



Heat recovery unit

from 200 to 6800 m³/h

General features

REC heat recovery units are suitable for residential and commercial applications and offer a real energy saving in forced ventilation plants, by using an aluminium plated crossflow heat exchanger, able to transfer more than 50% of heat which otherwise would be lost with air exhaust. These units may be integrated with traditional heating and cooling systems (such as fan-coils, water heaters, etc.) and can operate both in summer and winter seasons.

REC series consists of 10 models, with airflow rate from 200 m³/h to 6800 m³/h; all the units are particularly suitable for false ceiling installation and may be appropriately ducted allowing air supply and air suction directly in the room.

REC units are available in the following base versions:

REC horizontal unit
REC/V vertical unit

Mechanical features

Fully removable panels (sandwich type). Acoustic and thermal panel insulation (thickness 10 mm for REC03-06-10 models and 20mm for bigger models).

High efficiency aluminium plated heat recovery - EUROVENT certificated - with airflows separated by special seals.

G4 efficiency class air filters, easily removable everywhere (bottom, side, top) allowing their periodic cleaning; as an option, F6-F7-F8 efficiency class soft bag filters.

Fans mounted on a easy removable support.

Double inlet centrifugal fans, with multi-speed direct driven motor.

The unit is complete of electrical terminal box fitted with relay board, to aid the electrical connections and fan control.

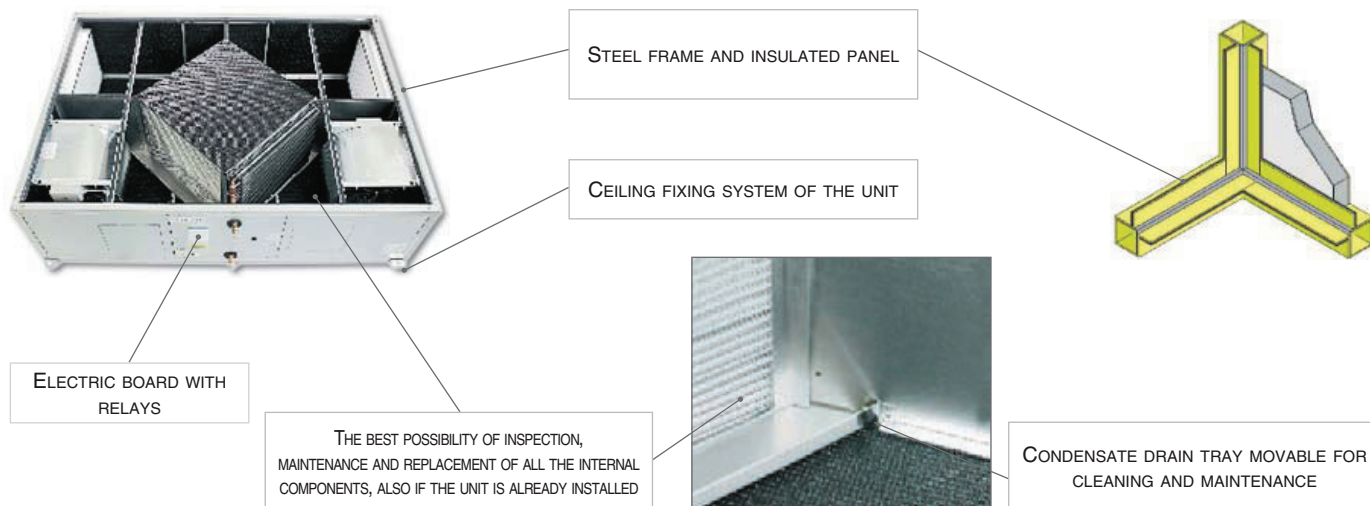
Galvanized steel condensate drain tray, with lower drainage.

