BLAUAIR ReGen

Modular Air Handling Units
with unique energy recovery technology

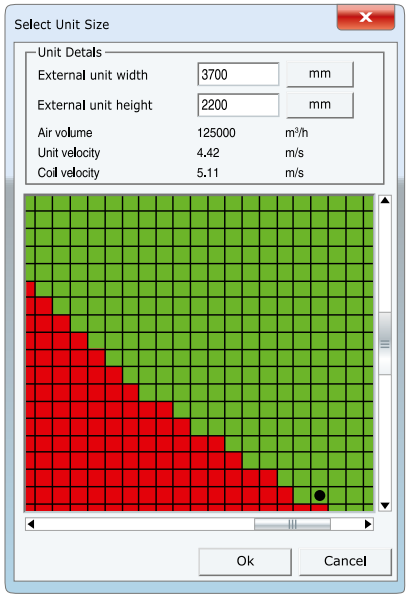
Intertek

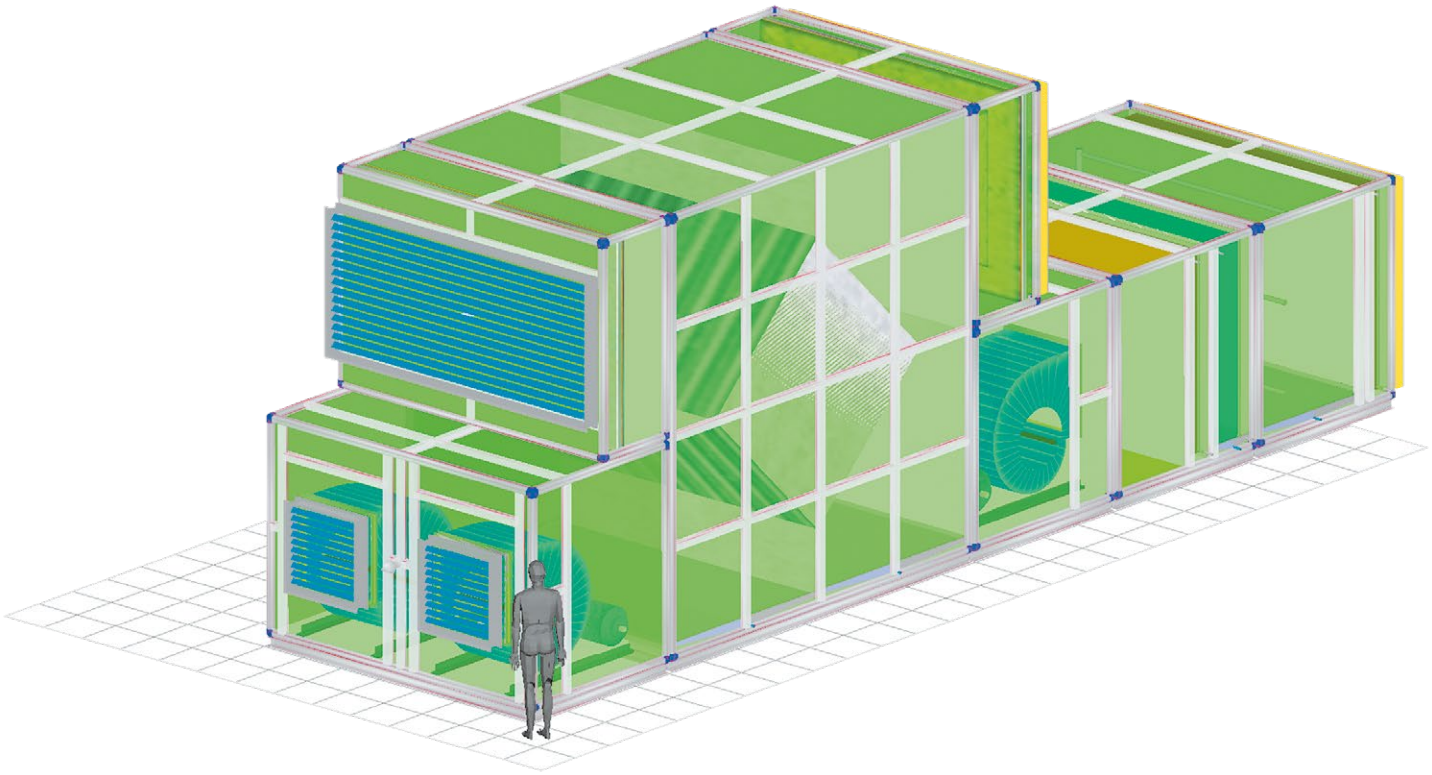
BLAUBERG NA

BlauAir ReGen air handling unit selection program

Advantages of the program

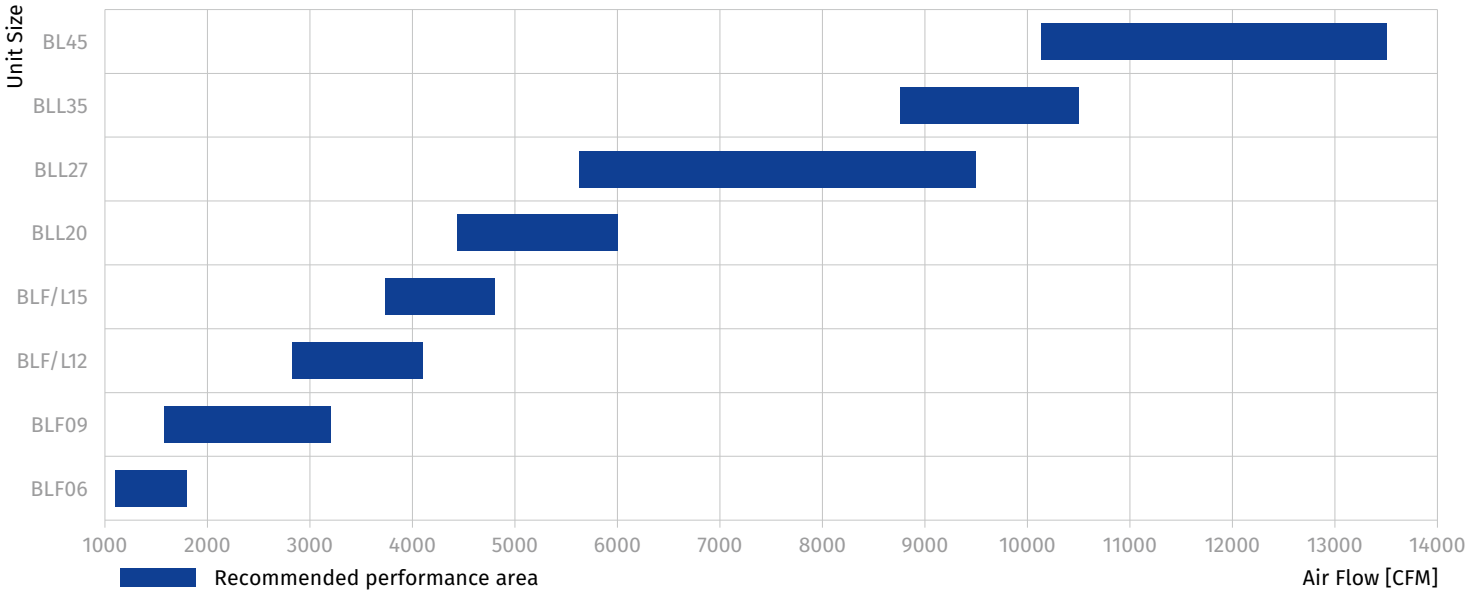
- The flexible system designed to create commercial offers in complete accordance with the customer requirements.
- The flexible system allows to arrange sections in a non-standard way, considering all the design peculiarities.
