AQX

Air handling units

Air flow 1,300 - 160,000 m³/h (350 - 44,400 l/s)

CLIVET

Applications

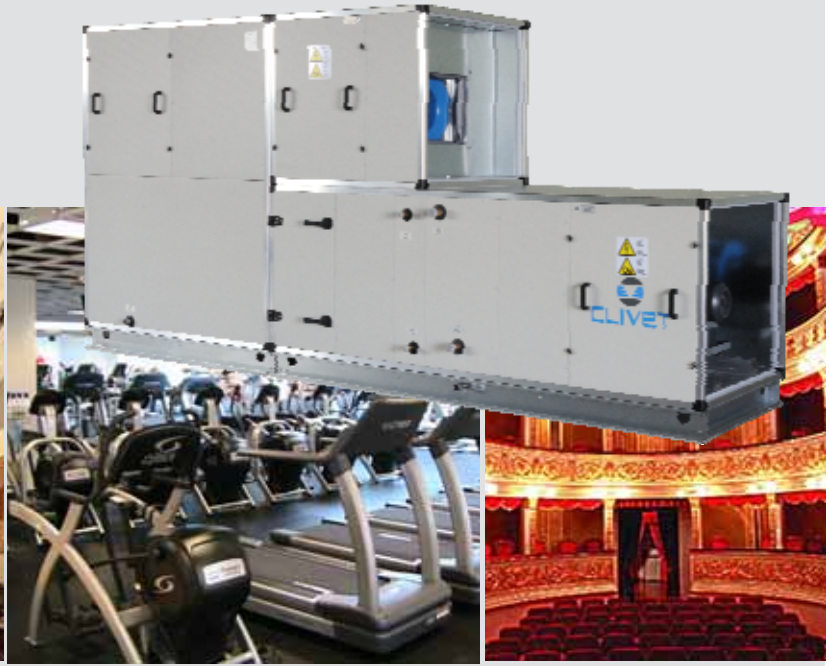
Commercial and Industrial

New projects and renovation

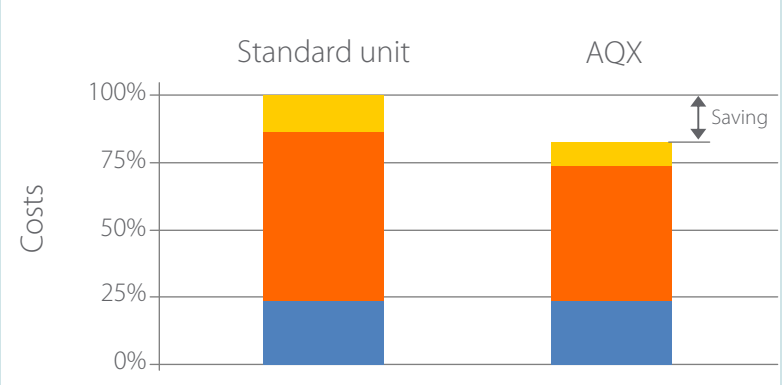
Suitable for new projects and renovations, **Clivet AQX air handling units are designed to be employed in commercial, civil, business applications as far as in hotels, congress centres, theatres, fitness centres**.

Moreover, Clivet AQX units are also suitable for critical uses such as **hospitals, high tech industry, clean rooms, pharmaceutical or food industry**, where the requirements for cleaning and hygiene are mandatory.

Clivet high efficiency comfort solutions contribute to attaining Green Building LEED Certification. Clivet is member of Green Building Council Italy, supporting the Association in spreading sustainable building principles.



Total life cycle cost



Total life-cycle cost:

Rapid return on first investment

When choosing an air handling unit, it is very important to look at the Total **Life Cycle Cost**, considering all the variables: capital cost, ongoing maintenance cost and energy consumption cost.

The energy costs represent, on average, 70% of the total life cycle cost, mainly due to fan operation.

Savings generated by Clivet AQX advanced design and **operating efficiency** guarantee a rapid return on the first investments and lower energy bills.

Eurovent Certification

Since many years, Clivet participates in the EUROVENT Certification Programme, which certifies the performance ratings of air-conditioning and refrigeration products according to European and international standards.

Construction Certification

AQX units are certified by Eurovent for construction according to the Directive EN 1886 'Ventilation for buildings - Air Handling Units - Mechanical performance'. The units are designed with great mechanical performances to avoid energy loss through casing and structure.