Accessories

- > Internal water heating coil SKW
- > Electric heater SKE
- > Water cooling coil external section SAF
- > Adiabatic cooling/umidifier section HCP
- > Round adapter for circular duct BCC
- > 3-damper mixing box MS3
- > Damper connection lever LCS
- > F6 compact filter FC6
- > F6 soft bag filter FT6
- > F7 soft bag filter FT7
- > F8 soft bag filter FT8
- > Frequency converter fan-motors DDE*
- > Roof cover TPR
- > Adjusting damper SKR
- > Antivibrating flexible joint GAT
- > Casing with bird net CFA
- > Supports legs H 90 (kit 4 p) PD
- > Supports legs H 200 (kit 4 p) PDX

Controls

* not available on REC03 and 06

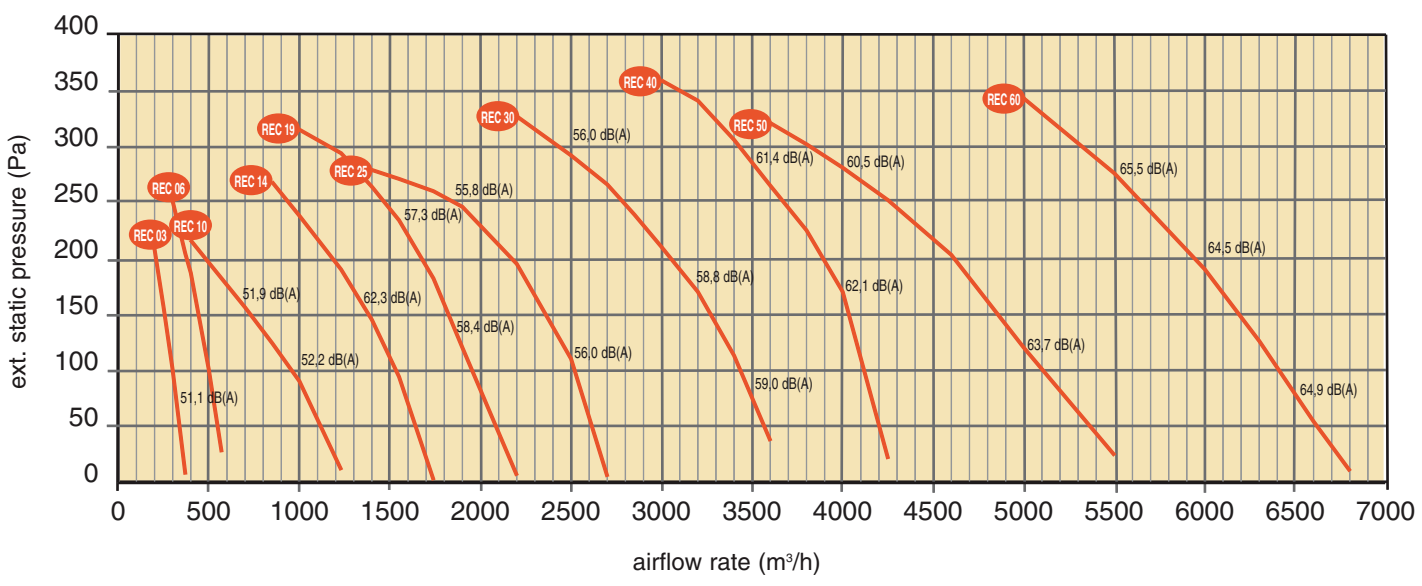


REC Model		03	06	10	14	19	25	30	40	50	60	
Airflow rate	Max	300	500	1000	1400	1900	2500	3200	4000	5000	6000	
	Med	200	300	900	1250	1570	1830	2500	-	-	-	
	Min	100	150	800	850	1340	1100	1800	3000	4000	5000	
External static pressure	Max	100	100	90	145	120	110	170	170	120	190	
	Med	160	129	70	133	121	112	159	-	-	-	
	Min	167	127	47	113	119	112	144	147	221	226	
1 m sound pressure level	Max	51,1	51,1	52,2	62,3	58,4	56,0	58,8	62,1	63,7	64,5	
	Med	49,7	47,4	48,8	56,9	53,7	51,0	53,5	-	-	-	
	Min	44,3	41,0	45,3	45,6	42,1	44,6	51,1	54,9	59,1	62,0	
Shaft power	W	2x60	2x60	2x147	2x350	2x350	2x350	2x550	2x750	2x1500	2x1500	
Maximum current	A	1,2	1,4	3,0	5,8	6,2	6,0	11,4	6,2	11,2	11,2	
Fan speeds	n°	3	3	3	3	3	3	3	2	2	2	
Poles	n°	2	2	4	4	4	4	4	4	4	4	
Protection degree - minimum -		IP 20										
Temperature class - minimum -		B										
Electrical power supply	V/ph/Hz	230/1/50							400/3/50			