- Selection of functional elements, such as heat exchangers, filters, fans, standby motors, etc. is available.
- Detailed technical description of selected units, including fan curves and representation of processes as a Mollier diagram for heat exchangers.
- Integration with a CAD-system allows to generate a set of design documentation for automated manufacturing.
- Layouts of units and separate sections drawings is available in the following formats: .dwg, .dxf, .pdf.



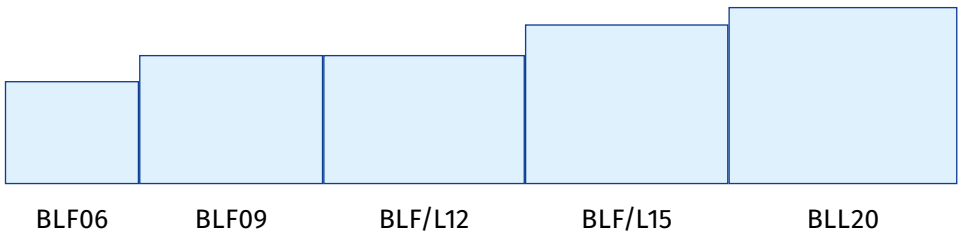


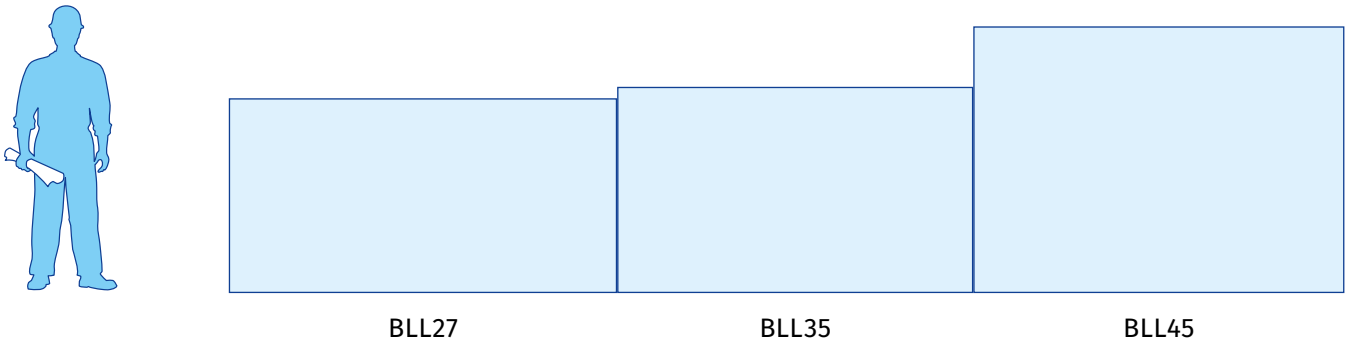
8 standard sizes with a performance range from 1100 CFM up to 13500 CFM

