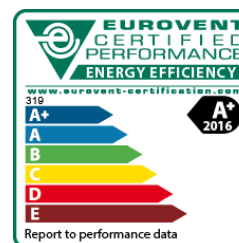


Unit name: LG 4000m<sup>3</sup>/h buitenopst. - Design data

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

GOLD F RX  
Manufactured by Swegon, Kvånum, Sweden

Basic Data			
Unit size			012
Air density		1.200	kg/m <sup>3</sup>
Supply air flow		4,000	m <sup>3</sup> /h
Static pressure drop	Outdoor air duct	0	Pa
	Supply air duct	600	Pa
Extract air flow		4,000	m <sup>3</sup> /h
Static pressure drop	Extract air duct	600	Pa
	Exhaust air duct	0	Pa
Climate data		Bruxelles,	Belgium
Design outdoor temperature, summer		32.0	°C
Design outdoor humidity, summer		55	%
Design outdoor temperature, winter		-10.0	°C
Design outdoor humidity, winter		90	%
Supply air temperature, summer		27.6	°C
Supply air temperature, winter		17.8	°C



Key Performance Data			
Specific fan power SFPv	clean filters	3.24	kW/(m <sup>3</sup> /s)
Temperature efficiency of supply air according to EN308		82.4	%
Eurovent Energy Efficiency Class		A+	2016
ErP Commission Regulation (EU) No 1253/2014		Compliant	2018

Casing	
Construction	Frameless, double skinned panels with mineral wool insulation
Panels	56mm thick with 1mm thick steel sheet inside and out. Outer sheet with grey painted finish
Thermal insulation class	T2
Thermal bridging class	TB2
Casing leakage class	L1(M) / L2(R) according to EN 1886:2007 at -400 Pa and +400 Pa
Casing strength	D3(M)
Insulating material	

Electrical connections	
GOLD F	3-phase, 5-wire, 400 V-10/+15%, 50 Hz, 10 A

Unit name: LG 4000m³/h buitenopst. - Design data

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

Functional sections viewed in the direction of air flow	Velocity m/s	Air Temperature in/out Winter °C	Air Temperature in/out Summer °C	Power kW	Design Pressure drop Pa	Noise Level dB(A)
<b>Outdoor air duct</b>					-0	66
Air intake section	1.85				-29	
Connection frame					-2	
Filter	1.85				-141	
Rotary heat exchanger	2.74	-10.0/16.4	32.0/26.2		-198	
Fan				1.87	1,000	
End section					-30	
<b>Supply air duct</b>					-600	84
<b>Extract air duct</b>					-600	69
End section					-30	
Filter	1.64				-93	
Rotary heat exchanger	2.74	22.0/-4.4	25.0/30.8		-221	
Fan				1.95	952	
Connection frame					-2	
Exhaust air cowl for outdoor installation					-6	
<b>Exhaust air duct</b>					-0	84

Sound power to duct, measured according to ISO 5136  
Noise reduction for function section included to duct.  
Sound power emitted to surroundings, measured according to ISO 3741

Frequency band	63	125	250	500	1k	2k	4k	8k		All	
To supply air duct	86	82	79	79	80	78	74	71	dB	84	dB(A)
To outdoor air duct	80	76	69	66	55	53	45	46	dB	66	dB(A)
To extract air duct	80	77	71	69	58	57	54	53	dB	69	dB(A)
To exhaust air duct	86	82	79	79	80	78	74	71	dB	84	dB(A)
To surroundings	78	71	59	61	50	48	43	43	dB	61	dB(A)

### GOLD-Unit with control system

Components are arranged according to airflow direction

#### Quantity

#### Supply air

<b>1</b>	<b>Air intake section, TBTF-4-100-040-1-1-1</b>	
	Pressure drop, connection	29 Pa
	Without damper	
<b>1</b>	<b>Connection frame , outdoor air</b>	
	Static pressure drop	2 Pa
<b>1</b>	<b>Filter</b>	
	Filter class ePM1 50% (F7)	

Unit name: LG 4000m<sup>3</sup>/h buitenopst. - Design data

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

2x(490x592x370-8)	
Velocity in the filter section	1.85 m/s
Recommended design pressure drop	141 Pa
Initial pressure drop	91 Pa
Final pressure drop	191 Pa