Recovery efficiency ⁽¹⁾	Max	%	52,0	56,1	53,4	52,1	51,8	57,6	56	55,7	54,6	54,5
	Med		57,0	62,5	54,8	53,5	54,1	61,5	59,0	-	-	-
	Min		66,4	71,1	56,3	58,4	56,1	67,7	63,1	59,2	57,3	56,8
Saved power ⁽¹⁾	Max	kW	1,4	2,6	4,9	6,7	9,0	13,2	16,4	20,3	24,9	29,9
	Med		1,0	1,7	4,5	6,1	7,8	10,3	13,5	-	-	-
	Min		0,6	1,0	4,1	4,5	6,9	8,6	10,4	16,2	20,9	25,9
Supply temperature ⁽¹⁾	Max	°C	8,0	9,0	8,4	8,0	7,9	9,4	9,0	8,9	8,6	8,6
	Med		9,3	10,6	8,7	8,4	8,5	10,4	9,8	-	-	-
	Min		11,6	12,8	9,1	9,6	9,0	11,9	10,8	9,8	9,3	9,2

⁽¹⁾ At the following conditions: room air temperature 20°C db 50% RH; fresh air temperature -5°C.

MAX SPEED AIR PERFORMANCES



Water heating coil SKW

Heating capacity (at max fan speed) ⁽¹⁾	kW			11,3	16,3	20,4	29,7	35,1	44,3	46,6	53,8
Supply air temperature	°C			40,5	41,5	39,0	42,2	39,6	39,9	34,9	33,8
Air side pressure drop	Pa			66	63	85	61	85	90	95	115
Coil rows	n°			3	3	3	3	3	3	3	3
Water side pressure drop	kPa			13	31	18	20	27	49	22	24
Water flow rate	m³/h			0,99	1,43	1,80	2,61	3,09	3,90	4,10	4,70

Electric heater SKE

Heating capacity	kW	2	4	4,5	6	9	12	12	12	18	24
Air side ΔT (at max fan speed)	°C	20	24	13	13	14	14	11	9	11	12
Electrical power supply	V/ph/Hz	230/1/50		400/3/50							
Air side pressure drop	Pa	5	5	6	6	8	6	9	13	11	13

Water cooling coil SAF

Total cooling capacity (at max fan speed)	kW	2,6	3,8	7,4	9,8	13,1	20,3	24,2	30,7	31,6	37,9
Supply air temperature	°C	15	17	17	18	18	17	17	17	18	18
Air side pressure drop	Pa	23	67	74	82	90	66	100	98	66	69
Coil rows	n°	3	3	3	3	3	3	3	3	3	3
Water side pressure drop	kPa	8	15	18	13	14	27	38	51	33	43

High efficiency filter (at max fan speed)

F6 Compact filter FC6	pressure drop	Pa	-	-	-	40	40	40	40	40	40	40
F6 Bag filter FT6	pressure drop	Pa	-	-	-	140	160	160	160	180	175	160
F7 Bag filter FT7	pressure drop	Pa	-	-	-	165	185	185	185	215	205	185
F8 Bag filter FT8	pressure drop	Pa	-	-	-	207	225	225	225	260	248	225

