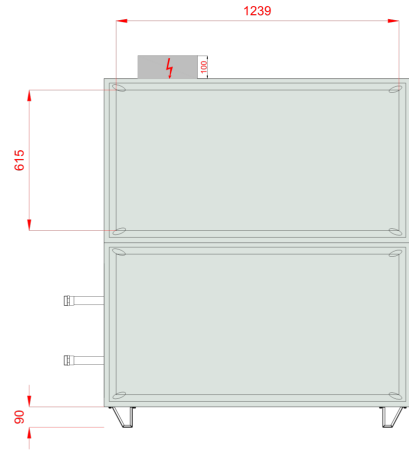
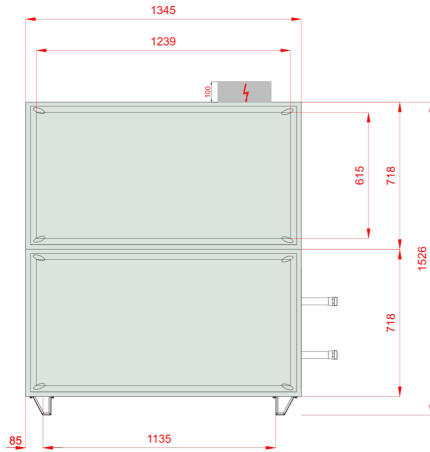
**Inspection Panels**



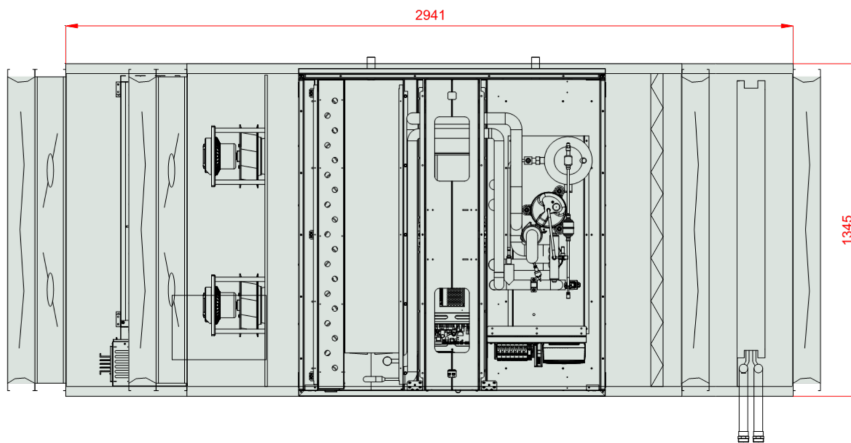
Comment 1:

Front View (left)

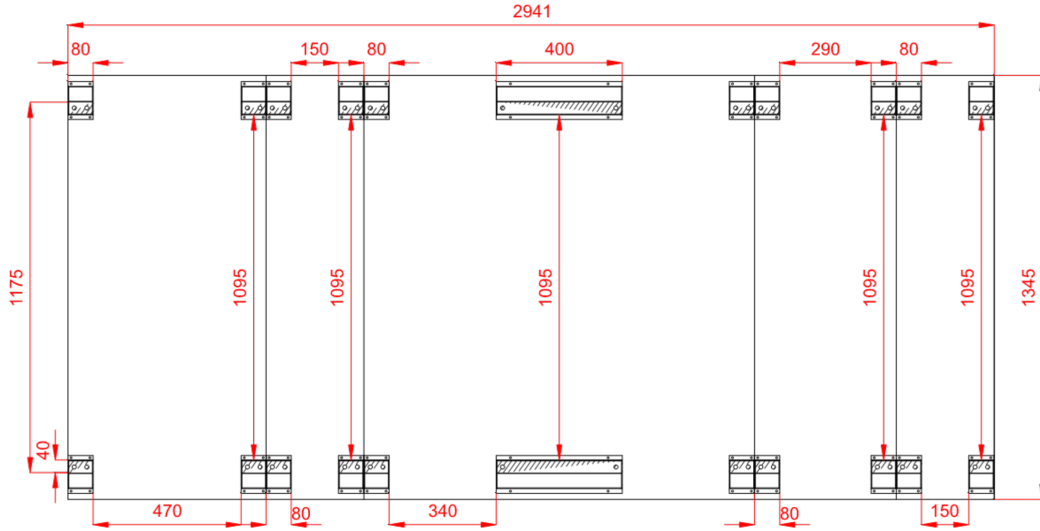
Front View (right)



