

# FLEX



## Air-handling unit from 1,000 to 20,000 m<sup>3</sup>/h

The FLEX series air handling units are designed to allow maximum flexibility when selecting a machine, with units ranging from 1,000 to 100,000 m<sup>3</sup>/h of air flow in 34 models to cover the most varied dimensional plant requirements. The flexibility of the range enables to always find the correct balance between required performance and dimensional needs of the room, without neglecting the option of developing special machines with dimensions other than the standard ones in the catalogue. They have a supporting structure with double-chamber extruded aluminium profiles, **with thermal break execution and non-flammable, highly insulated mineral wool insulation**. The FLEX series control units are particularly adaptable to applications both in the civil field (schools, offices, residential buildings) and in the industrial and process fields (pharmaceutical, chemical, laboratories) and for specific applications (hospitals, etc.). The countless potential configurations allow the FLEX control units to be configured as AHU with supply only, extraction, supply and return combined with the use of high efficiency recovery units (plate and rotary) compliant with Erp 2018 regulations, with the use of all the components required for complete air treatment: water, gas, steam heat exchange coils, gas burners, humidification sections, filtration at various stages from medium to very high filtration efficiency.

The advanced adjustment of the FLEX control units allows connection with the LMF Sevio system for a full access to the machine set and control parameters for monitoring (energy management) or technical assistance activities.



20.000  
m<sup>3</sup>/h



1.000  
m<sup>3</sup>/h



COMPLIANT  
ERP 2018



INDOOR  
INSTALLATION



OUTDOOR  
INSTALLATION



WEB CONTROL AND  
MONITORING

## SELECTION SOFTWARE

A complete and intuitive selection software allows you to configure the unit complete with accessories. An automatic updating system makes this software a dynamic tool, always updated and crucial for the design.

The screenshot displays the CLIMAPRO software interface for selecting a unit. It includes a 3D CAD model of the unit, a properties panel, and a detailed technical specification table.

**Customer:**  
**Ref. Unit:**

**UNIT TYPE: FLEX-80**

**Model box: RW-PPGV42**  
Working temperatures of the AHU: -31/+65 °C  
Winter outdoor temperature: -5.0 °C  
Altitude: 0 mslm  
Air density [kg/m<sup>3</sup>]: 1.20

m <sup>3</sup> /h	5000	Supply External Static Pressure	Pa	150
m <sup>3</sup> /h	5000	Return External Static Pressure	Pa	150

The software also shows a detailed CAD drawing of the unit with dimensions (1690 mm width, 2350 mm height) and a table of section lengths and wall thicknesses.

Section	Length (mm)	Section	Wall	Pos X	Pos Y	Length	Horizontal
1 Damper section	165	5 Sect 1	Right view	165.00	0.00	1280.00	Vert.
2 Soft bag filter	660	10 Sect 2	Right view	155.00	0.00	1280.00	Vert.
3 Junction	40	11 Sect 2	Right view	765.00	0.00	1280.00	Vert.
4 Damper section	490	12 Sect 3	Right view	0.00	505.50	465.50	Horiz.
5 Fan section	1665	13 Sect 5	Right view	1242.00	0.00	1280.00	Vert.
6 Balancing section	30	17 Sect 6	Right view	20.00	0.00	1280.00	Vert.
7 Junction	60	18 Sect 7	Right view	310.00	0.00	1280.00	Vert.
8 Heat wheel recovery unit	495	19 Sect 7	Right view	950.00	0.00	1280.00	Vert.
9 Junction	40						
10 Heating coil	1230						
11 Cooling coil	495						
12 Steam humidification section	590						
13 Junction	40						
14 Fan section	990						
15 Balancing section	6						
16 Junction	60						
17 Soft bag filter	660						
18 Throttle section	60						

## TECHNICAL SPECIFICATIONS AND ACCESSORIES

- Supporting structure with double-chamber extruded aluminium profiles with **“thermal break” execution**, where the sandwich panels are fixed with screws. Airtightness guaranteed by coextruded gaskets and **thermal and acoustic insulation via mineral wool** at a density of 80 kg/m<sup>3</sup>, with very high levels of sound absorption and reaction to fire class M0. Use of panels in different materials: pre-painted galvanised steel RAL 9002, aluminium, AISI 304 stainless steel and AluZinc.
- 4 different profiles available according to the type and size of the unit:
  - 40 mm standard profile with 42 mm thick panel.

Models from 14 to 215

- 60 mm standard profile with 62 mm thick panel. Models from 235 to 855

- 40 mm thermal break profile with

42 mm thick panel. Models from 14 to 215

- 60 mm thermal break profile with 62 mm thick panel.

