

RECUP RECUP/LC

HEAT RECOVERY VENTILATORS



CROSS FLOW PLATE
HEAT EXCHANGERS



HEAT RECOVERY UNITS

COMFORT AND ENERGY SAVING

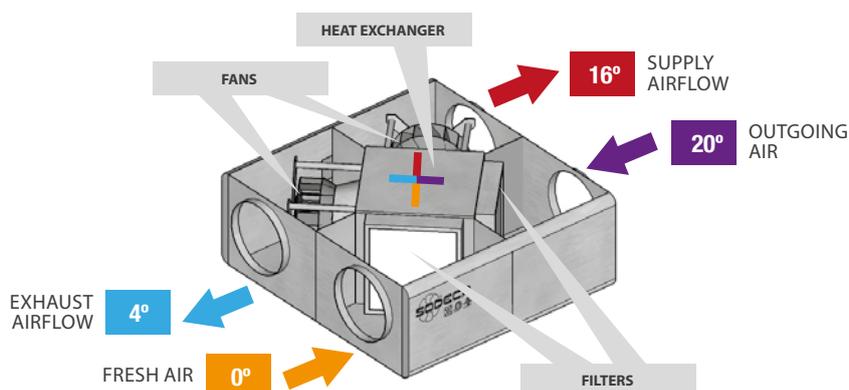
With energy, heat or cold recuperators it will no longer be a problem to combine the ventilation with the air-conditioning or heating systems. Apart from recovering and conserving energy, the recuperators, with their entry filters and air outlet, will make the environment clean and comfortable.



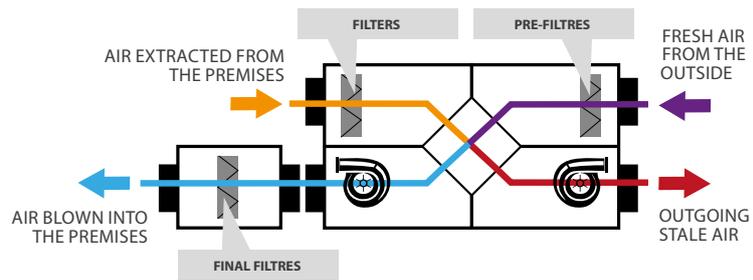
OPERATION

A heat recovery ventilator operates by means of the combination of two centrifugal fans with a low sound level, one of which extracts the stale air from the interior of the premises to the outside, and the other drives fresh air from outside into the premises.

The two circuits cross, without mixing, in a heat exchanger, in which the heat from the outgoing air is transferred to the fresh air from the outside, heating it up.



POSITION OF FILTER STAGES



HEAT EXCHANGER

The heat exchanger is the part of the heat recovery ventilator that transfers heat from the circuit for extracting the stale air from the premises to the circuit for bringing in clean air from the outside. The more efficient the heat exchanger is, the less additional heating will be required. Principal types of heat exchangers, by structure type:



Cross flow plate heat exchangers

Thermal efficiency of 50-70%
No leaks between the air streams
Compact and economical



Counterflow plate heat exchangers

Thermal efficiency of 80-95%
No leaks between the air streams
Require larger machines



Rotating heat exchangers

Thermal efficiency of 70-85%
Compact
Can operate in BY-PASS mode

These heat exchangers may be either the sensible heat type or the enthalpy type. The enthalpy exchangers recover sensible heat as well as latent heat (moisture), and consequently are more efficient, but require regular cleaning for safe operation.

MOTORS



AC

Conventional high-efficiency motors. They may have several speeds or speed control, depending on the model or accessories.



Energy efficiency

Heat recovery devices must be installed in all HVAC installations treating flows over 1,800 m³/h.

TYPES OF INSTALLATION



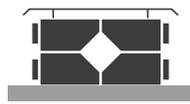
Wall-mounted

Domestic machines for heat recovery from small rooms.



In a false ceiling

Low-profile machines with access to components from the sides or underneath.



Roof-mounted

Equipment that can work outside, with access to components from the sides. They may require accessories, such as covers or hoods for protection against rain and other weather elements.



