

## ENERGY

### Air handling unit for outside air with high energy efficiency Airflow from 4000 to 25000 m<sup>3</sup>/h



#### DESCRIPTION

The units of the Energy series represent the maximum expression of technical innovation for the treatment of outside air. The Energy series has been specifically designed to reduce to the minimum the operating energy consumption, which represents around 80% of the entire life cycle cost of an air treatment unit. The double heat recovery system (static and active) and the innovative cooling and adiabatic humidification system, allow the supply of air at the desired conditions with the minimum energy expenditure. The damper for total bypass allows free-cooling in the intermediate season, exploiting to the maximum the free external thermal contribution. The Energy series is manufactured in full compliance with the standard EN1886 with regards to mechanical resistance, air leakage, thermal and acoustical insulation of the casing.

#### CHARACTERISTICS

##### Versions

- 5 sizes available

##### Plug and play

- The units of the Energy series are delivered ready for use. In particular, the machine is equipped with a complete control system and the refrigerant circuit is completely assembled and tested, minimising the time and cost of installation and start up

##### Structural assembly

- In aluminium profile with rounded edges and reinforced nylon corner pieces. The casing is manufactured from sandwich panels of 50 mm thickness, fixed to the frame with an exclusive panel fixing without the use of screws. This fixing method allows a uniform pressure on the casing, ensuring an excellent resistance to the leakage of air and water

##### Modulating bypass damper

- In aluminium with opposed aerofoil blades, installed in the extract air flow to permit free-cooling. Additional recirculating damper (only in the Eco version). The accurate manufacturing minimises air leakage

##### Plug fans

- Very high efficiency directly coupled to the motor. Inverter for continuous control of supply and extract air flow

##### Filtration systems

- Various types of filters are available (panel and bag), to satisfy any filtration requirement and ensure compliance with the current air quality standards. Dirty filter pressure switches supplied as standard

#### Static heat recovery

- Integrated reversible heat pump. Tandem scroll compressor (single for sizes 040 and 060) supplied with rubber anti-vibration feet; continuous capacity control through an inverter to ensure the maximum energy savings even at part load. Double expansion valve electronically controlled. 4 way refrigerant cycle reversing valve. Coils manufactured with copper tubes and prepainted aluminium fins. Environmentally friendly refrigerant R410A ensures improved energy efficiency for the refrigerant cycle

#### Re-heat coil

- Water in the Standard version (optional) and Eco version (standard), hot gas in the Dry version (standard)

#### Cooling system

- Adiabatic with water spray in the extract air, with self cleaning spray nozzles and high pressure pump module, having the function of maximising the heat exchange in the double heat recovery system

#### Water humidification system

- Spray in the supply air. Lower surfaces of the unit equipped with drain panels with central condensate drain to ensure the continuous drainage of water and avoid stagnation

#### Electrical panel

- Complete with power and controls unit mounted. Remote panel for the control of all the main functions and display of alarms

#### Microprocessor controller

- Capable of controlling the various operating modes (control of outside air, control of total air), ensuring the maximum energy saving in each operating condition. RS485 interface supplied as standard (MODBUS protocol) for connection to a supervisory systems and remote control. Manual season change over (summer/winter)

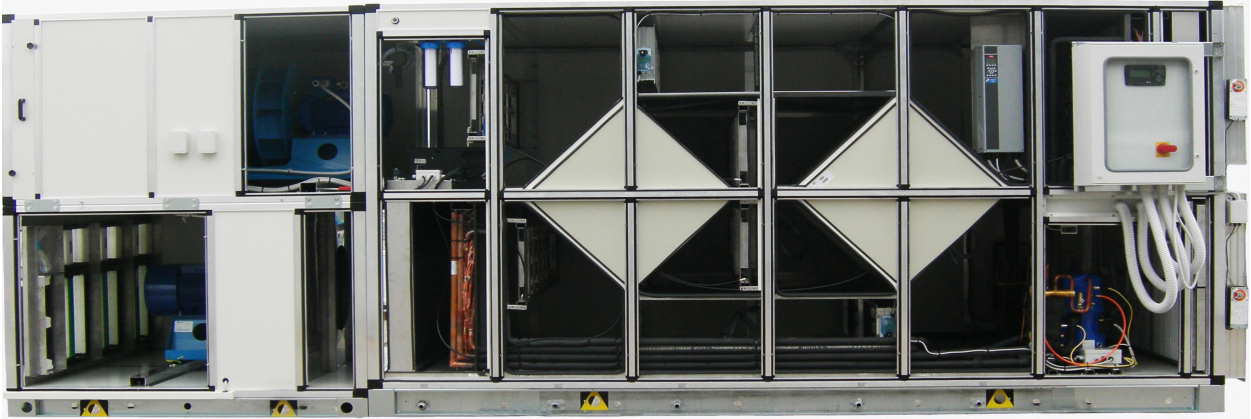
#### On demand

- Hot water re-heat coil (only Standard version, as standard on Eco version), enthalpy free-cooling (available only with ambient temperature control), bag filters

Refrigerant circuit with inverter compressor

Modulating dampers for free-cooling

Humidification system pump



Fan inverter

Re-heater coil (optional)

Electrical panel with power and controls

Double static heat recovery

VERSION	Adiabatic cooling / humidification	Recirculating damper	Hot gas re-heat	Water re-heat
Energy Std	●	-	-	Optional
Energy Dry	●	-	●	-
Energy Eco	●	●	-	●