### 1 Rotary heat exchanger, GOLD012FRXP01

Rotary heat exchanger of type RECOsorptic

Sorption treated

Speed controlled

Pressure drop, supply air 198 Pa

Pressure drop, extract air 221 Pa

Extra pressure drop in extract air side (damper) to ensure the right flow direction 0 Pa

Purging flow including leakage 501 m<sup>3</sup>/h

Temperature efficiency of supply air according to EN308 (82.4% at the same airflow) 82.4 %

Humidity efficiency, supply air, winter 80.3 %

Humidity efficiency, supply air, summer 70.9 %

Annual energy efficiency, dry conditions 99.1 %

Supply air side, winter	In	Out	
Air temperature	-10.0	16.4	°C
Relative humidity	90	60	%
Heating power		53.44	kW

Extract air side, winter	In	Out	
Air temperature	22.0	-4.4	°C
Relative humidity	50	100	%

Supply air side, summer	In	Out	
Air temperature	32.0	26.2	°C
Relative humidity	56	56	%
Cooling power		23.91	kW

Extract air side, summer	In	Out	
Air temperature	25.0	30.8	°C
Relative humidity	50	53	%

### 1 Fan

Fan of type GOLD Wing+

Withdrawable fan with integrated airflow measurement

Unit name: LG 4000m<sup>3</sup>/h buitenopst. - Design data

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

Direct drive with speed controlled EC motor	
Isolated with internal flexible connection and rubber anti-vibration mounting	
Standard connection, internal	
Supply air flow	4,000 m <sup>3</sup> /h
The fan system effect is included in the fan performances	
Design static pressure (wet conditions)	1,000 Pa
Static pressure rise in the SFPv calculation	950 Pa
Temperature rise caused by the fan	1.4 °C
Min speed	300 rpm
Speed in the SFPv calculation	2,252 rpm
Design speed	2,299 rpm
Max speed	2,500 rpm
Design electric power to motor(s)	1.87 kW
Electric power to motor(s) in the SFPv calculation	1.77 kW
Rated motor power	2.40 kW
Motor option	2
Motor code	DOMEL 748.3.496
Number of fans/motors in the air stream	1
Maximum motor efficiency (incl. motor control 91.5%)	94.0 %
Efficiency grade; FMEG, plenum fan, incl. motor control	72
Regulation(EU)No 327/2011 overall efficiency	66.0 %
Specific fan power efficiency	1.59 kW/(m <sup>3</sup> /s)
<b>1 End section, supply air</b>	
Static pressure drop	30 Pa

Quantity	Extract air	
<b>1</b>	<b>End section, extract air</b>	
	Static pressure drop	30 Pa
<b>1</b>	<b>Filter</b>	
	Filter class ePM10 60% (M5)	
	2x(490x592x370-8)	
	Velocity in the filter section	1.64 m/s
	Recommended design pressure drop	93 Pa
	Initial pressure drop	43 Pa

Unit name: LG 4000m<sup>3</sup>/h buitenopst. - Design data

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

	Final pressure drop	143 Pa
<b>1</b>	<b>Rotary heat exchanger, GOLD012FRXP01</b>	
	Accessories and technical data, see supply air	
<b>1</b>	<b>Fan</b>	
	Fan of type GOLD Wing+	
	Withdrawable fan with integrated airflow measurement	
	Direct drive with speed controlled EC motor	
	Isolated with internal flexible connection and rubber anti-vibration mounting	
	Standard connection, internal	
	Extract air flow	4,000 m <sup>3</sup> /h
	The fan system effect is included in the fan performances	
	Design static pressure (wet conditions)	952 Pa
	Static pressure rise in the SFPv calculation	902 Pa
	Temperature rise caused by the fan	1.3 °C
	Min speed	300 rpm
	Speed in the SFPv calculation	2,280 rpm
	Design speed	2,324 rpm
	Max speed	2,500 rpm
	Design electric power to motor(s)	1.95 kW
	Electric power to motor(s) in the SFPv calculation	1.84 kW
	Rated motor power	2.40 kW
	Motor option	2
	Motor code	DOMEL 748.3.496
	Number of fans/motors in the air stream	1
	Maximum motor efficiency (incl. motor control 91.5%)	94.0 %
	Efficiency grade; FMEG, plenum fan, incl. motor control	72
	Regulation(EU)No 327/2011 overall efficiency	66.0 %
	Specific fan power efficiency	1.47 kW/(m <sup>3</sup> /s)
<b>1</b>	<b>Connection frame , exhaust air</b>	
	Static pressure drop	2 Pa
<b>1</b>	<b>Exhaust air cowl for outdoor installation, TBTA-2-100-040-2</b>	
	Pressure drop	6 Pa