In the technical room

Compact machines with side access to components. These machines usually have inlets and outlets on the top.

CLIMATE CONTROL OPTIONS

Some ventilators have versions or accessories with heating or cooling coils to heat or cool the air supply. This is very common in heat recovery ventilators, although it may also be applied to filtration units. The commonest options are as follows:



Environmental version

No heating/cooling.



Version with water coils

Provides climate control by coils containing hot or cold water.



Electric battery cooling

Supply of heating by electrically heated coils.

FILTERS

The filters retain particles that affect air quality, and must be replaced after a period of use. Filter head loss increases progressively over time.

F6

F6 + F8

F7

F7 + F9

G4 + F6

Some units have components to check on head loss, in order to optimise filter replacement.

- Pressure inlets: Small air inlets that allow head loss of filter stages to be detected.
- Differential manometer: Visual detection of head loss per filter stage.
- Pressure switch: Pressure switch that switches an electrical circuit on or off on the basis of the filter head loss.

Each filtration stage has one or more filters of the same efficiency, as required for each application.

Depending on their configuration, the units may incorporate:

- Stage with pre-filters that ensure correct operation of the equipment, depending on the requirements of the installation, the efficiencies may be: G4, F6, F7.
- Stages with final filters that guarantee the quality of the air supplied to the premises; the efficiencies are usually of the following types: F6, F7, F8, F9, CA (active carbon gas filters) or even HEPA filters, depending on the IDA/ODA category.

RECUP

60
Hz

F6

Configurable heat recovery units with cross-flow panels, for horizontal (H) installation



Features:

- Cross flow plate heat exchanger with an efficiency of between 50%-70%.
- Possibility of configuration with different nozzle positions.
- Built-in filters, classes F6. Other combinations available on request.
- Box made of galvanised steel with built-in acoustic insulation.

- Interchangeable nozzles.
- Access doors to facilitate maintenance and cleaning.

Versions:

- Horizontal (H).
- Non-heating: Renewal of air without supplying heat (S).



Construction:

- Galvanised sheet steel structure.
- Entry and exit nozzles with water-tight gaskets.

On request:

- Different stages of filtration.



Order code

RECUP — 20 — H — C — F6 — 60Hz

RECUP: Configurable heat recovery units with cross-flow panels

Size

H: Horizontal configuration

A-F: Nozzle position (Standard C or B based on model)

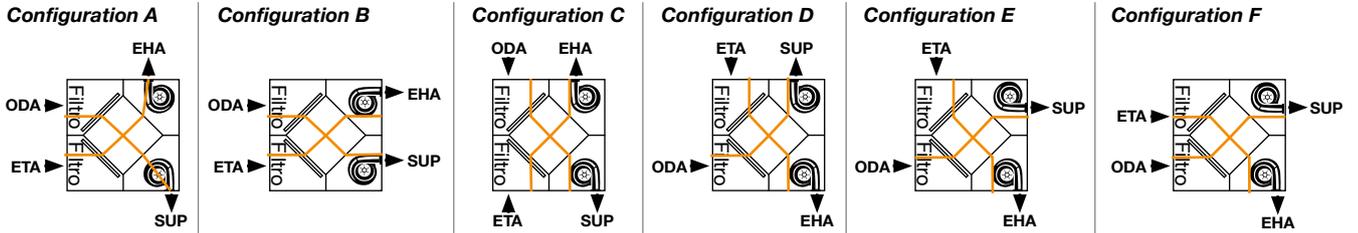
F6 filter

Technical characteristics

Model	Speed (r/min)	Voltage (V)	Current (A)	Motor power (W)	Maximum airflow F6 (m³/h)	Irradiated SPL dB(A)	Filter EN 779	Weight (Kg)
RECUP-12-H	1710	1x220	2x2.00	2x450	1300	53	F6	67
RECUP-20-H	1620	1x220	2x2.00	2x450	2050	48	F6	86
RECUP-30-H	1500	1x220	2x5.40	2x600	3150	52	F6	112
RECUP-40-H	1080	3x380	2x3.60	2x1100	4250	46	F6	167
RECUP-50-H	1536	3x380	2x3.50	2x1500	5350	54	F6	182
RECUP-60-H	1740	3x380	2x4.83	2x2200	6150	56	F6	205