Top View



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



**Sizes [mm]**

<b>Air intake Supply</b> FF	1239x615	<b>Lt</b> 2941	<b>Hi</b> 638	<b>Wi</b> 1265
<b>Air outlet Supply</b> FF	1239x615	<b>LtA</b> 3286	<b>H</b> 808	<b>W</b> 1345
		<b>L1</b> 2941	<b>H2</b> 1526	
<b>Air inlet Exhaust</b> FF	1239x615	<b>L2</b> 2001	<b>Hf</b> 90	
<b>Air outlet Exhaust</b> FF	1239x615	<b>L21</b> 490		
		<b>L22</b> 450		

**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	28.0 °C	45 %	1.2000 kg/m³	25.0 °C	50 %	1.2000 kg/m³
Winter	-20.0 °C	90 %	1.2000 kg/m³	20.0 °C	20 %	1.2000 kg/m³



**Supply**

**+ Electric heater in casing**

**Type** VVS055c-6,00kW-400/3/50-RES **Version** N4\_400\_3\_50\_FullControls\_RES\_NO

Rated Electric Power	24.00 kW		
Intake air DBT / RH	-20.0 °C / 90 %	Discharge air DBT / RH	-5.0 °C / 23 %
Air velocity	2.90 m/s	Pressure drop Wet / Dry Wet	34 Pa
Air Volume Flow	4700.00 m³/h		
Heating capacity	23.6 kW		

**↔ 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	102 Pa
Initial Air Pressure Drop	55 Pa
100% Dirty Air Pressure Drop	150 Pa
Air velocity	1.63 m/s

**Summer operation**

50% Dirty Air Pressure Drop	102 Pa
Initial Air Pressure Drop	55 Pa
100% Dirty Air Pressure Drop	150 Pa
Air velocity	1.63 m/s

**Air Filter Sizes**

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



## Heat Pump & RRG

### Heat Wheel Data

Type RRG VVS055c HGR

R2\_SR\_HGR

Rated voltage 230 V/1 ph/50 Hz

#### Winter operation

##### Supply

Intake air DBT / RH -5.0 °C / 23 %  
 Discharge air DBT / RH 15.3 °C / 21 %  
 Pressure drop Wet / Dry Wet / Dry 146 Pa / 161 Pa  
 Recovery capacity Sensible / Total 32.1 kW / 38.6 kW  
 Sensible / Total  
 Actual efficiency / at balanced flow Real / 81 % / 81 %  
 BalancedFlow  
 Dry efficiency in winter 81 %

#### Winter operation

##### Exhaust

Intake air DBT / RH 20.0 °C / 20 %  
 Discharge air DBT / RH 0.8 °C / 43 %  
 Pressure drop Wet / Dry Wet / Dry 161 Pa / 161 Pa  
 Max Internal Leakage 3%

#### Summer operation

##### Supply

Intake air DBT / RH 28.0 °C / 45 %  
 Discharge air DBT / RH 25.6 °C / 51 %  
 Pressure drop Wet / Dry Wet / Dry 164 Pa / 161 Pa  
 Recovery capacity Sensible / Total 3.7 kW / 4.3 kW  
 Sensible / Total  
 Actual efficiency / at balanced flow Real 78 %  
 Resp\_Recovery\_LatentEfficiency\_Name 21 %

#### Summer operation

##### Exhaust

Intake air DBT / RH 25.0 °C / 50 %  
 Discharge air DBT / RH 27.4 °C / 45 %  
 Pressure drop Wet / Dry Wet / Dry 163 Pa / 161 Pa