Unit name: LG 4000m³/h buitenopst. - Design data

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

---

Quantity	Accessories
1	<b>Roof for outdoor installation</b> <i>TBTB6012RX</i>

---

**GOLD F RX**

Unit size	012
Supply air flow	4,000 m <sup>3</sup> /h
Extract air flow	4,000 m <sup>3</sup> /h

Non-residential ventilation unit (exception: multi dwelling residential buildings)  
Unit type: bidirectional ventilation unit; NVRU, BVU  
Other heat recovery (rotary heat exchanger)  
Supply air dry temp. efficiency ratio (Requirement: 2018: 73 %): 82.4 %  
Maximum internal leakage (tracer gas) 1 %



ErP Commission Regulation (EU) No 1253/2014  
The air handling unit meets the requirements in 2018

Supply air		
Face velocity, filter section	1.85	m/s
Energy perf, 6000 h (filter class ePM1 50% (F7) or better)	1,586	kWh/year
Filter class (ePM1 50% (F7) or better)	F7	
Reference filter; ePM1 50% (F7)	91	Pa
HRS	198	Pa
Casing; inlet	2	Pa
Casing; outlet	30	Pa
Casing; fan system losses	0	Pa
(The fan system effect is included in the fan performances)		
Overall static fan efficiency at the current working point	59.3	%

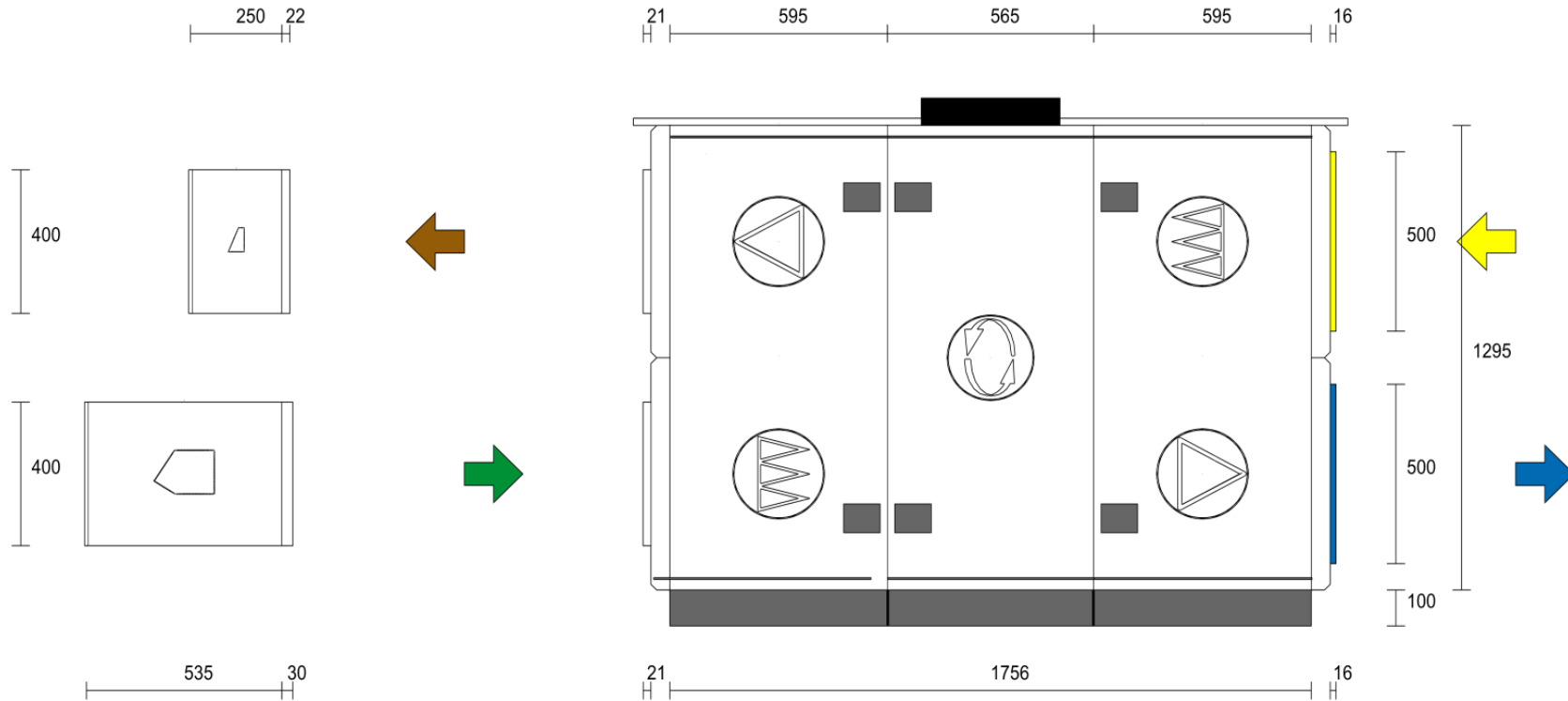
Extract air		
Face velocity, filter section	1.64	m/s
Energy perf, 6000 h (filter class ePM10 60% (M5) or better)	947	kWh/year
Filter class (ePM10 60% (M5) or better)	M5	
Reference filter; ePM10 60% (M5)	43	Pa
HRS	221	Pa
Casing; inlet	30	Pa
Casing; outlet	2	Pa
Casing; fan system losses	0	Pa
(The fan system effect is included in the fan performances)		
Overall static fan efficiency at the current working point	61.1	%