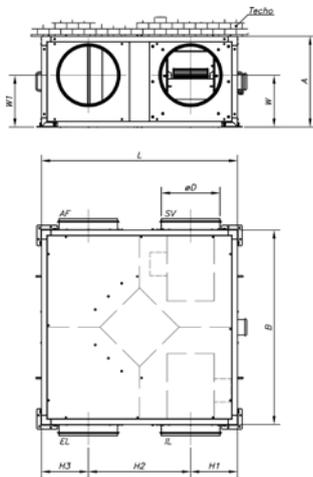
Configurations

Standard supply C configuration. Except model 12, B configuration.



ODA: Fresh air from outside / SUP: Air blown into the premises / EHA: Stale air outlet / ETA: Air extracted from the premises

Dimensions in mm



RECUP H F6

Model	A	B	L	øD	H1	H2	H3	W	W1
RECUP-12-H	415	1000	1000	315	260.4	479.2	260.4	207.5	207.5
RECUP-20-H	490	1050	1050	315	251	548	251	280	280
RECUP-30-H	590	1100	1200	315	266	668	266	350	350
RECUP-40-H	670	1500	1500	450	350	800	350	368	368
RECUP-50/60-H	850	1500	1700	450	351.5	997	351.5	424.5	424.5

On request

RECUP H F6+F8

Model	A	B	B1	L	øD	H1	H2	H3	W	W1	W2	W3
RECUP-12-H	415	1000	1525	1000	315	260.4	479.2	260.4	207.5	207.5	207.5	207.5
RECUP-20-H	490	1050	1575	1050	315	251	548	251	250	280	280	280
RECUP-30-H	590	1100	1625	1200	315	266	668	266	320	350	350	350
RECUP-40-H	670	1500	2025	1500	450	350	800	350	368	368	368	368
RECUP-50/60-H	849	1500	2025	1700	450	351.5	997	351.5	424.5	424.5	424.5	424.5



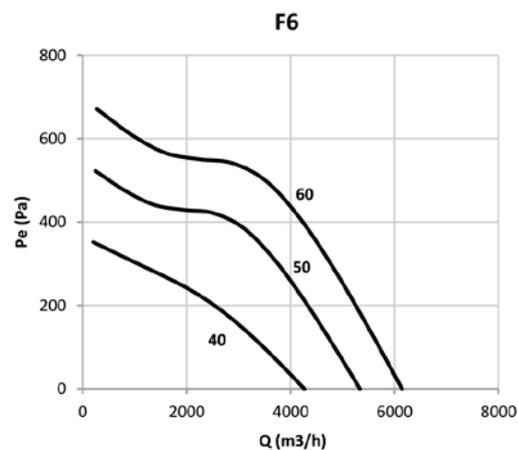
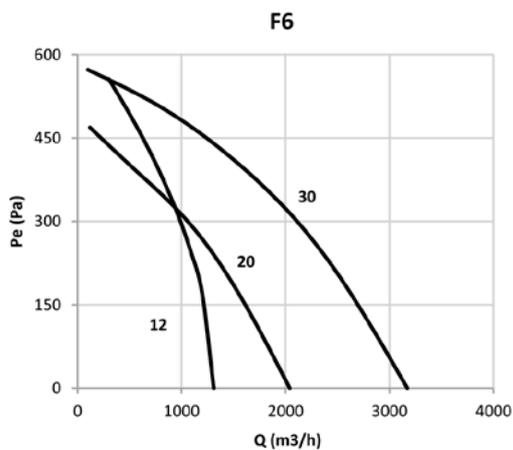
Acoustic features

The indicated values are determined by measuring the sound power level in dB(A) obtained in a free field at a distance of no less than 1.5 m from the equipment.

