

ENERGY

Air handling unit for outside air with high energy efficiency. Airflow from 4,000 to 25,000 m³/h.

R410A



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

Energy		040	060	100	160	250
Air flow nominal	m ³ /h	4.000	6.000	10.000	16.000	25.000
Air flow minimum	m ³ /h	2.800	4.200	7.000	11.200	17.500
Max motor capacity standard fans	kW	2,2	3	5,5	7,5	15
Current input at max capacity	A	4	5,4	9,9	13,5	27,1
Available supply static pressure	Pa	300	300	300	300	300
Available extract static pressure	Pa	200	200	200	200	200
Max motor capacity oversized fans	kW	3	4	7,5	11	15
Available supply pressure	Pa	500	500	500	500	500
Available extract pressure	Pa	400	400	400	400	400
Recovered heat capacity ^{1, 3}	kW	16,2	23,4	38	63,3	100,8
Heat recovery output ^{1, 3}	%	75,4	72,3	71,3	74,0	75,4
Cooling capacity heat recovery circuit active ¹	kW	19,1	27,8	45,6	73,8	97,6
Compressor power input ¹	kW	7,3	9,4	15,3	22	25
Compressor current input ¹	A	13,8	13,2	24,12	32,5	37
E.E.R. total ¹		3,5	3,8	3,8	4,1	4,4
Recovered heat capacity ^{2, 3}	kW	12,5	21,9	35,6	59,2	94,2
Heat recovery output ^{2, 3}	%	76,6	74	72,1	74,8	76,2
Heating capacity heat recovery circuit active ²	kW	24,2	32,1	56,8	84,6	109,8
Compressor power input ²	kW	7,4	8,0	17,8	19,1	22,6
Compressor current input ²	A	15,9	11,3	29,1	29,2	34,7
C.O.P. total ²		3,9	4,5	3,9	4,7	4,8
Type compressors/ number		Scroll / 1		Scroll / 2		
Power supply		400V / 3Ph+N / 50Hz				
Pump capacity adiabatic cooling circuit	kW	0,46	0,46	0,46	0,69	0,69
Humidification capacity	g/kg	5	5	5	5	5
Water flow rate	kg/h	24	36	60	96	150
Heating capacity water coil ⁴	kW	25,4	33,9	60,7	102,0	133,6
Water flow rate	m ³ /h	1,09	1,50	2,60	4,38	5,87
Pressure drop water side	kPa	8	6	9	8	7
Pressure drop air side	Pa	28	41	33	52	80

1 External air 35°C, 40% RH; extract air 27°C, 47,5% RH, adiabatic cooling active.

2 External air 7°C, 87% RH; extract air 20°C, 60% RH, adiabatic humidification active.

3 Constant performance over time.

4 Water inlet 70°C, water outlet 50°C.

Preliminary technical data, subject to modification.

Dimensional data (mm)



		040	060	100	160	250
Height	mm	1.810	1.810	2.130	2.450	2.450
Width	mm	1.055	1.375	1.695	2.015	2.335
Length	mm	4.830	4.830	5.630	6.270	6.270
Weight Standard version	kg	1.400	1.800	2.300	2.900	3.500