Unit name: LG 4000m<sup>3</sup>/h buitenopst. - Design data

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

Efficiency bonus E 2018	281	W/(m <sup>3</sup> /s)
Filter correction F 2018	0	W/(m <sup>3</sup> /s)
Internal specific fan power, SFPint	1,026	W/(m <sup>3</sup> /s)
Internal specific fan power, required 2018, SFPint_limit	1,214	W/(m <sup>3</sup> /s)
Maximum air flow (end section, balanced), required 2018	4,030	m <sup>3</sup> /h
Maximum air flow (connection frame conn, balanced), required 2018	4,680	m <sup>3</sup> /h

AHU Design  
Sketch: Inspection side



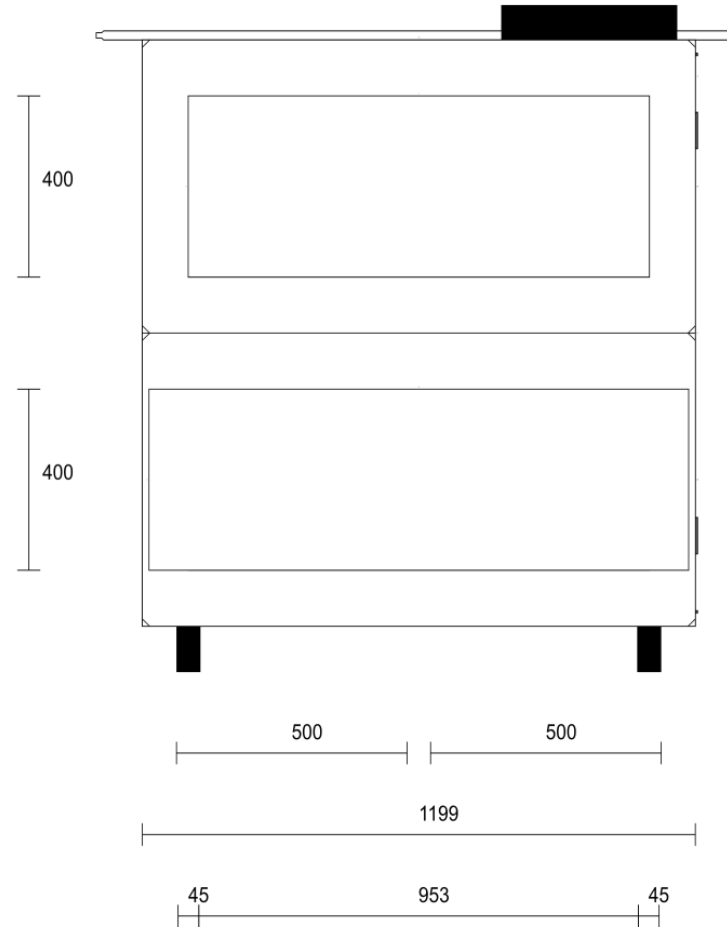
- Outdoor air
- Supply air
- Extract air
- Exhaust air