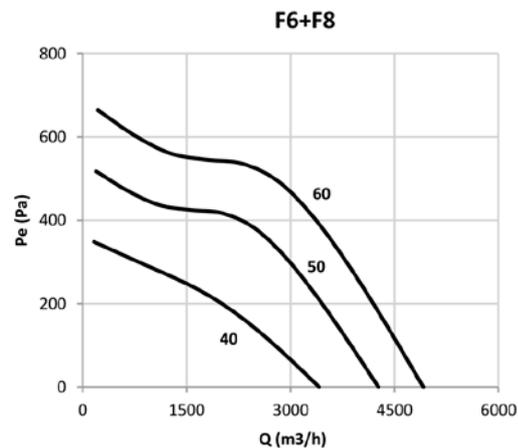
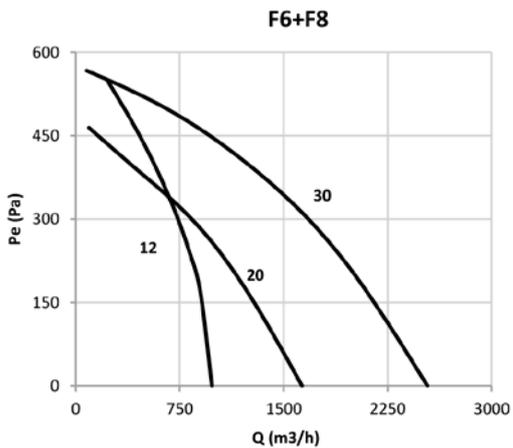
Sound power spectrum Lw(A) in dB(A) per Hz frequency band

Model	63	125	250	500	1000	2000	4000	8000	Model	63	125	250	500	1000	2000	4000	8000
RECUP-12	54	56	49	52	54	50	45	38	RECUP-40	49	51	43	37	36	30	29	15
RECUP-20	49	51	44	47	49	45	40	33	RECUP-50	57	59	50	44	42	36	37	22
RECUP-30	54	56	50	51	48	43	35	31	RECUP-60	59	61	52	46	44	38	39	24

Characteristic Curves



On request



Accessories



FILTROS



CJFILTER



PRESOSTATO



SI-PRESIÓN



INT



TEJ



VIS



BANCADA GENERAL



SILENT-BLOCKS

RECUP/LC

60
Hz

Configurable heat recovery units with crossed flow plates for horizontal installation



Features:

- Cross flow plate heat exchanger with an efficiency of between 50%-70%.
- Multi-position configurable outlets.
- Built-in filters, classes F7. Other combinations available on request.
- Designed for installation in a false ceiling.
- Access to filters and components via front panel.

Construction:

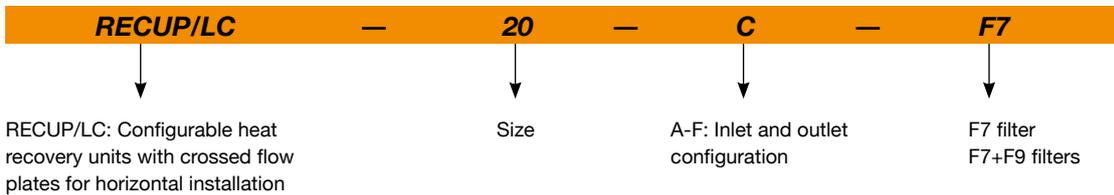
- Galvanised sheet steel structure with soundproofing.
- Interchangeable inlets and outlets with watertight joints.
- Access doors to facilitate maintenance and cleaning.
- Condensate drain integrated in the access cover.