Energy Certification

Eurovent also certifies the AQX selection software and performance according to the Directive EN 13053 'Ventilation for Buildings - Air Handling Units - Ratings and performance for units, components and sections', guaranteeing high quality levels and energy efficiency.

The certification is periodically tested by Eurovent to assure the performance.

EUROVENT CERTIFIED PERFORMANCE
AHU N° 13.05.001
Range AQX
www.eurovent-certification.com

AQX units can be selected in Eurovent A-class

Eurovent Certification according to EN 1886		
Model boxes	**PU50**	**RW50**
Casing Mechanical Strenght Maximum relative deflection mm x m^{-1}	D1 4.00	D1 4.00
Casing Air Leakage at -400 Pa Maximum leakage rate (f_{400}) l x s^{-1} x m^{-2}	L1 0.15	L2 0.44
Casing Air Leakage at +700Pa Maximum leakage rate (f_{400}) l x s^{-1} x m^{-2}	L1 0.22	L2 0.63
Filter Bypass Leakage Maximum filter bypass leakage rate k in% of the volume airflow	F9 0.50	F9 0.50
Thermal Transmittance Thermal Transmittance (U) W/m^2 x K	T2 0.5 < U <= 1	T3 1<U<=1.4
Thermal Bridging of the casing Thermal bridging factor (k_b) W/m^2 x K	TB3 0.45< k_b <= 0.6	TB3 0.45< k_b <= 0.6

Acoustic insulation [dB]							
Frequency	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
PU50	6	11	12	14	13	29	36
RW50	11	14	15	20	20	28	36

PU50: Double skin polyurethane panel, 50mm Thick
RW50: Double skin mineral rock wool panel, 50mm Thick

The complete air conditioning system

Air handling can be used for direct air-conditioning (all air system) or integrated in complementary systems whose aim is the thermal load satisfaction (mixed system).

In both cases, AQX units can rely on the complete system from Clivet, designed for total integration, best overall efficiency and ease of selection and installation.

The Clivet system include a wide range of products, available with many versions and options to match with individual applications.

An answer to any needs:

32 standard sizes, maximum flexibility and modularity

The AQX range is developed on 32 standard sizes with air flow from 1,300 to 100,000 m^3/h (350-28,000 l/s) at 2 to 2.5 m/s air velocity. Minimum airflow 500 m^3/h (140 l/s). Up to 160,000 m^3/h (44,400 l/s) at 4 m/s air velocity in suitable applications .

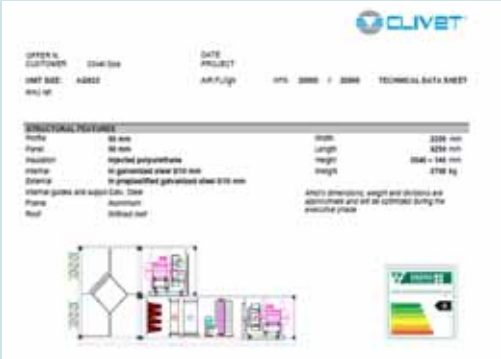
According to specific architectural requirements and structural constraints, the unit height and width can be fitted with step 50mm.

All model configurations are available for indoor or outdoor, vertical or horizontal installation as well as with units on top of each other, behind each other, or next to each other.

The product can be further customised according to the specific needs of each project, always with the maximum attention in the choice of the best components in order to satisfy the highest quality standards.

Thanks to AQX flexibility and modularity, the designer can easily transform the concept into a real plant.

AQX selection software



Selection software:

fast and reliable

The AQX selection tool has user-friendly interface, complete with a wide range of configuration and customisation options.

In a very short time, it allows the units to be sized and supplies the detailed offer with all relevant technical information. All parameters are easily adaptable to adjustments in the design phase.