GOLD F RX	
Unit size	012
Unit weight	513 kg
Duct Component Weight	6 kg
Length, max	1,860 mm
Height, max	1,471 mm
Width, max	1,199 mm

Connection size	
outdoor air	1,000 x 400 mm
supply air	Ø 500 mm
extract air	Ø 500 mm
exhaust air	1,000 x 400 mm

Unit name: LG 4000m<sup>3</sup>/h buitenopst.  
 Unit ID: AD-10000027341  
 13 / 1.0.20180918.1141432  
 Date: 21/09/2018

AHU Design  
Sketch: Left-hand



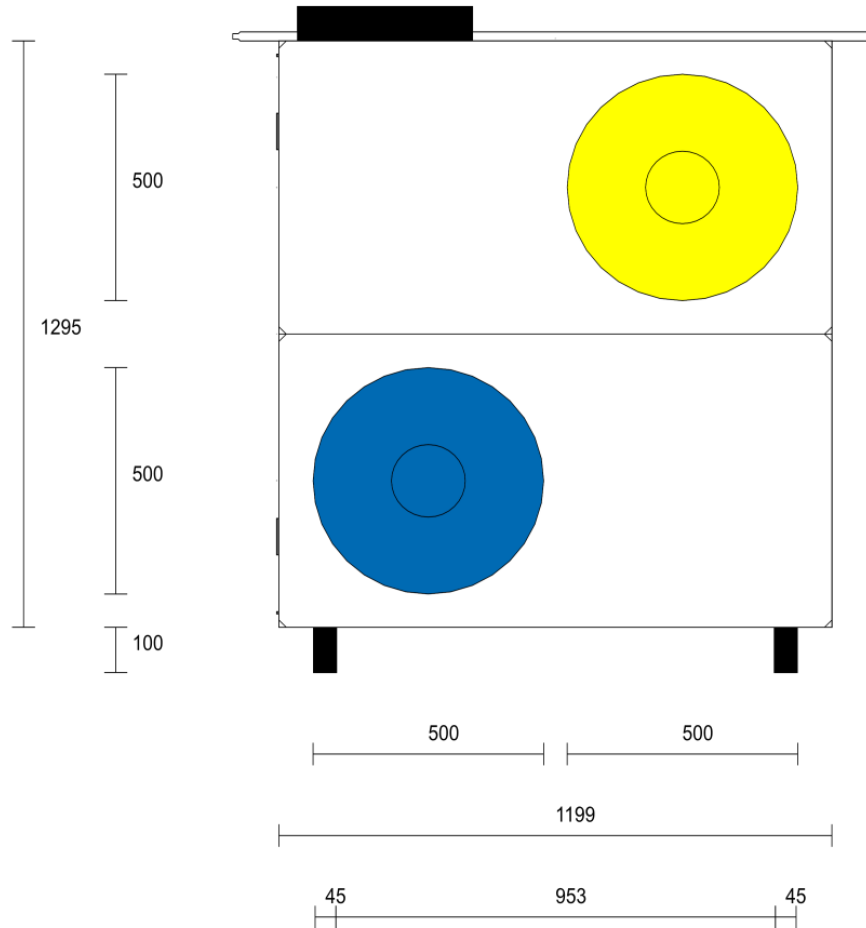
GOLD F RX	
Unit size	012
Unit weight	513 kg
Duct Component Weight	6 kg
Length, max	1,860 mm
Height, max	1,471 mm
Width, max	1,199 mm

Connection size	
outdoor air	1,000 x 400 mm
supply air	Ø 500 mm
extract air	Ø 500 mm
exhaust air	1,000 x 400 mm

Unit name: LG 4000m<sup>3</sup>/h buitenopst.  
 Unit ID: AD-10000027341  
 13 / 1.0.20180918.1141432  
 Date: 21/09/2018