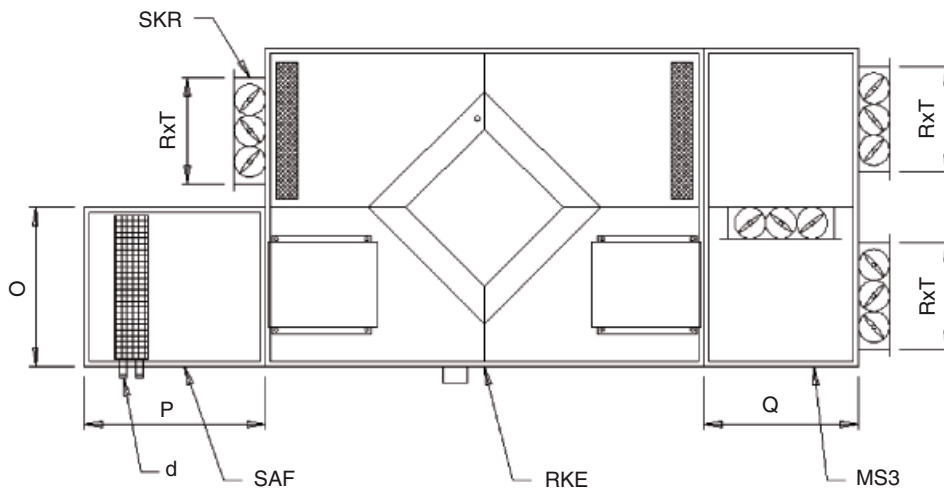
Round adapter for circular duct BCC

Diameter Ø	mm	200	200	315	315	315	355	400	450	600	600
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⁽¹⁾ Inlet air temperature 8°C - Water temperature 70°/60°C.

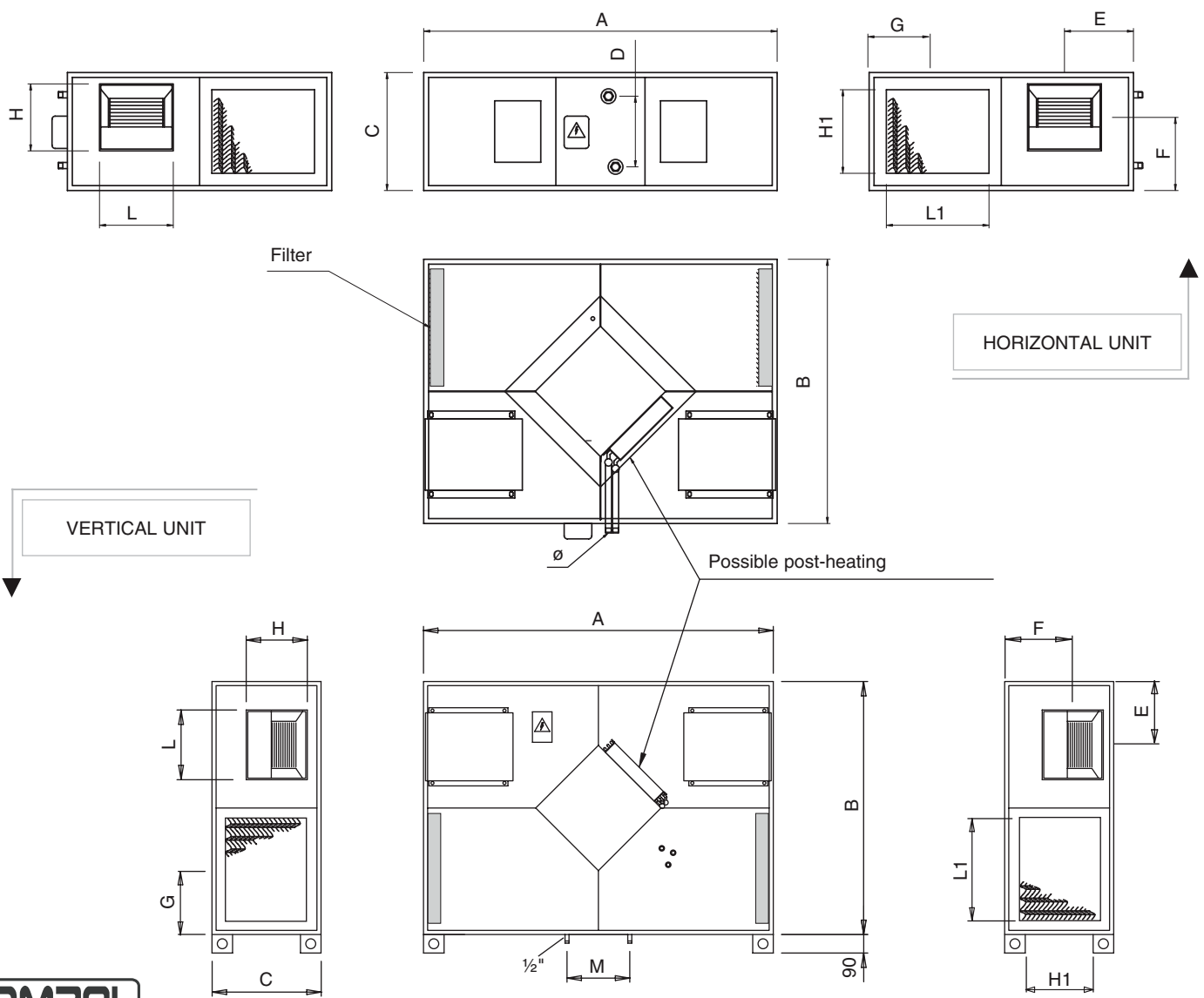
⁽²⁾ Inlet air conditions 29°C db 60% RH - Water temperature 7°/12°C.

