

RECHP



Heat recovery unit with built-in heat pump system

from 900 to 4.000 m³/h



General features

The new stand-alone RECHP units are dedicated to 100% replacement of room air and its thermal treatment. They are designed and developed to satisfy four different typical needs of residential and commercial applications:

- 1.the 100% replacement of room air
- 2.the energy saving by using a heat recovery system
- 3.the optimisation of the replacement air heat loads, by a fully automatic microprocessor controlled heat pump system; in particular, the function of heat recovery system increases the efficiency in both cooling and heating performances, ensuring therefore excellent saving in operating costs
- 4.the optimisation of room heat loads.

RECHP unit works with 100% fresh air with total cooling capacity from 5,4 to 23,5kW and total heating capacity from 8,9 to 40,4kW.

Mechanical features

Prepainted frame and fully removable sandwich panels with 20 mm thickness polyethylene/polyester thermal and acoustic insulation. High efficiency cross flow heat recovery - EUROVENT certified -, aluminum heat exchanger plates with supplementary sealing; stainless steel drain tray, extended to all the cooling/heating components and heat insulated, complete with water trap.

G4 efficiency class synthetic cell filters. Single speed

double inlet forward curved fans, matched with electronic speed regulator or supplied with built-in frequency converter motors.

Heat pump refrigeration system (R410A) composed of scroll hermetic compressor, Cu-Al evaporator and condenser coils, biflow thermostatic valve, liquid separator and receiver, 4-way valve for cycle inversion, overpressure safety valve, high and low pressure switches, biflow freon filter and liquid indicator.

Internal electrical board for supplying all the electrical powers; room, outside and frost temperature sensors. Microprocessor control for fully automatic management of room temperature, free-cooling, heating/cooling mode and defrost cycles; display for setting and for visualizing sensor and set-point temperature values, connected up to 20 m distance from unit board.

Accessories

SKE	Pre or post electric heater
FC6	F6 class compact filter
DDE	Inverter driven motors
PSTD	Air filter pressure switch
SKR	Adjusting damper
SSE	On/off damper actuator
GAT	Antivibrating duct joint
TPR	Roof cover
CFA	External hood
PD2	Supports H=180 mm

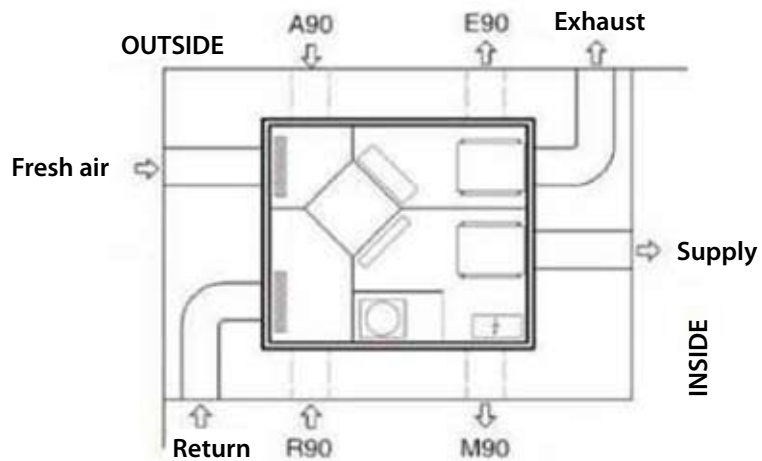
Technical data

RECHP		14	19	25	30	40	50
Air flow	m ³ /h	900	1400	2000	2600	3300	4000
External static pressure on supply	Pa	225	154	187	179	211	159
External static pressure on return	Pa	184	122	130	148	153	133
Sound pressure level at 1 m	dB(A)	55	52	59	58	58	62
Full load total current	A	14,6	21,6	36,3	22,6	26,9	24,8
Specific fan power	W/(m ³ /s)	1880	1170	1231	1177	1372	1683
Electrical power supply	V-Ph-Hz	230-1-50	230-1-50	230-1-50	400-3+N-50	400-3+N-50	400-3+N-50
Efficiency (1)	%	46,7	44,6	49,2	47,8	48,8	47,8
Recovered cooling capacity (1)	W	803	1184	1888	2336	3033	3594
Compressor cooling capacity (1)	W	4597	7010	10352	12705	17548	19928
Total cooling capacity (1)	W	5400	8194	12240	15041	20581	23522
Available cooling capacity (1)	W	1838	2678	4085	4804	6740	7521
EER (1)		2,80	2,57	2,60	2,86	2,94	2,78
Supply temperature (1)	°C	19,7	20,1	19,7	20,3	19,7	20,2
Efficiency (2)		54,0	51,4	56,9	55,2	56,4	55,2
Recovered heating capacity (2)	W	4015	6004	9446	11892	15463	18296
Compressor heating capacity (2)	W	4860	7672	11612	14571	19629	22137
Total heating capacity (2)	W	8875	13676	21058	26464	35092	40433
Available heating capacity (2)	W	796	1095	3060	3094	5386	4488
COP (2)		6,12	5,65	5,69	5,88	6,03	5,62
Supply temperature (2)	°C	22,6	22,3	24,5	23,5	24,8	23,3
Compressor							
Refrigerant gas		R410A	R410A	R410A	R410A	R410A	R410A
Type		rotary	rotary	scroll	scroll	scroll	scroll
Full load current	A	8,83	15,4	22,1	10,6	14,9	16,4
Full load power input	W	1930	3360	4860	5630	7965	8735