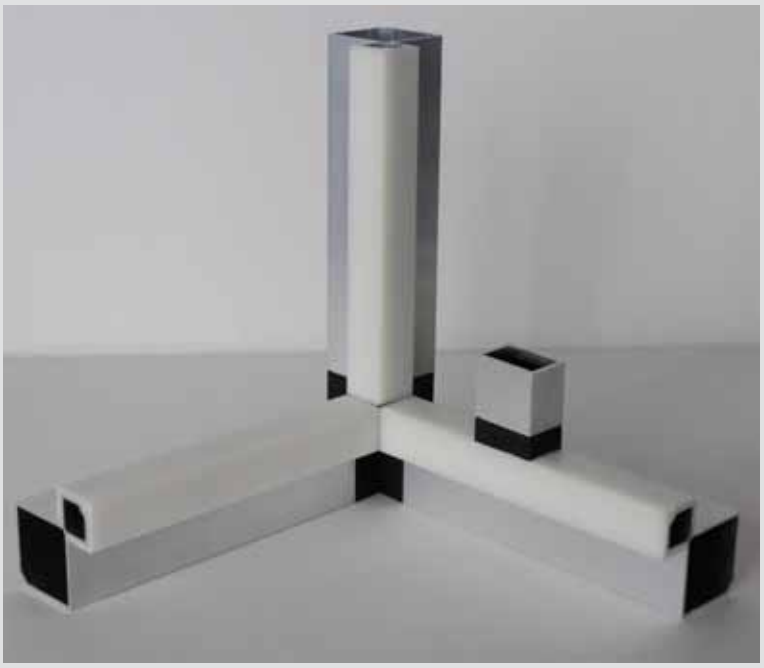
The project can be exported in PDF or RTF format, complete with performance data, fan performance curves and price list.

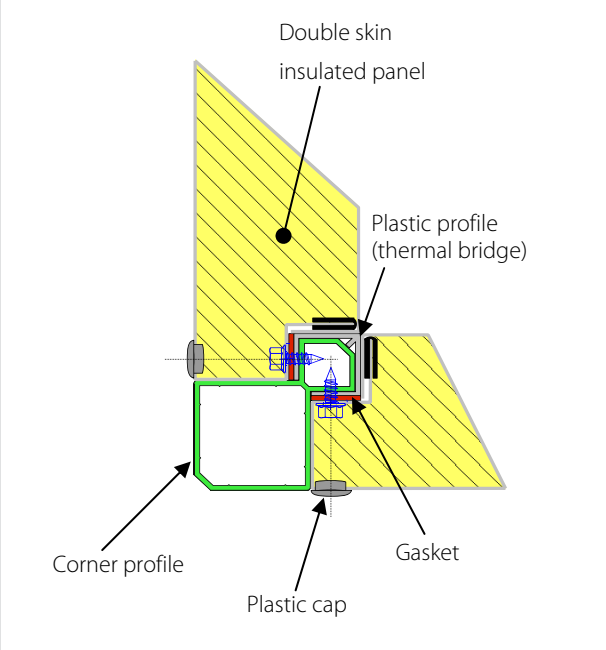
The technical draw of the selected unit can be exported in DWG format.

Thermal break design

The best thermal performance and the minimum heat losses are assured by the highest level technology frame:

- Structure with aluminium profiles and ABS gasket for thermal break
- Double chamber type profiles so that the fixings screws are totally concealed
- Solid connecting corners made of glass-reinforced nylon, complete with thermal break
- Concealed intermediate profile for best thermal break and reduced length
- Modular frame for an easier transport and lifting in plant
- Section junction realised with ABS profile for a perfect thermal break
- The base frame is independent for each section, made of galvanized thick sheet steel.





Double skin panels

The closing panels are double skin type, with double sheet steel and insulation through either polyurethane foam (thickness 50mm, density 40 kg/m^3) or fibrous mineral wool (density 90 kg/m^3), complete with gasket for thermal break.

External sheet is coated with polyester powder, colour RAL 9001.

For best individual customisation, AQX units can be selected with seven types of materials for the internal and external panels, with different thicknesses.

On request, panels can be supplied with doors for inspection and service. There are solutions with hinges to allow left or right openings or even the total removal of the door, complete with internal and external handles to assure the maximum safety.

The unit can be equipped with double-wall portholes made of polycarbonate and with sealing gaskets. With lighting inside.

Heat exchangers

Heating and cooling heat exchangers are available in different types: water, high temperature water, steam and direct expansion.

Standard coils are made with copper tubes and aluminium fins: they are available in different diameters, thickness, and four types of tubes geometry. Fins have different shapes and space to increase the thermal exchange. They can be supplied in aluminium, copper or coated. The header in steel or copper can be threaded or flanged.

Coils are standard supplied with drain pan with thermal insulation, properly sloped to eliminate water stagnation.