DIMENSIONS

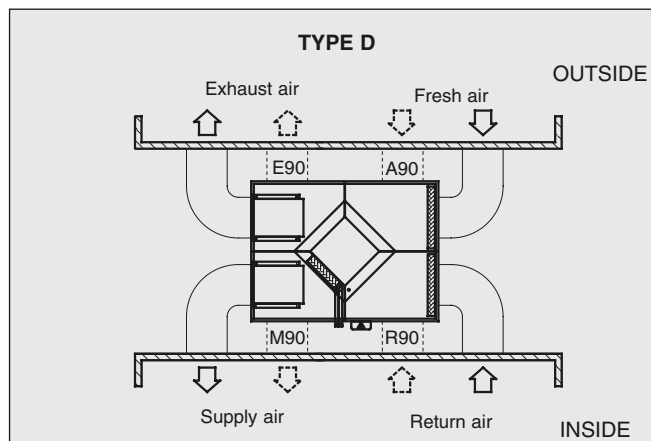
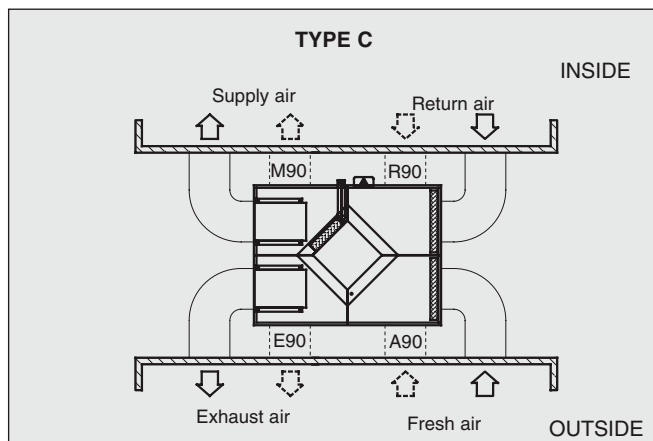
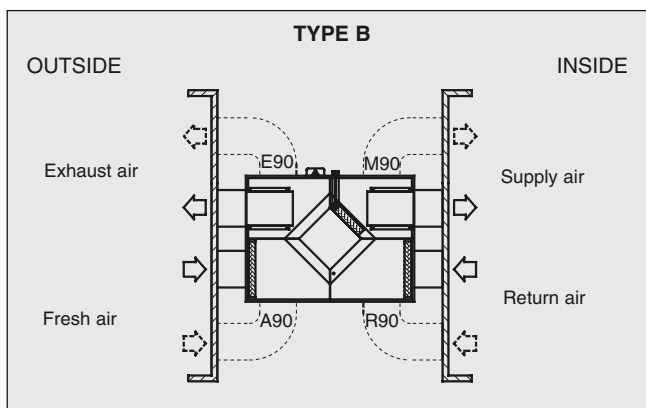
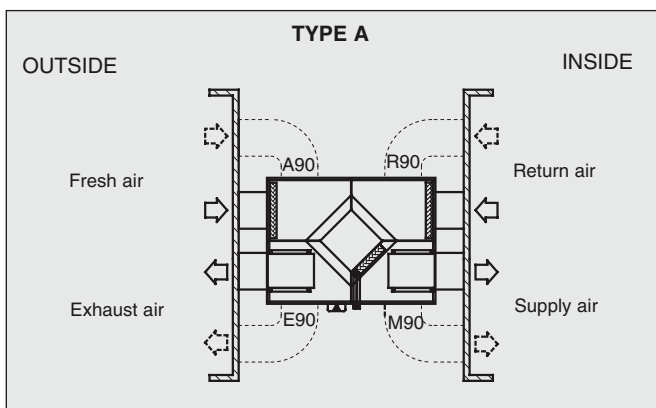