- Outdoor air
- Supply air
- Extract air
- Exhaust air

AHU Design  
Sketch: Right-hand



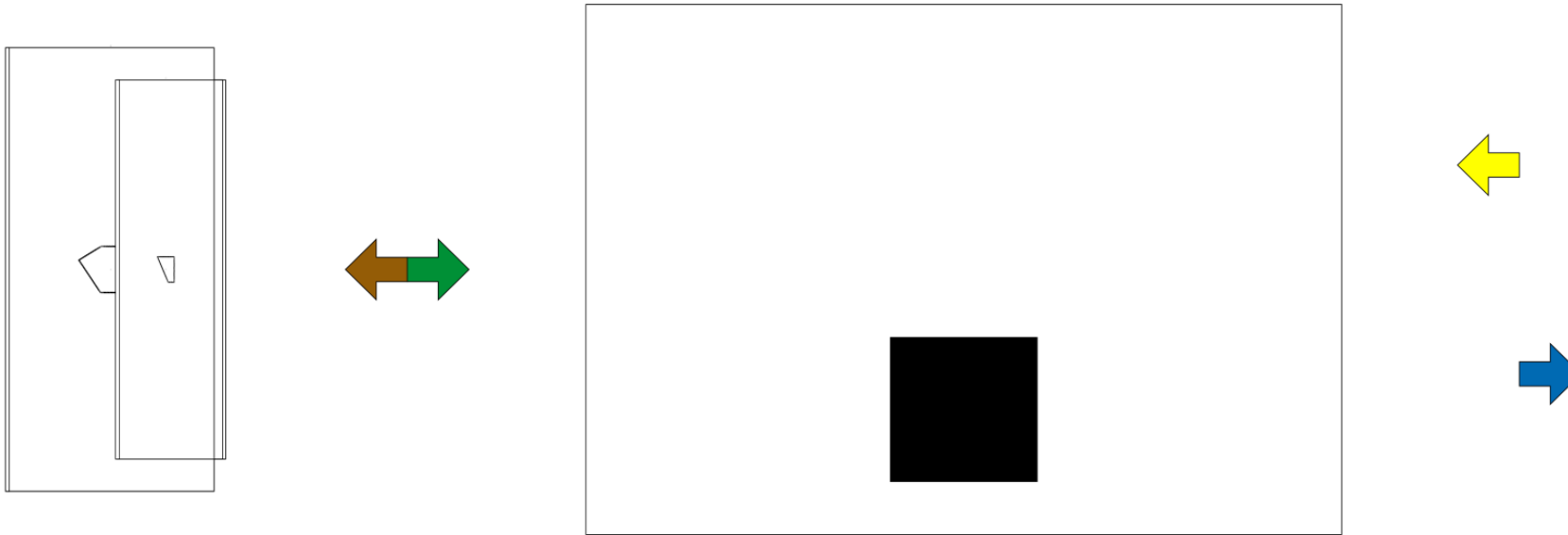
GOLD F RX	
Unit size	012
Unit weight	513 kg
Duct Component Weight	6 kg
Length, max	1,860 mm
Height, max	1,471 mm
Width, max	1,199 mm

Connection size	
outdoor air	1,000 x 400 mm
supply air	Ø 500 mm
extract air	Ø 500 mm
exhaust air	1,000 x 400 mm

Unit name: LG 4000m<sup>3</sup>/h buitenopst.  
 Unit ID: AD-10000027341  
 13 / 1.0.20180918.1141432  
 Date: 21/09/2018