Size selection



Unit size	BLF06	BLF09	BLF/L12	BLF/L15	BLL20	BLL27	BLL35	BLL45
Nominal air flow [CFM]	1450	2500	3650	4450	5400	7750	10000	12000
Cross section height [in]	24.8	31.1	31.1	38.6	42.5	45.7	48.8	63.5
Cross section width [in]	34.6	47.2	52.4	52.4	60.2	85.4	85.4	90.2





Casing types

- Unit casing provides thermal and sound insulation, as well as protection and resistance to external influence.
- BlauAir series are available in several casing types, general properties of which are:
  - High mechanical strength.
  - Corrosion resistance.
  - Thermal insulation.
  - Protection from thermal bridges.
- Mineral wool basalt fiber insulation with a density of 90 kg/m³ is applied for casings. Unlike other types of insulating materials, this one is completely non-flammable and environmentally friendly.

BlauAir series are available in several casing types

BLL: FRAME DESIGN

BLF: FRAMELESS DESIGN

BLL: frame design

The classic casing design, based on aluminum profile frame and joined by means of cast corners, provides high durability of the unit. Different frame thickness values should be used depending on the unit size.

Frame type	Recommended performance area [CFM]	Aluminum profile thickness [in]	Thermal insulation thickness [in]
50-50	1100–13500	2	2

- Casing panels are made of steel sheets with a layer of thermal and acoustic insulation from mineral wool.
- Casing panel material varies depending on the unit application:

OUTDOOR DESIGN:

The unit is additionally protected against precipitation exposure.

- Weather protection hoods are provided over the inlet and outlet spigots.
- Air damper actuators are supplied with protective visors.
- Flat or gable roof.
- An inspection window is supplied with a protective grille.
- The visor length is 11.8".
- All joints are sealed.

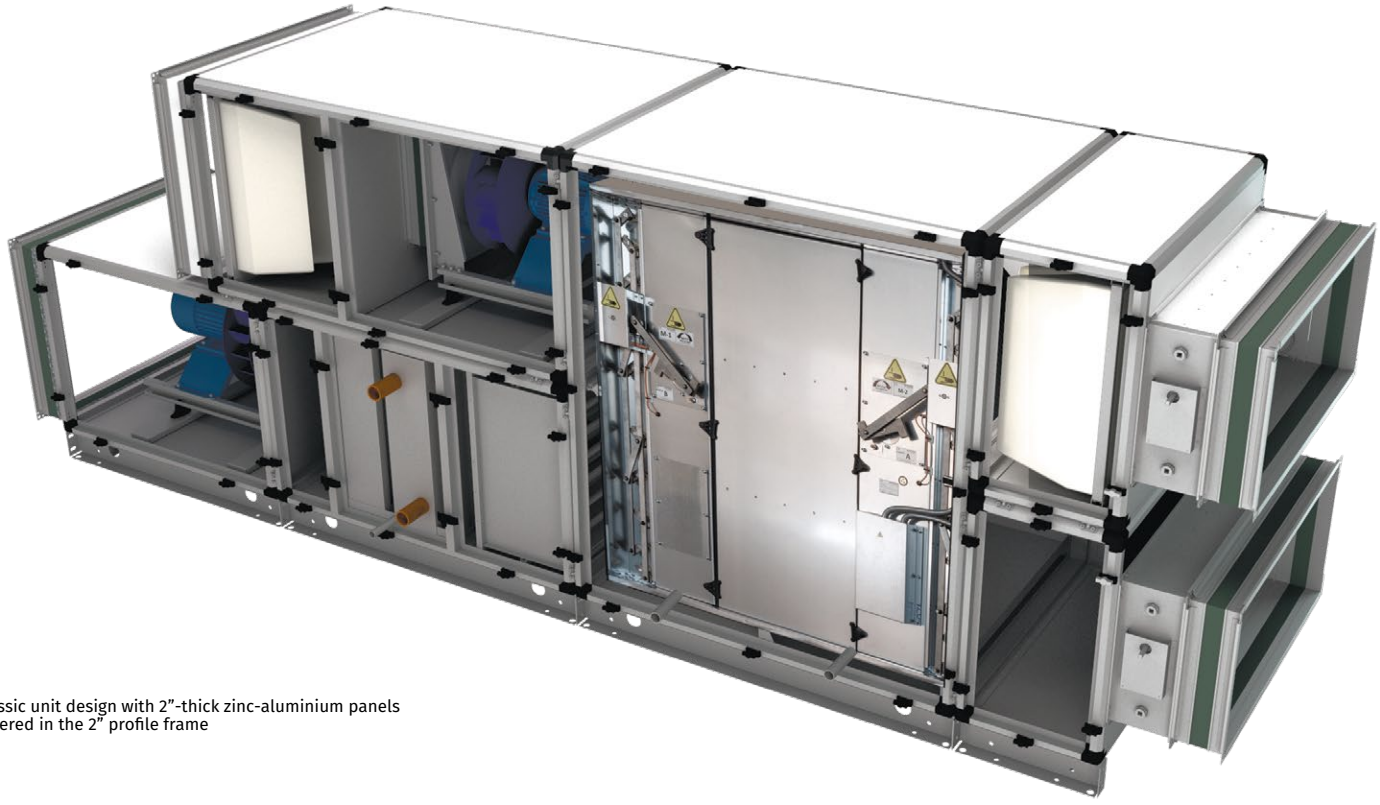
All these elements protect the unit against exposure to water, sand, leaves, etc.