## TECHNICAL DATA

<b>Model - ENERGY Dry</b>		<b>040</b>	<b>060</b>	<b>100</b>	<b>160</b>	<b>250</b>	
Air flow rate (supply/return)	(nom)	m <sup>3</sup> /h	4000	6000	10000	16000	25000
	(min)	m <sup>3</sup> /h	3600	5100	8500	13000	20000
	(max)	m <sup>3</sup> /h	4800	7200	11500	17600	25000
Cooling Capacity		kW	40	57	99	155	203
Total input power		kW	10,2	14,6	25,7	39,1	56
EER		W/W	3,92	3,90	3,85	3,96	3,63
Heating Capacity		kW	67	88	146	229	313
Total input power		kW	13,5	14,3	22,1	34,7	50,5
COP		W/W	4,96	6,15	6,61	6,60	6,20
<b>Thermodynamic recovery</b>							
Cooling Capacity - max (f.a cooling)		kW	24,4	34,4	63,5	93	114,9
Total input power - max (f.a cooling)		kW	7,1	9,1	17	23,7	30,1
Heating capacity - max. (f.a Heating)		kW	28,5	32,1	54,9	78,6	99,6
Total input power - max (f.a Heating)		kW	10,4	8,7	13,2	18,9	23,8
<b>Static recovery + adiabatic</b>							
Max recovered summer power		kW	15,2	22,7	35,5	61,6	87,9
Sensitive Summer Static Efficiency		%	72	71	69	74	66
Max capacity recovered Winter		kW	38,7	55,9	90,8	150,8	213,4
Static Efficiency Sensitive Winter		%	84	82	80	80	76

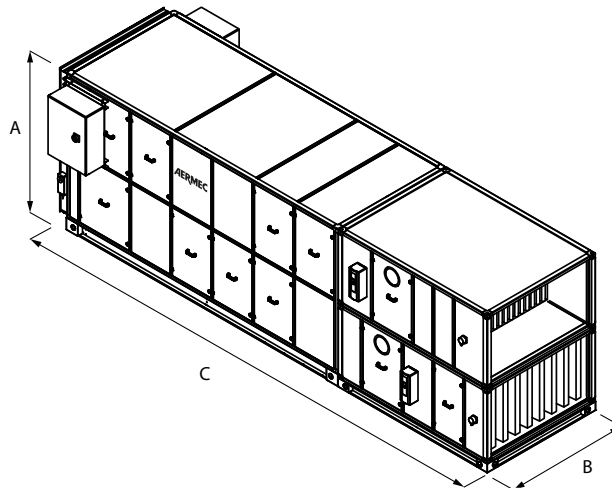
<b>Model - ENERGY Eco/Std</b>		<b>040</b>	<b>060</b>	<b>100</b>	<b>160</b>	<b>250</b>	
Air flow rate (supply/return)	(nom)	m <sup>3</sup> /h	4000	6000	10000	16000	25000
	(min)	m <sup>3</sup> /h	3600	5100	8500	13000	20000
	(max)	m <sup>3</sup> /h	4800	7200	11500	17600	25000
Cooling Capacity		kW	37	54	95	148	194
Total input power		kW	12,2	16,8	28,8	43,9	62,8
EER		W/W	3,03	3,21	3,30	3,37	3,09
Heating Capacity		kW	60	88	146	229	313
Total input power		kW	8,9	14,3	22,1	34,7	50,5
COP		W/W	6,74	6,15	6,61	6,60	6,20
<b>Thermodynamic recovery</b>							
Cooling Capacity - max (f.a cooling)		kW	22,1	31,3	59,2	87,0	93,5
Total input power - max (f.a cooling)		kW	9,1	11,3	20,1	28,5	36,9
Heating capacity - max. (f.a Heating)		kW	21,0	32,1	54,9	78,6	99,6
Total input power - max (f.a Heating)		kW	5,8	8,7	13,2	18,9	23,8
<b>Static recovery + adiabatic</b>							
Max recovered summer power		kW	15,2	22,7	35,5	61,6	73,8
Sensitive Summer Static Efficiency		%	72	71	69	74	69
Max capacity recovered Winter		kW	38,7	55,9	90,8	150,8	179,6
Static Efficiency Sensitive Winter		%	84	82	80	80	79

- Cooling Mode  
External Air Temperature: 35 °C; RH 40%; Ambient Temperature: 26 °C; Humidity Ambient 50 %
- Heating Mode  
External Air Temperature: -10 °C; Humidity External Air 90%; Ambient Temperature: 20 °C; Humidity Ambient 50 %

## TECHNICAL DATA

GENERAL DATA		040	060	100	160	250
<b>Electrical data</b>						
Maximum absorbed current	A	50,3	53,6	80,3	113,4	146
<b>Compressors</b>						
Compressors	type	scroll	scroll	scroll	scroll	scroll
	n°	1	1	2	2	2
Circuits	n°	1	1	1	1	1
Refrigerant gas	type	R410A	R410A	R410A	R410A	R410A
<b>Supply fans</b>						
Fans	type					plug-fan
	n°					1
<b>Recovery fans</b>						
Fans	type					plug-fan
	n°					1
Power supply	V/ph/Hz					400V/3N

## DIMENSIONAL DATA



Mod. ENERGY		Vers.	040	060	100	160	250
Height	(mm) A	tutte	1810	1810	2130	2450	2450
Width	(mm) B	tutte	1055	1375	1695	2015	2335
Length	(mm) C	tutte	4830	4830	5630	6270	6270
Waeight Standard version	(kg)		1400	1800	2300	2900	3500

Aermec reserves the right to make any modifications deemed necessary.  
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