- Outdoor air
- Supply air
- Extract air
- Exhaust air

AHU Design  
Sketch: Above



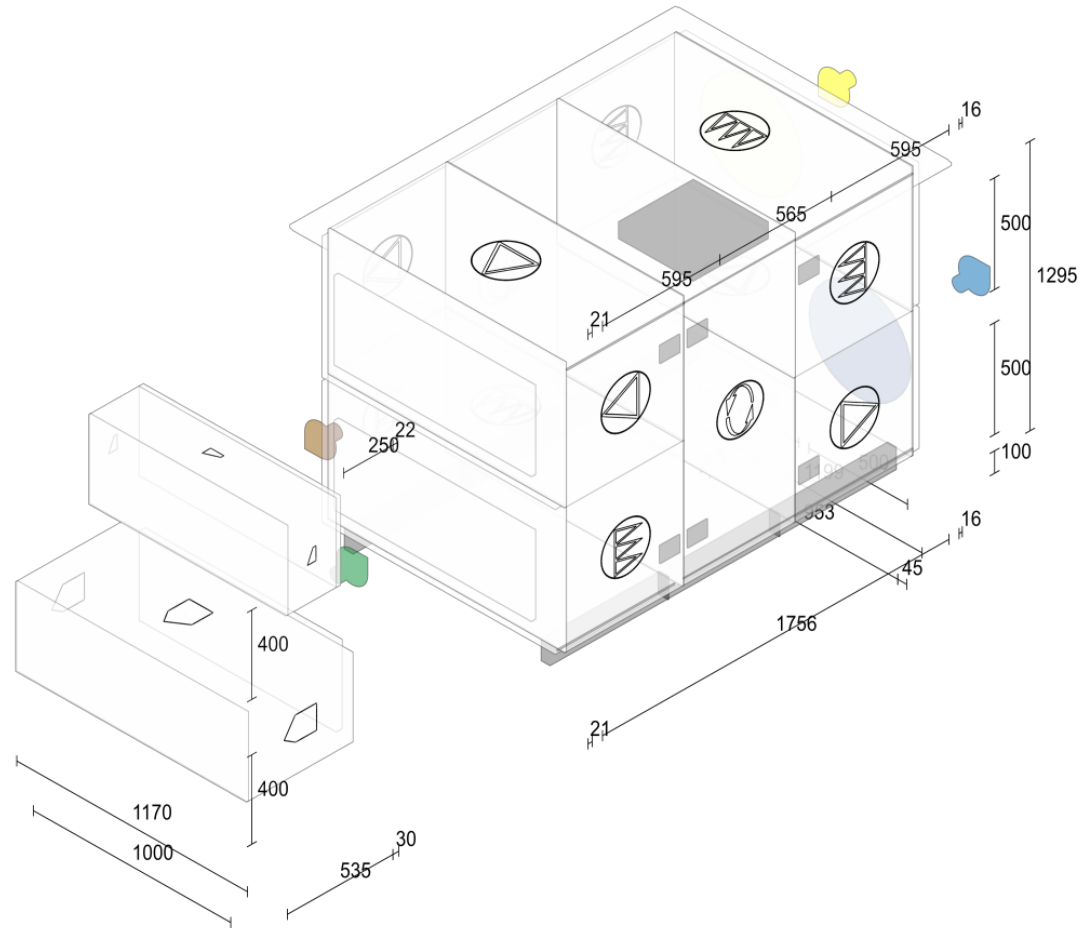
GOLD F RX	
Unit size	012
Unit weight	513 kg
Duct Component Weight	6 kg
Length, max	1,860 mm
Height, max	1,471 mm
Width, max	1,199 mm

Connection size		
outdoor air	1,000 x 400	mm
supply air	Ø 500	mm
extract air	Ø 500	mm
exhaust air	1,000 x 400	mm

Unit name: LG 4000m<sup>3</sup>/h buitenopst.  
 Unit ID: AD-10000027341  
 13 / 1.0.20180918.1141432  
 Date: 21/09/2018

- Outdoor air
- Supply air
- Extract air
- Exhaust air

AHU Design  
Sketch: Above left



- Outdoor air
- Supply air
- Extract air
- Exhaust air

GOLD F RX	
Unit size	012
Unit weight	513 kg
Duct Component Weight	6 kg
Length, max	1,860 mm
Height, max	1,471 mm
Width, max	1,199 mm

Connection size	
outdoor air	1,000 x 400 mm
supply air	Ø 500 mm
extract air	Ø 500 mm
exhaust air	1,000 x 400 mm