EXTERNAL PANEL SURFACE MATERIAL:

- Zinc-aluminium coating (standard);
- Galvanized steel with polymeric coating (high corrosion resistance);
- Galvanized steel (for indoor units).

INNER PANEL SURFACE MATERIAL:

- Zinc-aluminium coating (standard);
- Galvanized steel.



Classic unit design with 2"-thick zinc-aluminium panels covered in the 2" profile frame

BLF: frameless units

- Frameless design casing system eliminates thermal brigdes, which tend to form in aluminum or steel frames. This significantly increases thermal resistance and reduces heat loss, especially for outdoor installation. It also prevents condensation on the surface when air cooling is on.
- Casing panels are made of sheet steel with a layer of 1.6" thermal and acoustic insulation from mineral wool.
- Casing material varies depending on unit application:

EXTERNAL PANEL SURFACE MATERIAL

- Zinc-aluminium coating (standard).
- Galvanized steel with polymeric coating (high corrosion resistance).
- Galvanized steel (for indoor units).

INNER PANEL SURFACE MATERIAL

- Zinc aluminium (standard).
- Galvanized steel.

Sections

Fan section types

PLUG FANS WITH ENERGY-SAVING ELECTRONICALLY COMMUTATED MOTORS (EC MOTOR)

Electronically commutated direct current motors (EC motors) with an external rotor, equipped with a backward curved impeller, are used. Such motors are a cutting-edge solution for energy saving. EC motors are characterized by high performance throughout the whole range of rotation speed levels available. The advantage of an electronically driven motor is its high energy conversion efficiency (up to 90%).

Silencers

- A silencer unit consists of easily removable sound-absorbing 3.9" thick panels, with the length of 23.6" or 47.2". Sound absorption is presented in accordance to ISO 7235.
- Sound absorbing panels are available in two variants: pointed, low-resistance and rectangular, with a larger area of sound absorption.
- Panels are made of high-density mineral wool with a protective felt cover.

DISTANCE BETWEEN THE PLATES

- 3.9" (standard).
- 5.9" – lowered air pressure drop.
- 2.9" – increased sound reduction.

Air filters

Units include the following filter elements:

- Panel-type coarse filters, MERV6 and MERV8 class. Filter depth is 2". Reinforced with a steel mesh. Panel frame is made of galvanized steel.
- Pocket filters with pocket depth of 11.8" and 23.6"; MERV6, MERV8, MERV10, MERV13, MERV15 or MERV16 class.
- Filters based upon active carbon (unlike the filters of other types) are used to absorb unpleasant odor, gases and toxic vapors.

All filters have easily removable cassettes that can quickly and easily be replaced.

In case of two stages of filtration, the unit contains a compact section, in which panel and pocket filters are installed close to each other.

Electric heater

The section consists of electric tubular heating elements (heaters) with spiral fins, installed in removable cassette frames made of galvanized steel.
Heaters are protected from overheating using thermal switches with automatic reset at +122 °F (+50 °C) and manual reset at +194 °F (+90 °C).
Heaters are grouped according to the “triangle” scheme, three heaters in each group. Groups are then connected in parallel to a 380 V power supply network.

APPLICATION

The electric heater can be used as a preheater, main heater, or reheater, depending on the system configuration and control strategy.

OPTION

A unit with a built-in electric heater triac controller enables maintaining the supply air temperature at a set level with an accuracy of ±33.8 °F (±1 °C).

RECOMMENDED ACCESSORIES

Fan pressure switch DTV 500 – additional protection from overheating in case of low air flow. The sensor can be pre-mounted inside the unit or supplied loose as a separate item.
External triac controller RNS provides smooth control of heaters.