Dimensions		03	06	10	14	19	25	30	40	50	60
A	(mm)	990	990	1150	1350	1450	1700	1700	1700	1700	1900
B	(mm)	750	750	860	900	900	1230	1230	1230	1350	1450
C	(mm)	270	270	385	410	470	490	530	630	705	755
D	(mm)	-	-	230	230	280	305	305	405	480	530
Ø	(")	-	-	¾"	¾"	¾"	¾"	¾"	¾"	1"	1"
E	(mm)	195	195	245	241	241	323	308	308	353 (278)	379 (334)
F	(mm)	170	170	238	224	284	290	331	377	427 (353)	419 (379)
G	(mm)	197	197	225	241	241	323	323	323	353	379
H	(mm)	100	100	218	270	270	270	297	297	297 (339)	350 (403)
H1	(mm)	153	153	267	267	327	347	387	487	555	615
L	(mm)	162	162	240	240	240	306	339	339	339 (297)	403 (350)
L1	(mm)	275	275	330	337	337	502	502	502	555	615
M	(mm)	-- (119)	-- (119)	-- (81)	-- (81)	-- (81)	-- (131)	-- (101)	-- (101)	-- (101)	-- (101)
weight	kg	39	41	68	91	99	140	155	179	235	273
O	(mm)	375	375	430	450	450	615	615	615	675	725
P	(mm)	400	400	400	700	700	700	700	800	850	900
Q	(mm)	-	-	450	480	480	650	650	650	707	757
R	(mm)	210	210	310	310	410	410	410	510	610	610
T	(mm)	280	280	330	330	330	500	500	500	600	600
d	(")	¾"	¾"	¾"	¾"	¾"	1"	1"	1"	1 ½"	1 ½"

Where different, within brackets, dimensions of vertical version

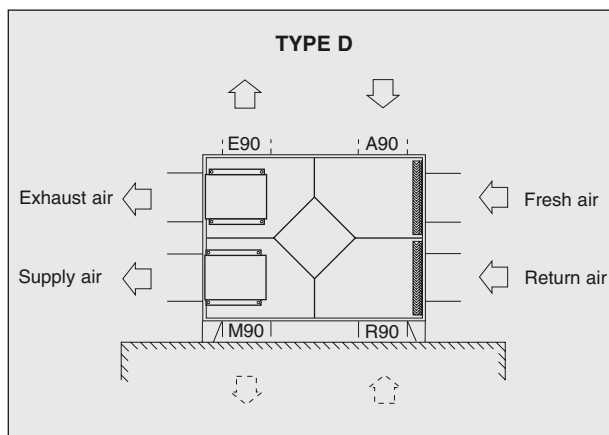
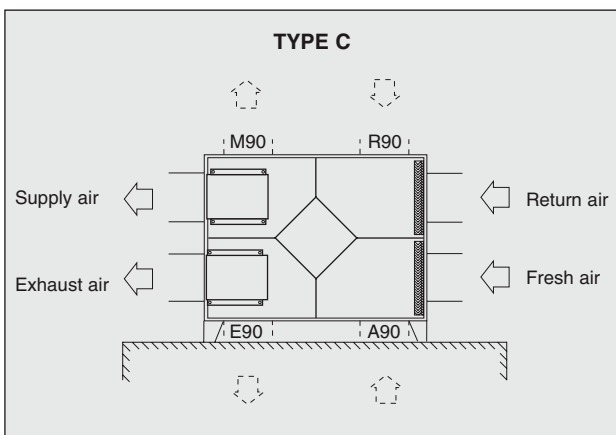
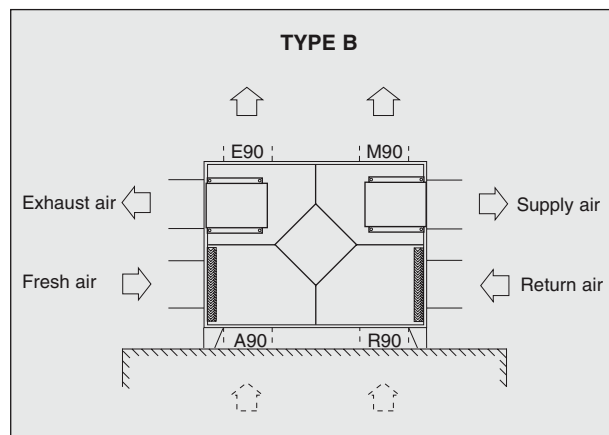
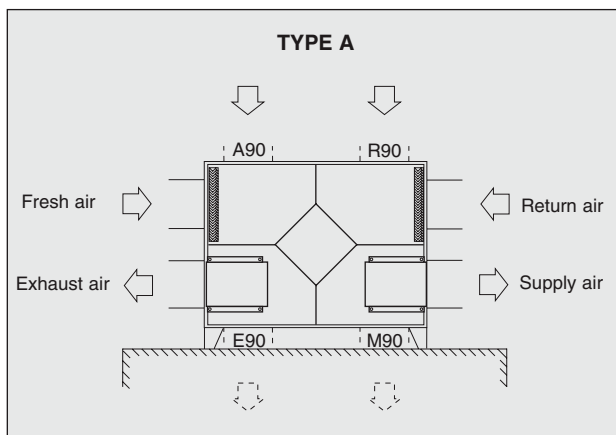