On request:

- F7+F9 filters



Order code



Technical characteristics

Model	Speed (r/min)	Current (A)		Voltage (V)	Installed power (W)	Maximum airflow (m³/h)	NPS dB(A)	Weight (Kg)
		230V	400V					
RECUP/LC-05-F7	2928	2x0.45	-	1x220	2x100	540	45	26
RECUP/LC-08-F7	2928	2x0.45	-	1x220	2x100	780	53	30
RECUP/LC-12-F7	2928	2x0.72	-	1x220	2x150	1080	56	34
RECUP/LC-20-F7	2424	2x0.90	-	1x220	2x195	1900	51	63
RECUP/LC-30-F7	3300	2x2.70	-	1x220	2x550	2850	54	72
RECUP/LC-45-F7	1680	-	2x2.80	3x380	2x1100	4500	53	177
RECUP/LC-60-F7	2550	-	2x4.80	3x380	2x2200	5700	57	207
RECUP/LC-05-F7+F9	2928	2x0.45	-	1x220	2x40	380	45	26
RECUP/LC-08-F7+F9	2928	2x0.45	-	1x220	2x40	570	53	30
RECUP/LC-12-F7+F9	2928	2x0.72	-	1x220	2x150	790	56	34
RECUP/LC-20-F7+F9	2424	2x0.90	-	1x220	2x195	1350	51	63
RECUP/LC-30-F7+F9	3300	2x2.70	-	1x220	2x550	2050	54	72
RECUP/LC-45-F7+F9	1680	-	2x2.80	3x380	2x1100	4050	53	177
RECUP/LC-60-F7+F9	2550	-	2x4.80	3x380	2x2200	5000	57	207

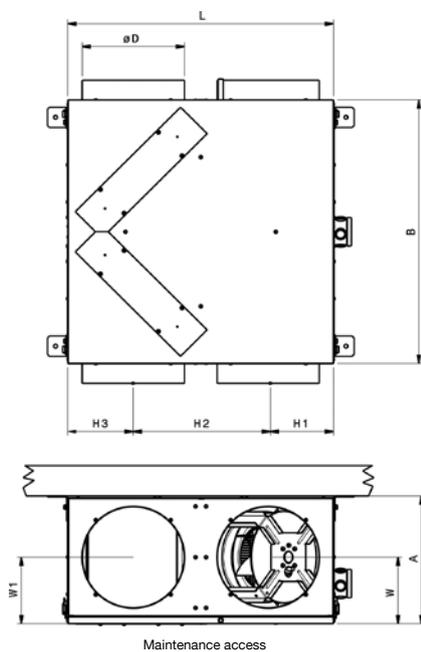
Acoustic features

The indicated values are determined by measuring the sound power level in dB(A) obtained in a free field at a distance of no less than 3 m from the equipment.

Sound power spectrum Lw(A) in dB(A) per Hz frequency band

Model	63	125	250	500	1000	2000	4000	8000	Model	63	125	250	500	1000	2000	4000	8000
RECUP/LC-05	30	42	45	57	53	50	40	37	RECUP/LC-30	43	56	66	69	67	62	54	45
RECUP/LC-08	38	50	53	65	61	58	48	45	RECUP/LC-45	53	62	65	62	61	60	56	54
RECUP/LC-12	41	53	56	68	64	61	51	48	RECUP/LC-60	51	68	58	59	62	62	60	56
RECUP/LC-20	38	50	53	65	61	58	48	45									

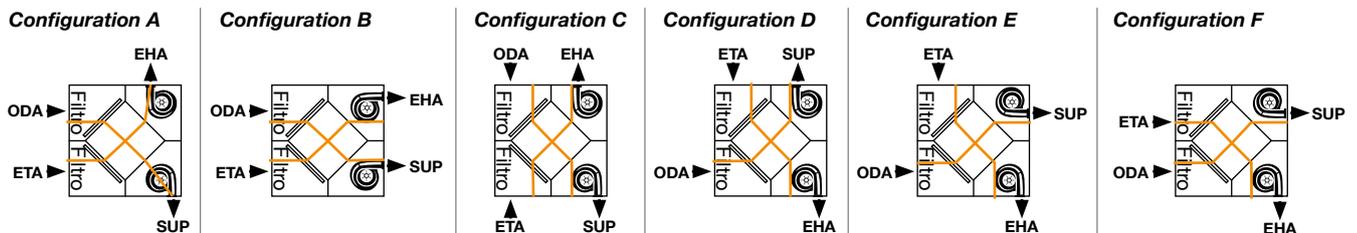
Dimensions in mm



Model	A	B	L	D	H1	H2	H3	W	W1
RECUP/LC-05	310	575	575	150	131	312	131	164	164
RECUP/LC-08	310	650	650	250	160	330	160	164	164
RECUP/LC-12	330	700	700	250	165	370	165	174	174
RECUP/LC-20	504	900	900	355	240	420	240	252	252
RECUP/LC-30	504	900	900	355	240	420	240	252	252
RECUP/LC-45	580	1520	1520	450	310	900	310	290	290
RECUP/LC-60	580	1520	1520	450	310	900	310	290	290