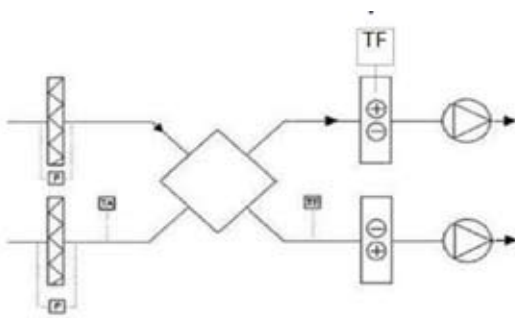
(1) Outdoor air 32°C 50% RH, ambient air 26°C 50% RH

(2) Outdoor air -5°C 80% RH, ambient air 20°C 50% RH

Possible installations



Position and function of the components of the unit.



- TA** return air sensor
- TE** supply air sensor before direct expansion coil
- TF** exhaust air sensor
- Tsp** set point temperature



The side technical space, external from the air flow, allows to work very easily

R410A gas refrigerant system



Static recovery by the efficiency aluminium cross flow exchanger

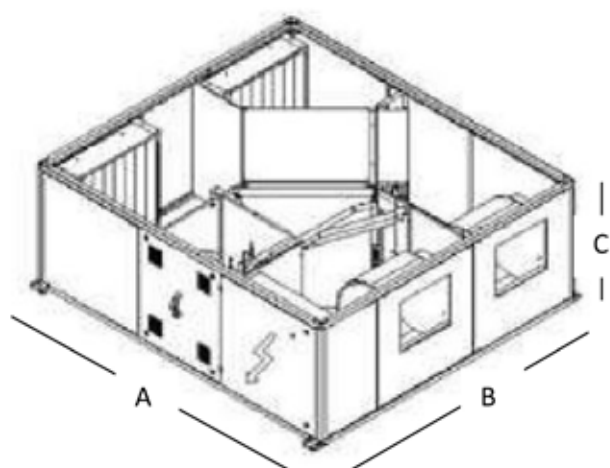


Pre-painted steel frame with insulated sandwich panels

Opening system from the bottom with a 1/4 turn security lock

High capacity G4 filter, thick, 98 mm

Dimensions and weight



RECHP	14	19	25	30	40	50
A(mm)	1450	1450	1700	1700	1900	1900
B(mm)	1230	1230	1560	1560	1700	1700
C(mm)	470	470	530	530	705	705
WEIGHT (Kg)	212	225	258	258	305	315

Controls (included in the unit)



Consists of an on board electrical panel totally wired and a remote control panel that allows temperature regulation in environments equipped with heat recovery unit with built-in heat pump system; it is an easy plug and play electronic control.

The device automatically controls the fan speed (1 step fan speed control or continuous control with DDE based on constant air flow algorithm) as well as the possible electric heater in order to adjust the room temperature in the most suitable way. Temperature control is performed with the return air sensor, the supply air sensor before direct expansion coil and exhaust air sensor (for defrosting in heat mode).

The electronic control is suitable to manage electric pre and/or post heater, automatic heating/cooling changeover, manage of external dampers, heat exchanger defrost based on exhaust air sensor (it reverses the refrigerant cycle), clogged filter alarm by pressure switch, remote ON-OFF via digital input, sensors diagnostic, electric heater post ventilation and thermal protection alarm, high and low pressure alarm, compressor and fans thermal protection, integrated scheduling clock with four programs for each day of the week and RS485 serial interface with MODBUS protocol.

The display clearly shows the current working mode and ambient room temperature, the desired set point is easily changeable with arrows keys; moreover there are two different levels of parameters to setup and adjust every functions of the unit.

A single remote control panel can connect up to four units, allowing an easy and quick setup and check from a single site.



Aerfor S.r.l.

Via Contarina n. 11
35028 - Piove di Sacco - Padova - Italy

Tel +39 389 2939160
fax +39 049 5806928
e-mail : info@aerfor.com
Pec: aerfor@registerpec.it
PIVA 02703580304
R.E.A. : RO-159632

www.aerfor.com

For more details ask technical documentation to info@aerfor.com

Aerx.dp.rechp.gb.001.13