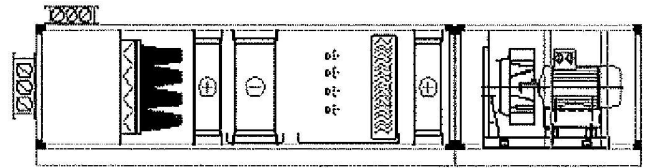
Models from 235 to 855

- Panels made in the following configurations:
  - external side in pre-painted steel RAL 9002 – internal side in galvanised steel
  - external side in pre-painted steel RAL 9002 – internal side in aluminium
  - external side in pre-painted steel RAL 9002 – internal side in stainless steel
- Optional various combinations available on request.

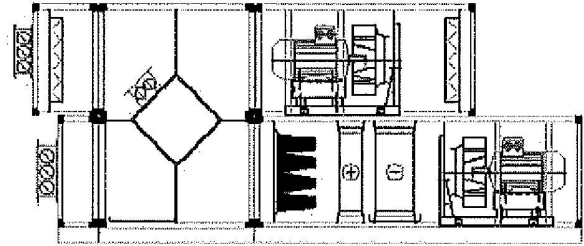
## FLEX CENTRAL CONFIGURATIONS

Supply only AHU with P.A.E. damper, Coarse 50% filters + ePM1 50%, heating coil, steam humidification coil, fan:

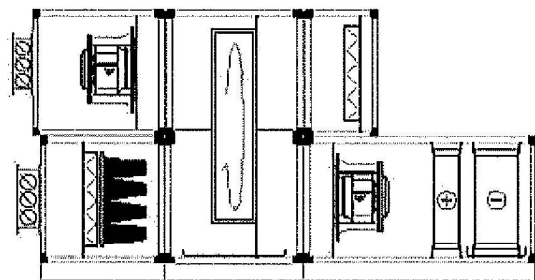
- Supply AHU with mixing chamber (recirculation and P.A.E.), Coarse 50% filters + ePM1 50%, heating coil, cooling coil, steam humidification, post-heating coil, plug-fan.



- AHU with plate heat recovery system (cross-flow or counter-flow), supply and return plug fans, Coarse 50% filtration or ePM10 50% in return and Coarse 50% + ePM1 50% in supply, heating coil, cooling coil.

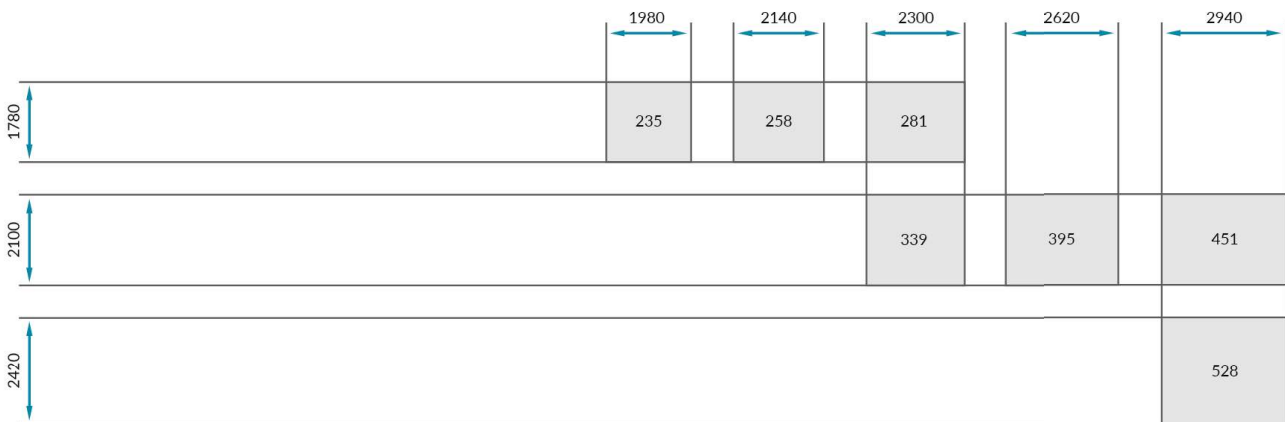
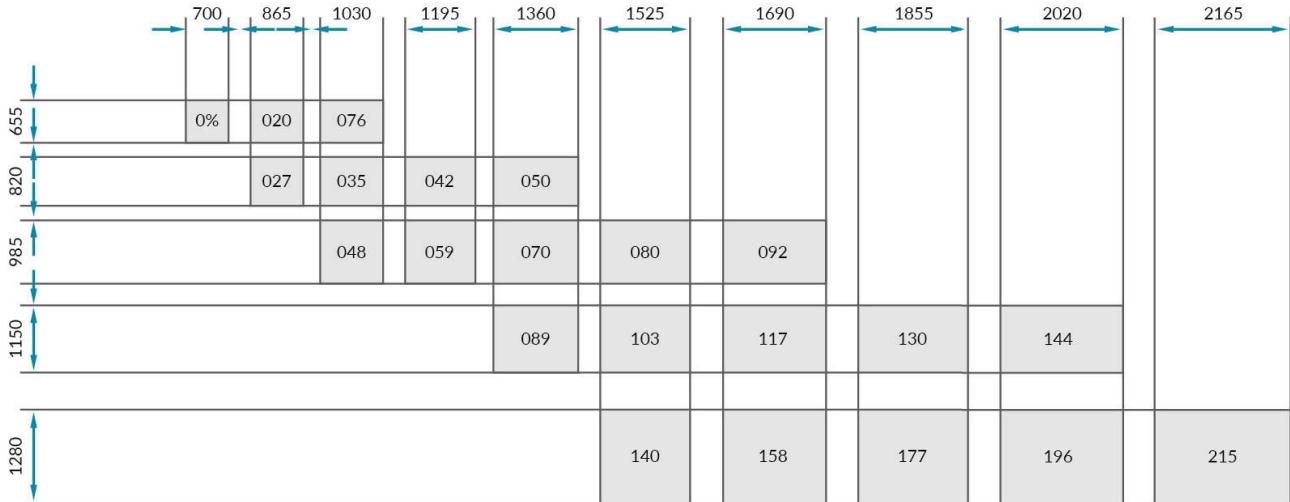