Fans and motors

Ventilation is one of the most important features for the evaluation of an air handling unit, since it represents the first element of energy consumption.

Fans are available in the following types:

- Forward curved blade
- Backwards curved blade
- Backwards curved aerofoil blade
- Plug fan

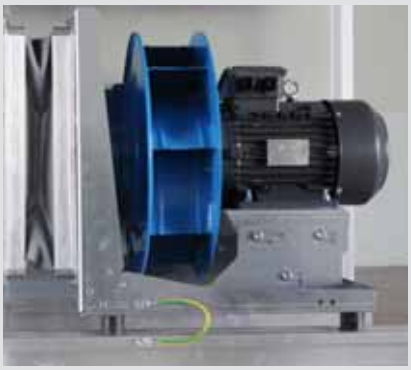
Available in different construction configurations, mounted rubber or spring isolators, coupled to folding bellows joints for quiet operation.

They can be directly coupled to electrical motor or with belt/pulley transmission.

Motors are available in the following types:

- Asynchronous three-phase motor
- Electronically-controlled (EC)
- Inverter driven

Electric motors are compliant to IEC 60034-30 and European Regulation EC 640/2009. They are rated IE2 and IE3 (High Efficiency).

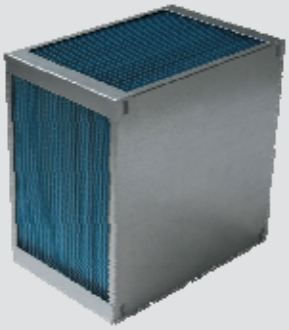


Heat recovery

The energy contained in the exhaust air can be recovered through a suitable equipment.

AQX units can be supplied with different recovery systems:

- Cross-flow
- Heat wheel, sensible or enthalpy/hygroscopic type
- Run-around coils



Air filters

The indoor air quality is threatened by external and internal pollutants, that affect our health and building. For this reason filtration is essential.

AQX can be equipped with different types of filters with high filtration efficiency (G2 to HEPA H14 according to CEN-EN 779 and 1822) according to design and installation requirements:

- Prefilters
- Soft bags
- Rigid bags
- HEPA filters
- Active absorber carbon

Accessories

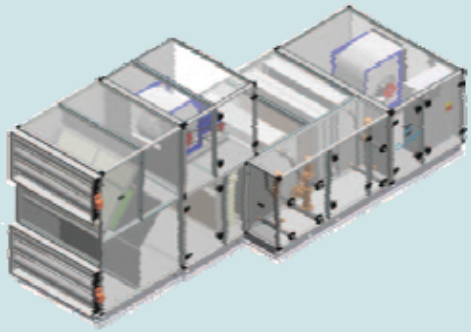
- Steam humidifier
- Electrode boiler steam humidifier
- Water to waste evaporating wet-deck humidifier
- Heating auxiliary options with electric heaters or gas burner module
- All inside metalwork available in galvanized steel, aluminium, AISI 304, or AISI 316
- Sound attenuators
- Further customization

Configuration for high hygiene standards

Air quality is a critical issue in buildings like hospitals, high tech industry, clean rooms, pharmaceutical or food industry where high hygiene standards are required.

AQX units can be equipped with a specific frame with completely smooth inner surfaces, without edges or screw connections, They feature full access to internal components for easy cleaning.
All materials have been chosen to guarantee the highest quality standards.

Full control system



Control packages: speed up design and installation with best reliability

AQX units are available with in-built control package.
It can include:

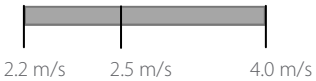
- Electric power panel
- Microprocessor control unit
- Sensors for air temperature, relative humidity, air quality, pressure and flow rate
- Control valves and actuators
- Two way or modulating humidification control valve
- Shutter valve servo-controls
- Safety equipment.

All control components are factory installed and tested.