Water heating coil

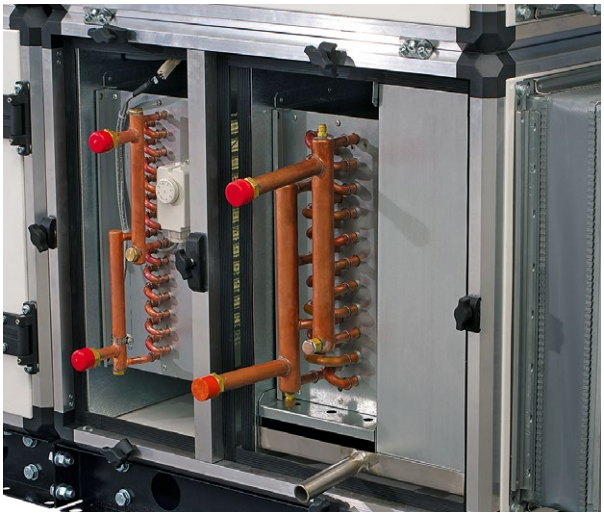
The heat exchanger complies with AHRI 410.
The unit consists of copper tubes with aluminum finning.
For water or glycol mixtures up to 50 % glycol concentration.
Maximum working pressure of the heating medium is up to 16 bar (1.6 MPa).
Drain and air release valves are provided for each coil.

APPLICATION

The water heating coil can be used as a preheater, main heater, or reheater, depending on the air handling unit configuration and control strategy.

RECOMMENDED ACCESSORIES

Three-way valve with electric actuator.



DX cooling coil

Complies with AHRI 410.
Copper tubes with aluminum finning.
The section is equipped with a removable drain pan and a droplet eliminator, both made of stainless steel.
For refrigerants R22, R407, R410A and others.
Drain and air release valves are provided for each coil.

OPERATION MODES

When connected to a VRF system via an AHU Kit, the DX coil can work in a reversible mode, performing both cooling and heating functions as part of the VRF system operation.

Water cooling coil/Change over coil

The heat exchanger complies with AHRI 410.
The unit consists of copper tubes with aluminum finning.
The section is equipped with a removable drain pan and a droplet eliminator.
For water or glycol mixtures up to 50 % glycol concentration.
Maximum working pressure of the cooling medium is up to 16 bar (1.6 MPa).
Drain and air release valves are provided for each coil.

OPERATION MODES

When connected to a chiller or heat pump, the water coil can operate in both cooling and heating modes, ensuring reversible functionality depending on the system configuration.

RECOMMENDED ACCESSORIES

Three-way valve with electric actuator

Regenerative Core System

Regenerative Core System – Maximum Efficiency and Comfort All Year Round.

OUTSTANDING ENERGY RECOVERY

Thanks to its highly sensitive thermal storage mass, the regenerative core system achieves up to 95 % efficiency, returning nearly all the energy from the exhaust air back into the building.

HEALTHY INDOOR CLIMATE

With an advanced enthalpy storage system, up to 70% of the moisture from the exhaust air is recovered during winter. This prevents overly dry indoor air and ensures a comfortable and healthy atmosphere for occupants.

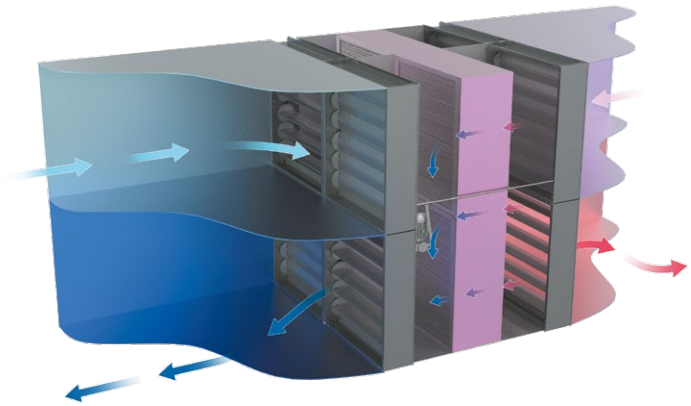
RELIABLE FROST PROTECTION

Engineered to withstand temperatures down to -30 °C, the system is completely frost-proof. Unlike conventional solutions, it requires no additional bypass systems or energy-consuming preheating, guaranteeing efficiency even in the coldest conditions.

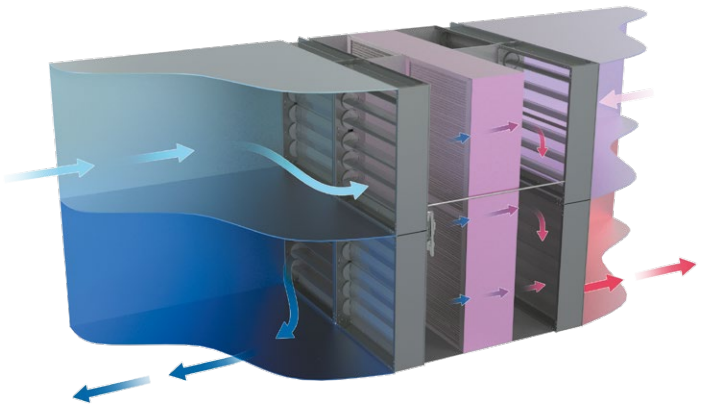
FLEXIBLE POWER REGULATION

The system offers stepless regulation from 100 % down to 0 %, adapting perfectly to building needs. At 0 %, the flaps remain in position, enabling free cooling with fresh outside air—an eco-friendly solution for maximum energy savings.