REC POSSIBLE INSTALLATIONS (horizontal version)



REC/V POSSIBLE INSTALLATIONS (vertical version)

Vertical configuration (with re-heating system - only type B or C)



CONTROLS

SPEED CONTROL

Control panel
CVU: manual 3 step fan speed regulator (min/med/max).



3 POINT CONTROL

It is mainly composed of a control panel and valves that allow a modulating regulation on 3 points and a manual or automatic control of the fan speeds.

Control panel
PCR: command panel with manual or automatic regulation of the fan speeds by 3 steps, manual or automatic mode summer/winter, room thermostat (remotable by NTC 4,7 sensor, optional), handling of two water coils for heating/cooling or coil (cold or promiscuous) and electric heater.



Accessories controlled by PCR
V33: 3 way valve with electric servocontrol, power supply 230V
NTC4,7: remotable temperature sensor

Accessories not controlled
TEG: antifreeze thermostat
SSE: on/off damper servocontrol power supply 230 V
PSTD: air filter pressure switch

MODULATING CONTROL

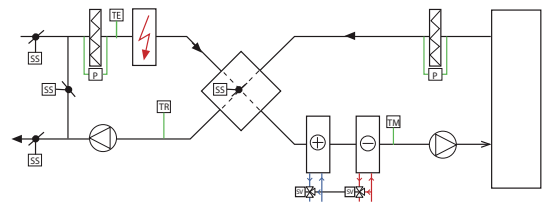
It is composed by an electronic kit, an hydronic kit and a range of accessories used for the control services.
The modulating regulation allows to optimize the unit work handling carefully the air flow rate and the water flow rate to satisfy the request (set point).

Electronic Kit
RQU: temperature analogical regulator complete by n. 3 NTC sensor and electric board

- Regulator services
- Heating/cooling/free-cooling automatic mode (2/4 pipe plant)
 - antifreeze
 - electric heater on/off mode
 - winter heating speed-up
 - heat recovery defrost
 - manual or automatic fan speed selection (by CO₂ or pressure sensor)
 - dirty filter alarm (by PSTD)
 - missing ventilation alarm (by pressure switch)
 - Timer
 - Prearrangement for BMS (via MODBUS protocol)

Hydronic Kit
V33: 3 way valve with electric servocontrol, power supply 230V

Accessory
SSE: on/off damper servocontrol power supply 230 V
PSTD: air filter pressure switch



AIRFLOW CONTROL

AQS is the ductable CO₂ sensor, it must be connected to the RQU control



KAQ is the Air Quality control system; it includes:
ductable CO₂ sensor
modulating regulator
24V transformer



DPS is a sensor for constant pressure working mode