### Heat Pump Data

HEAT PUMP VVS055c R2SR|H|6|6

R410A 8 Kg

Compressor Rated Power 5.30 kW  
 Compressor Power Supply 230 V/3 ph/50 Hz

#### Winter operation

Compressor Power Consumption 2.23 kW  
 Compressor Revolutions 120 1/s

##### Supply

Intake air DBT / RH 15.3 °C / 21 %  
 Discharge air DBT / RH 24.3 °C / 12 %  
 Pressure drop Wet / Dry Wet 69 Pa  
 Capacity 14.4 kW  
 COP - Coefficient of Performance 6

##### Exhaust

Pressure drop Wet / Dry Wet 72 Pa

#### Summer operation

Compressor Power Consumption 3.12 kW  
 Compressor Revolutions 98 1/s

##### Supply

Intake air DBT / RH 25.6 °C / 51 %  
 Discharge air DBT / RH 16.1 °C / 90 %  
 Pressure drop Wet / Dry Wet 69 Pa  
 Capacity 15.9 kW  
 EER - Energy Efficiency Ratio 5

##### Exhaust

Pressure drop Wet / Dry Wet 66 Pa

**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	686 Pa	Impeller efficiency: Static / Total	70 %/76 %
Dynamic pressure	57 Pa	Shaft power	0.42 kW x 3
External pressure	300 Pa	Working revolutions	3886 1/min
Total Pressure	743 Pa		
<b>Winter operation</b>		<b>Summer operation</b>	
Air Volume Flow	4700.00 m³/h	Air Volume Flow	4700.00 m³/h

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

771.3.570-2	EC	50Hz	
	Rated revolutions	4500 1/min	
Operational Voltage	230 V/1 ph	Rated Power	0.74 kW x 3
Name plate RPM	230 V/1 ph/50 Hz		

**EC Motor Controller**

EC Controller Settings	43 Hz
------------------------	-------

<b>Winter operation</b>		<b>Summer operation</b>	
EPC for mean contaminated filters	1.47 kW	EPC for mean contaminated filters	1.51 kW
EPC for clean filters	1.38 kW	EPC for clean filters	1.41 kW
SFP for clean filters	1.06 kW/m³/s	SFP for clean filters	1.08 kW/m³/s

**Fan Section Power Supply Additional Info**

C50/3



## 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	15.3 °C / 21 %	Discharge air DBT / RH	25.0 °C / 12 %
Air velocity	2.02 m/s	Pressure drop Wet / Dry Wet	35 Pa
Air Pressure	101325 Pa	Air Density	1.2000 kg/m <sup>3</sup>
Air Volume Flow	4700.00 m <sup>3</sup> /h		
Total heating capacity	15.3 kW	Medium temperature	70.0 °C/50.0 °C
Medium flow rate	0.66 m <sup>3</sup> /h	Medium pressure drop	0.57 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)]	52.3	65.6	71.6	71.0	69.3	62.1	56.5	76.2
Outlet	[dB(A)]	56.8	63.8	49.1	53.9	47.7	45.9	41.2	65.2
Environment	[dB(A)]	40.9	52.2	50.2	44.5	36.8	29.3	15.7	55.0

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)]	33.9	45.2	43.2	37.5	29.8	22.3	8.7	48.0

## 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	96 Pa
Initial Air Pressure Drop	41 Pa
100% Dirty Air Pressure Drop	150 Pa
Air velocity	1.63 m/s

#### Summer operation

50% Dirty Air Pressure Drop	96 Pa
Initial Air Pressure Drop	41 Pa
100% Dirty Air Pressure Drop	150 Pa
Air velocity	1.63 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	629 Pa	Impeller efficiency: Static / Total	70 %/76 %
Dynamic pressure	57 Pa	Shaft power	0.39 kW x 3
External pressure	300 Pa	Working revolutions	3807 1/min
Total Pressure	686 Pa		
<b>Winter operation</b>		<b>Summer operation</b>	
Air Volume Flow	4700.00 m³/h	Air Volume Flow	4700.00 m³/h