FUNCTIONAL PRINCIPLE IN RECOVERY MODE

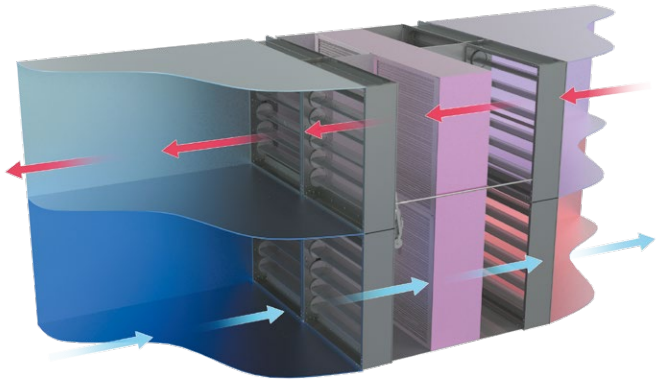


The indoor part of the core absorbs energy from the exhaust air, while the outdoor part delivers this heat indoors and is simultaneously cooled by the fresh outside air.
Every 20 seconds, the airflow direction is automatically reversed.



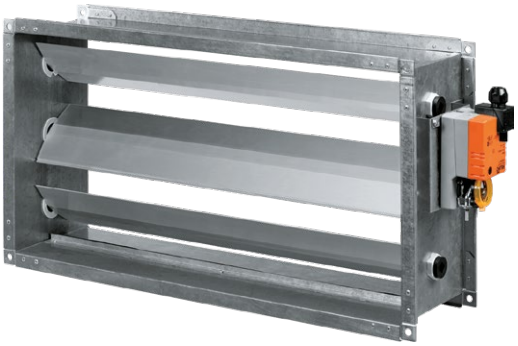
This ensures that the previously heated parts of the core are cooled down, while the cooled parts start absorbing energy again.
Thanks to this continuous cycle, the system guarantees high energy efficiency, balanced indoor comfort, and reliable year-round performance.

FREECOOLING MODE



When both exhaust air and supply air exceed the set point, the unit automatically switches to freecooling mode.
In this mode, no energy recovery takes place — instead, fresh outdoor air is used directly for cooling.

To ensure consistent performance and cleanliness, the damper automatically cycles every 3 hours to keep the core surfaces clean



Air dampers

Louver shutters are made of aluminum profile.
The dampers can be mounted inside, or outside of the section. The frame around the perimeter of the damper is made of galvanized steel.
The rotation is provided by cog wheels made of polycarbonate. To be protected against external environmental influence, the wheels are set inside of a frame.
A square rod is provided for mounting an automatic actuator. If damper height is more than 47.2", two rods should be used. Airtightness class is 3, according to EN 1751.

OPTION: THE "NORTHERN" DESIGN

For the regions with the outside air temperature of -40 °F (-40 °C) and below, the dampers are supplied with an electric heater between the blades. Heating protects blades and cog wheels from icing.

RECOMMENDED ACCESSORIES – ELECTRIC ACTUATORS

- Two-position control (ON/OFF) or smooth opening regulation from 0 to 100 % on signal 0...10 V from the automation system.
- The actuator with a return spring autonomously shuts the damper when power supply is off.

Flexible anti-vibration connectors

- Flexible connectors are two flanges interconnected with an antvibration element. The connectors are made of galvanized steel and polyethylene tape reinforced with polyamide fiber.

APPLICATION

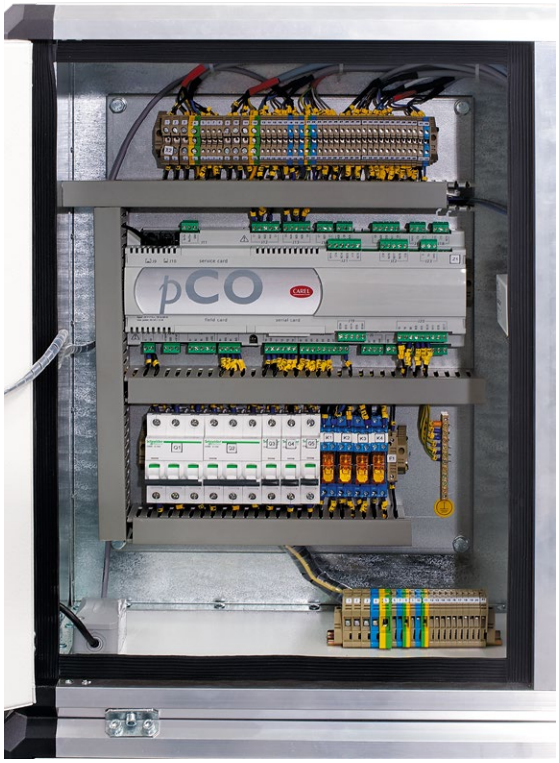
- Where the unit is connected to air ducts to reduce vibration in the air ducts.