- AHU with rotary heat recovery system, EC type supply and return plug fans with 0-10v control and brushless motor, Coarse 50% filtration or ePM10 50% in return and Coarse 50% + ePM1 50% in supply, heating coil, cooling coil.



- Use of the best components available on the market in terms of fans, filtration, heat recovery units (plate and rotary) and adjustment

# FLEX MODEL DIMENSIONS



## MAIN COMPONENTS

### COILS

All the heating and cooling sections are fitted with side removable coils.

The coils have standard copper pipes and aluminium fins, however they can be of different materials on request.

Copper/Copper and Copper/pre-painted aluminium are the most common non-standard combinations, however other specific executions are also available. Hot or heated water, steam and condensing coils (freon of any type) are available in heating. Cooled water or direct expansion coils (freon of any type) are available in cooling.

The cooling sections are equipped with a removable condensate collection tray in aluminium (standard) or stainless steel.

### FANS

The fan section is the most crucial component for the correct operation of the unit. A variable number of fans with different characteristics are available for each model, in order to always achieve the best performance from the machine, optimising efficiencies and minimising noise.

### RECOVERY UNITS

LMF has always paid particular attention to heat recovery. The FLEX series provides the option of using the main recovery systems on the market: cross-flow with aluminium plates, rotary hygroscopic aluminium, multiple coils with intermediate vector or heat pipes.



The coils are standard with copper tubes and aluminium fins, but they can be requested in copper/prepainted aluminium, copper/copper, or other special executions



EC Fans and Plug Fan



Extremely easy access to all internal components



Wide variability of filtration systems

## AUTOMATION AND CONTROL

On request, LMF CLima is also able to provide plug&play solutions for its air handling units, using electrical panels to manage all functions of the selected machine and with the option of integrating with supervision systems operated with Modbus RTU control on RS485, Modbus TCP/IP on Ethernet network, BACnet TCP/IP with B-AAC profile on Ethernet network or Webserver with trend on Ethernet network. The panel contains both the power part and the Eliwell microprocessor. The LMF Sevio system is also available, for a full access to the set and control parameters for monitoring (energy management) or technical assistance activities.

## GAS BURNERS

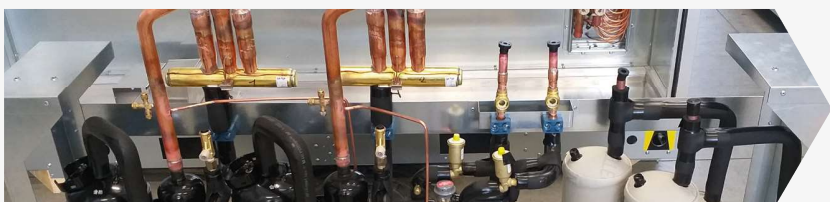
The standard configuration of the FLEX models requires the insertion of gas burners for heating. A combustion chamber is provided, the size of which depends on the size of the machine and the air flow. The chamber is equipped with a by-pass section. The burner is included, it is installed on the side, in a dedicated technical space of the section. It is shipped loose, not installed. The combustion fume exhaust section requires the customer to add pipes to remove the fumes.



The calibration dampers are with aluminium blades designed to minimise pressure loss, with nylon wheels and seal gasket



The humidification systems available are the most commonly used: steam, evaporating pad with or without recirculation pump, washer, water atomisation, ultrasonic, with high pressure micronized water



On request, refrigeration systems integrated into the handling unit are available. Sizing takes place according to the specific requests of the designer. Reversible air-air and air-water heat pump circuits are available



The safety microswitch mounted on the inspection door