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

771.3.570-2	EC	50Hz	
	Rated revolutions	4500 1/min	
Operational Voltage	230 V/1 ph	Rated Power	0.74 kW x 3
Name plate RPM	230 V/1 ph/50 Hz		

**EC Motor Controller**

EC Controller Settings	42 Hz
------------------------	-------

<b>Winter operation</b>		<b>Summer operation</b>	
EPC for mean contaminated filters	1.36 kW	EPC for mean contaminated filters	1.35 kW
EPC for clean filters	1.26 kW	EPC for clean filters	1.25 kW
SFP for clean filters	0.96 kW/m³/s	SFP for clean filters	0.96 kW/m³/s

**Fan Section Power Supply Additional Info**

C50/3

**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)]	52.7	66.1	72.0	72.4	70.7	65.3	59.6	77.3
Outlet	[dB(A)]	55.4	68.8	74.7	75.1	73.4	68.9	63.2	80.1
Environment	[dB(A)]	40.4	51.8	49.7	44.1	36.4	28.9	15.2	54.6

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)]	33.4	44.8	42.7	37.1	29.4	21.9	8.2	47.6





AHU Discharge and Intake Opening Sizes & Accessories	Supply	Exhaust
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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 AX|0|0|2|3|1|0|0|6|3|0|0|0|0|1  
 APP Code uPC3  
 Main Temp. Sensor Duct Exhaust

Human Machine Interface	Options	
	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

#### Temperature sensor

Name	Code	Set
Resp_Controls_TempSensors_Temp. Sensor NTC10k (Outdoor)	Temp. Sensor NTC10k (Outdoor)	2
Duct temperature sensor NTC 10k	Temp. Sensor NTC10k (Duct)	2
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

#### Transducers and Switches

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

### AHU Connection Box

#### AHU Connection Box

Rated Power	4.44 kW	Full Load Amps	44.0 A
Power Connection	3x400V AC +N+PE	Power Cord	5 x 10,00 mm <sup>2</sup>



### TDS\_AHUPowerConnection\_ElectricHeaters

1 HP

#### TDS\_AHUPowerConnection\_Heaters

Rated Power	24.00 kW
Power Connection	400V+PE
Full Load Amps	41.0 A
TDS_AHUPowerConnection_MCA	51.3 A
TDS_AHUPowerConnection_CircuitBreaker	63.0 A
Power Cord	4 x 10,00 mm <sup>2</sup>

#### TDS\_AHUPowerConnection\_Controls

Rated Power	24.00 kW
Power Connection	230V+N+PE
Full Load Amps	0.2 A
Power Cord	3 x 0,75 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-H-F-X-V-H
3	Declared type		NRVU, UVU
4	Type of drive installed		VFD(AC) or Controller(EC)
5	Type of energy recovery		None
6	Thermal efficiency of heat recovery		Not applicable
7	Nominal NRVU flow rate		1.31
8	Effective electric power input	kW	1.47
9	Internal Specific Fan Power (SFPint)	w/m <sup>3</sup> /s	89.90
10	Face velocity	m/s	1.63
11	Nominal external pressure	Pa	300.00
12	Internal Pressure Drop of ventilation components $\Delta p_{s,int}$	Pa	54.65
13	Internal pressure drop of non-ventilation components $\Delta p_{s,add}$	Pa	331.19
14	Maximum Leakage Rate	%	0.01
15	Energy performance of filters (declared information about the calculated annual anergy consumption)		EU7MPleat / F7 / -
16	Description of visual filter warning for NRVUs		Supported by control application
17	Casing sound power level LWA	dBA	55
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	95	450	1345	718
2	75	629	1345	808
3	33	311	1345	808
4	376	1240	1345	1526
5	80	450	1345	808
6	52	311	1345	808
7	37	311	1345	718

Transport Sections Dims