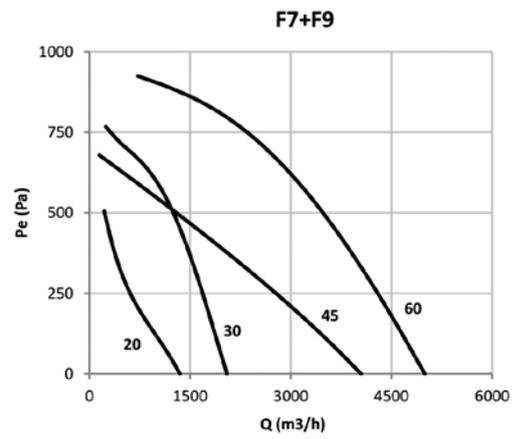
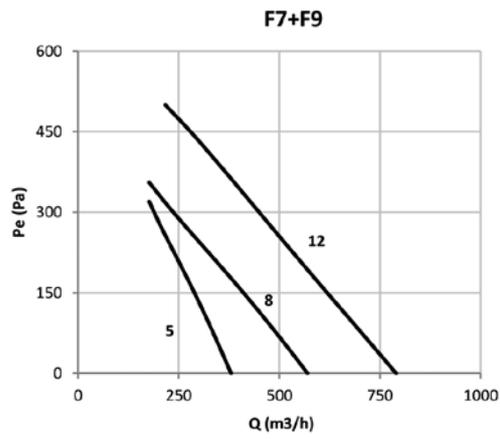
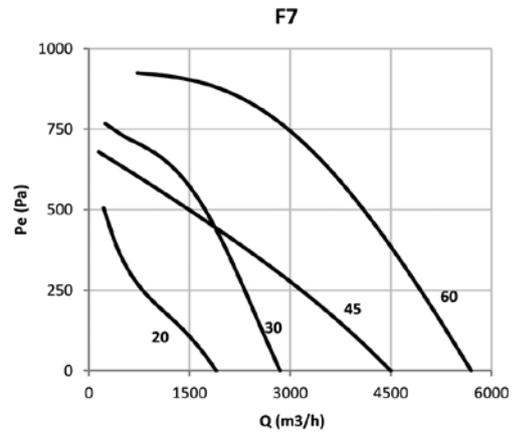
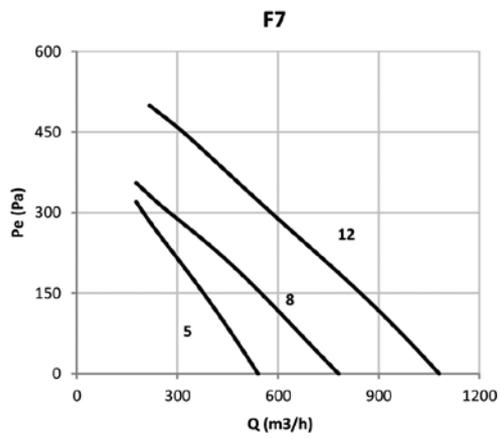
Configurations

Standard delivery configuration C. All models allow inlet and outlet configuration directly at the installation premises, except the 45, 60 model which only allows the air inlet configuration.



ODA: Fresh air from outside / SUP: Air blown into the premises / EHA: Stale air outlet / ETA: Air extracted from the premises.
Top view diagrams, for placement of the equipment in the ceiling. With maintenance access in the bottom panel.

Characteristic Curves



Accessories



FILTROS



CJFILTER



PRESOSTATO



SI-PRESIÓN



INT



SILENT-BLOCKS



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