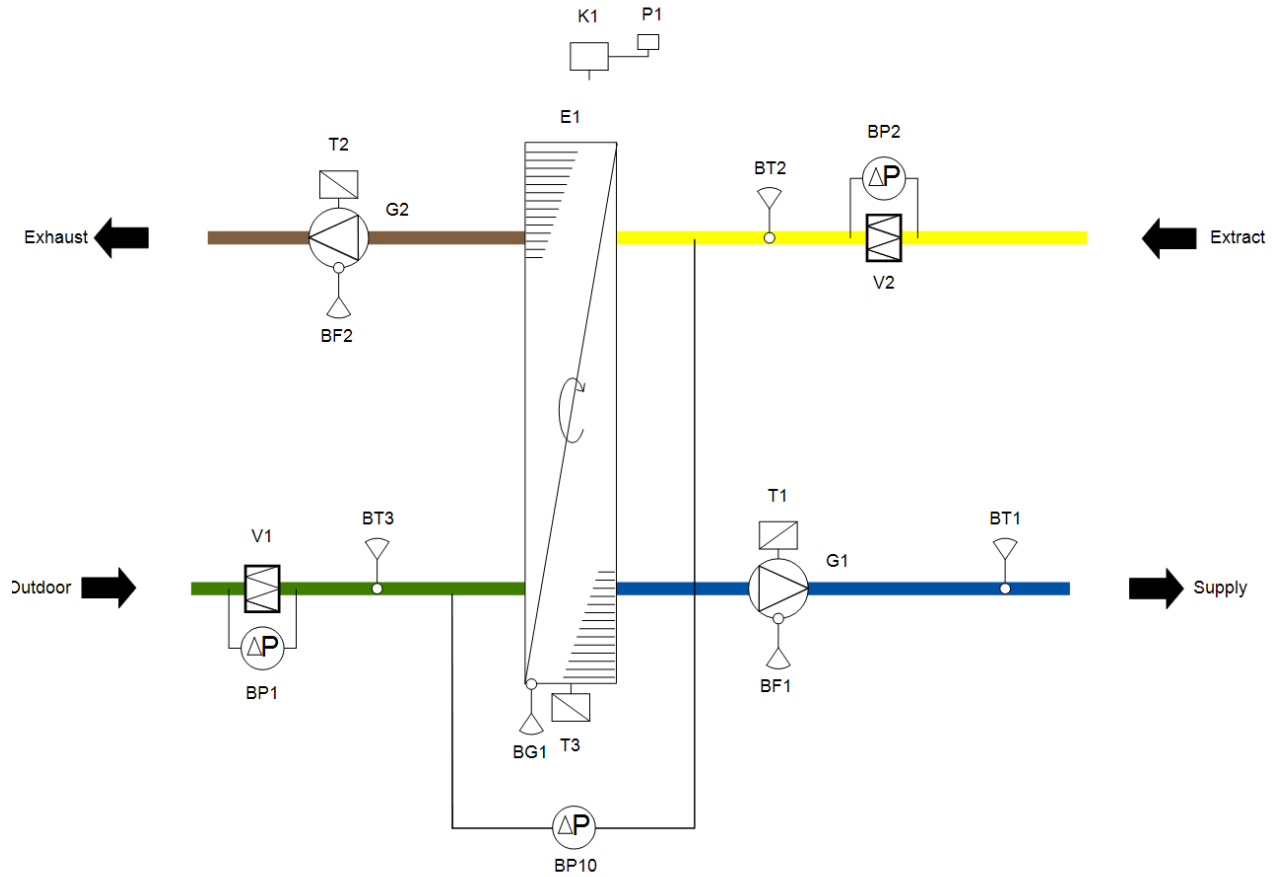
Unit name: LG 4000m<sup>3</sup>/h buitenopst.  
 Unit ID: AD-10000027341  
 13 / 1.0.20180918.1141432  
 Date: 21/09/2018



Unit name: LG 4000m³/h buitenopst.

Date: 21/09/2018  
 13 / 1.0.20180918.1141432  
 Unit ID: AD-10000027341

### Flow chart



# AHU Design

## Description of the functions



Unit name: LG 4000m³/h buitenopst.

Date: 21/09/2018  
13 / 1.0.20180918.1141432  
Unit ID: AD-10000027341

E1	Rotary heat exchanger, RECOeconomic
BG1	Rotation monitor sensor
T3	Heat exchanger control
K1	Control box IQlogic
P1	Hand terminal
BP10	Flow calibration sensor
G1	Supply fan, Wing
BF1	Airflow pressure sensor
T1	Motor control
V1	Supply air filter
BP1	Filter pressure sensor
G2	Extract fan, Wing
BF2	Airflow pressure sensor
T2	Motor control
V2	Extract air filter
BP2	Filter pressure sensor
BT3	Temperature sensor, duct
BT1	Temperature sensor, duct
BT2	Temperature sensor Extract Air