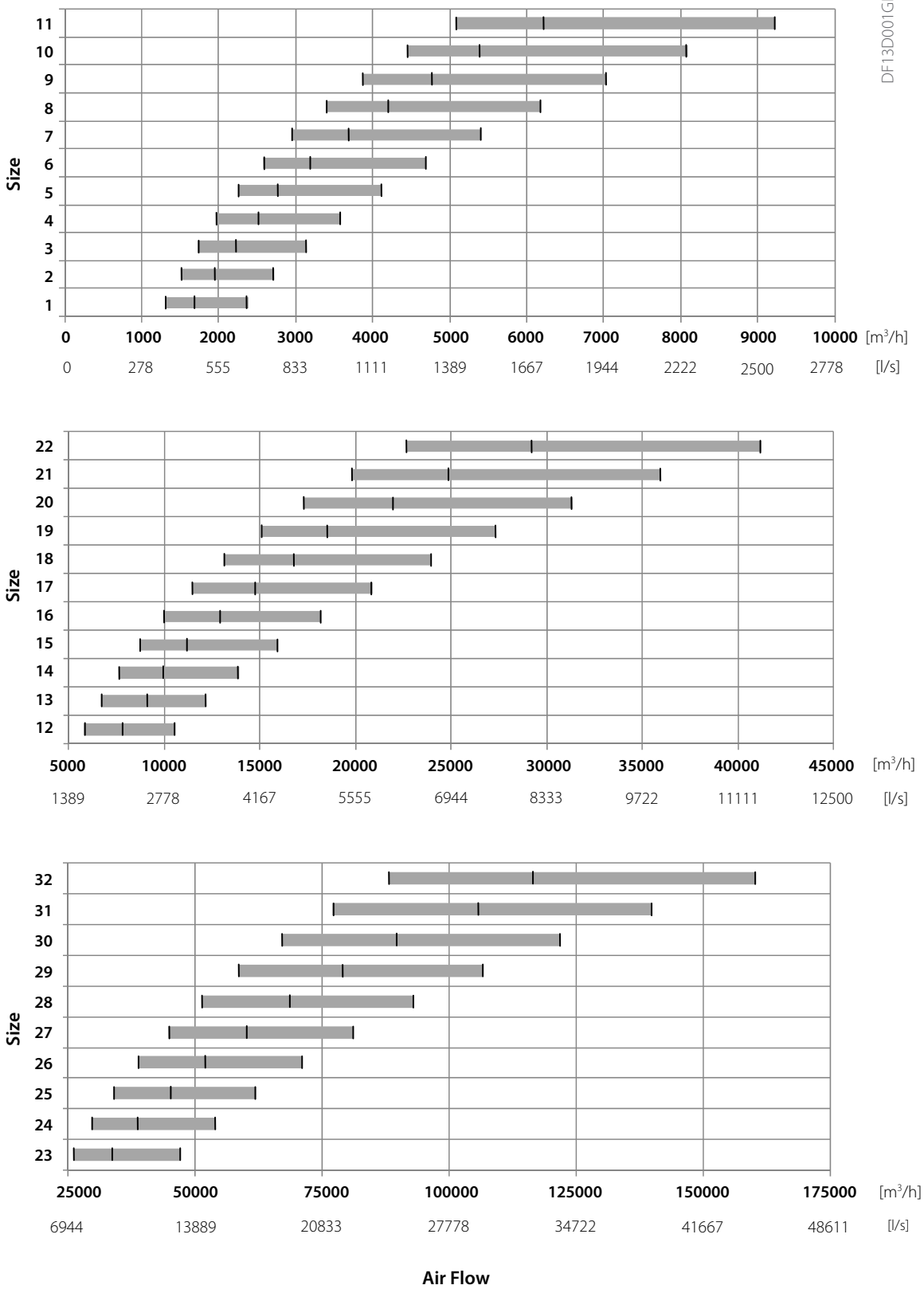
TECHNICAL DATA

SIZES AQX	EXTERNAL SECTION Height x Width [mm]
1	570x770
2	570x820
3	620x920
4	720x870
5	720x920
6	720x1,020
7	820x970
8	820x1,020
9	820x1,170
10	920x1,120
11	920x1,220
12	1,070x1,220
13	1,070x1,370
14	1,170x1,370
15	1,170x1,570
16	1,320x1,570
17	1,420x1,620
18	1,420x1,770
19	1,520x1,820
20	1,520x2,070
21	1,670x2,120
22	1,770x2,220
23	1,920x2,370
24	2,020x2,470
25	2,120x2,620
26	2,270x2,820
27	2,270x3,170
28	2,270x3,570
29	2,270x4,020
30	2,270x4,570
31	2,270x5,170
32	2,270x5,870

Height without basement 140mm



Air flow rate range according to the speed



Air Flow

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