Pressure switch DTV 500

- Pressure differential switch indicates an error in case of clogging of air filters, breaking of belts in centrifugal fans, low air flow through electric heaters, etc.

Thermal switch F3000

- Duct thermostat indicates the threat of freezing of unit elements, such as plate heat exchanger, liquid heating coil, etc.



Control system

- BlauAir control system provides maximum reliability, easy operation and installation.

CONTROL SYSTEM IS AVAILABLE IN THREE VERSIONS

- Based on a control board in a polymer casing, with external fan speed and electric heater controls;
- Based on a control board in a metal casing. Fan speed and triac electric heater controllers (if included) are installed inside the switchboard;
- Plug-and-play unit in a separate unit section. All control elements are pre-mounted inside the unit.

CONTROL BLOCK PROVIDES (DEPENDING ON MODEL) THE FOLLOWING FUNCTIONS

- Power supply of all the unit elements.
- Active overload protection.
- Operation and error light signals.
- Starting and stopping the system.
- Water or electric heater control. The system includes the necessary external and supply air temperature sensors, water (glycol) heater frosting protection sensors, electric heater overheating protection (safety and emergency thermostats).
- Air blowing of electric heaters, water coils pre-heating during cold season.
- Water cooling coil mixing valve or condenser unit block control.
- Air damper actuator control.
- Air filters clogging alarm.
- Fan capacity control:
  - Smooth regulation via VFD, which provide soft start, fan stop and overheating protection;
  - Stair-step regulation, by an autotransformer;
  - Without regulation.
- Demand controlled ventilation via CO_2, temperature, RH level sensors, etc.
- Daily and weekly schedule.
- Air ventilation system shutdown on the fire alarm signal.
- Integration into building management systems by installing an additional interface unit.

Plug-and-play unit: full electric wiring

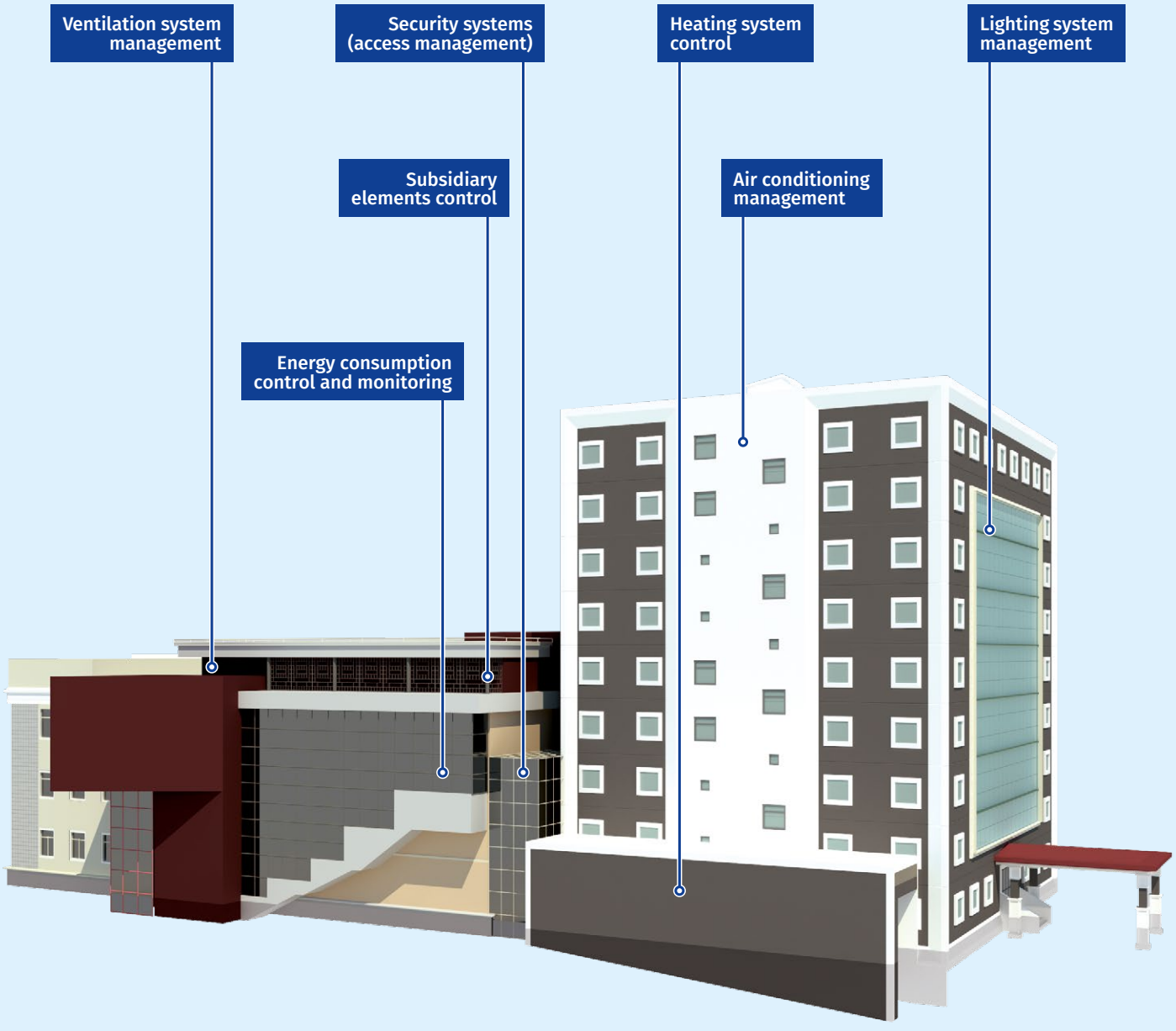
Additional option – full factory electric wiring includes:

- Installing air damper actuators. Routing of contacts from actuators to the terminal box.
- Installing differential pressure switches in filter sections. Installing a relay actuation threshold to the necessary level (final pressure drop according to the selection)
- Installing frost protection thermostats in water heating coils sections.
- Routing all electric contacts in the electric heater sections.
- Routing all electric contacts in the fan sections.
- Installing and adjusting of all temperature and humidity sensors inside the unit.
- All the electric contacts are routed to the junction box, which is mounted in one of the sections.

Plug-and-play option implies the possibility of shipment in separate sections. In this case joints and connection boxes are installed between the sections.

Building Management Systems

BlauAir units control system can be easily integrated into building management systems (SCADA, BMS, "smart house", MODBUS TCP).
All the information processed by a programmable logic controller, is easily accessible via standard communication protocols:
Any other protocol can be used according to customer's choice and project requirements.



Inquiry form

Air handling units (AHU) are rather complicated pieces of equipment to specify and order, because a vast array of choices is available, and that is why there is no single number identifier (e.g., a "11770 CFM unit") that adequately describes a desired product.

CONSEQUENTLY, THE SELECTION OF THE UNIT YOU NEED CAN BE DONE BY ONE OF TWO OPTIONS

- Use Blauberg AHU Selection program and send us the data file;
- Fill up and send us an inquiry form.

In addition to size and type, in order to provide you with the optimal solution, our engineers must properly determine an air handling unit's required supply air temperature and volume, outside air temperatures in summer and winter, air filtration rate, heating and cooling air capacities, humidification and dehumidification capacities, supply and exhaust air volume requirements, and required pressure capabilities of the fan(s). The more detailed information we receive, the better solution we can offer for your individual request.

BlauAir technical specification inquiry form

Company ..... /Building ..... Tel./Fax:

Contact person ..... E-mail:

Tel./Fax .....

E-mail ..... "....."....20.....

General

Unit: Exhaust ☐ Supply ☐ Supply & exhaust ☐ Supply & exhaust with heat recovery ☐

Mounting: Outdoor ☐ Indoor ☐ **Access side:** Left ☐ Right ☐

Supply & exhaust parts: Lineary ☐ Side by side ☐ One on the other ☐

Unit parameters	Supply	Exhaust
Capacity	..... CFM	..... CFM
Pressure (system resistance)	..... "WG	..... "WG

Air parameters		Winter		Summer	
Supply	Inlet air temperature and relative humidity	..... °F	..... %	..... °F	..... %
	Outlet air temperature and relative humidity	..... °F	..... %	..... °F	..... %
Exhaust	Inlet air temperature and relative humidity	..... °F	..... %	..... °F	..... %
	Outlet air temperature and relative humidity	..... °F	..... %	..... °F	..... %

Sections required

Fan Belt - driven ☐ Plug fan ☐

Filter Supply MERV8 ☐ MERV13 ☐ Other .....
Exhaust MERV8 ☐ MERV13 ☐ Other .....

			Water	Electric
Heater	☐	Air temp. before / after	..... °F / ..... °F	
	☐	Heater power	..... kWt	
Mixing set	☐	Water temp. before / after	..... °F / ..... °F	

			Water	Freon
Cooling section	☐	Air temp. before / after	..... °F / ..... °F	
	☐	Heater power	..... kWt	
Mixing set	☐	Heat transferring medium temp. before / after	..... °F / ..... °F	

Heat exchanger ☐ ☐ Inlet temperature .... °F Outlet temperature .... °F
Plate ☐ ☐ Inlet humidity .... % Outlet humidity .... %
Rotary ☐ ☐ Efficiency .....

Silencer ☐ Supply ☐ 47.2" long ☐ Other .....
Exhaust ☐

Air damper ☐ Supply ☐ Exhaust ☐

Mixing section ☐ Circulating air .... %
Inlet air temperature .... °F
Inlet air humidity .... °F

Accessories: Flexible connection (inlet) ☐ Flexible connection (outlet) ☐ Mounting base frame ☐

Control system ☐

Additional information:

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