THESAN

Thesan Aircare AF. Controlled mechanical ventilation and air filtering system

Catalogue

The air inside homes, offices and schools is a lot more polluted than outdoor air.

25% of the global population lives in metropolitan environments with significant outdoor air pollution, or in closed environments with a build-up of dust and pollutants that are harmful to human health. Pollution in these environments is from two to ten times – and on occasion up to 100 times higher than outdoors (World Health Organization, 2009); it takes the form of chemical, physical or biological pollutants that harm buildings, as well as human health, not least because they are not always perceptible. We are talking about homes, schools, workplaces, locations for entertainment and socialising, places where we spend 90% of our time. And where effective ventilation can make the difference between good health and poor health. This is why it is absolutely essential to correctly incorporate special indoor ventilation systems in building design to control and filter the air.

Time spent indoors: 90%.

90% of our life is spent in closed environments where pollution builds up: home, office, school.
European Union
ECA report no. 23 Ventilation
Good Indoor Air Quality and Rational Use of Energy

Don't you smell the stench of unhealthy air?

The consequences of indoor air pollution ranges from foul odours to mould and mildew all the way to cancer, for example induced by Radon. Correct ventilation dilutes pollutants and disperses virusesand bacteria.
WHO - Guidelines for indoor air quality: selected pollutants - 2010

Shanghai a city that leaves you breathless.

On average, pollution in Shanghai is 5 or 6 times higher than the $PM_{2.5}$ limits set by international guidelines, and it is largely responsible for cardio-respiratory diseases.
Kan et al., 2007 - Environment International. Volume 33, Issue 3, April 2007, Pages 376–384

Radon. A killer gas.

Indoor exposure to Radon is the second cause of lung cancer in the world.
WHO - Handbook on indoor radon - 2009

Indoor air, deadly air.

Indoor air pollution is estimated to cause approximately 2 million premature deaths every year.
WHO - World Health Organization

Aircare AF. As simple as opening a window but a lot more effective.

Opening windows is the simplest way of getting fresh air into an indoor environment but it's certainly not the most efficient. Using Aircare AF is as simple as opening a window but it is far more effective.

Aircare AF is an innovative controlled mechanical ventilation system. It is fitted with extremely efficient filters and it ensures correct air change by supplying fresh, filtered air and and removing polluted air by pressure driving. This provides excellent protection against fine particulates (PM_{10} and $PM_{2.5}$). What's more, it also blocks Radon because it controls the pressure in the whole environment. The addition of special optional filters makes its filtering capacity even more targeted.

Aircare AF counteracts noise pollution because windows can be kept closed. It also helps save energy: air-conditioning use can be kept to a minimum when it's hot because fresh air flows into the room at night. Then, when it is cold, air is changed without the need to open windows and waste heat.

A design you can hardly notice.

Aircare AF has a very sleek design, in the unmistakeable Pininfarina style, so it blends into any public or private building.

You can hardly notice it at all from the outside, and from the inside it looks practical and satisfyingly technological, perfect for residential use (apartments and single-family homes, in living and sleeping zones) and for non-residential use (small cafés, shops, offices, hotels, patient rooms in healthcare facilities).

Aircare AF is integrated into the door and window frames of buildings that are under construction or being refurbished, adding value to the doors and windows, to the house and to the quality of the indoor environment.

About Aircare AF.

It is light and compact and horizontal installation on the upper frame of any door or window is quick and easy with very little, rapid fitting work.
The length of Aircare AF ranges from 720 mm (minimum) to 3000 mm (maximum).
It is 218 mm wide, as slim as possible within the limits of the filter area, and it is only 78 mm high.
It can be fitted into frames with a profile of no more than 78 mm wide.

The remote control

This user-friendly device has only three buttons for remote control of the electronic control circuit.

Motorized shutters

The shutters can be automatically opened and closed to let air into the environment. They open when Aircare AF is on and close when Aircare AF is off.

The ventilation system

This is the Aircare AF core. It ensures controlled and constant, significant and extremely reliable air volume. Varying airflow, from 16 m^3/h up to 40 m^3/h.

The electronic control circuit. Compact and reliable

Only accessible to trained personnel and efficiently and safely operates all the basic functions of the appliance.

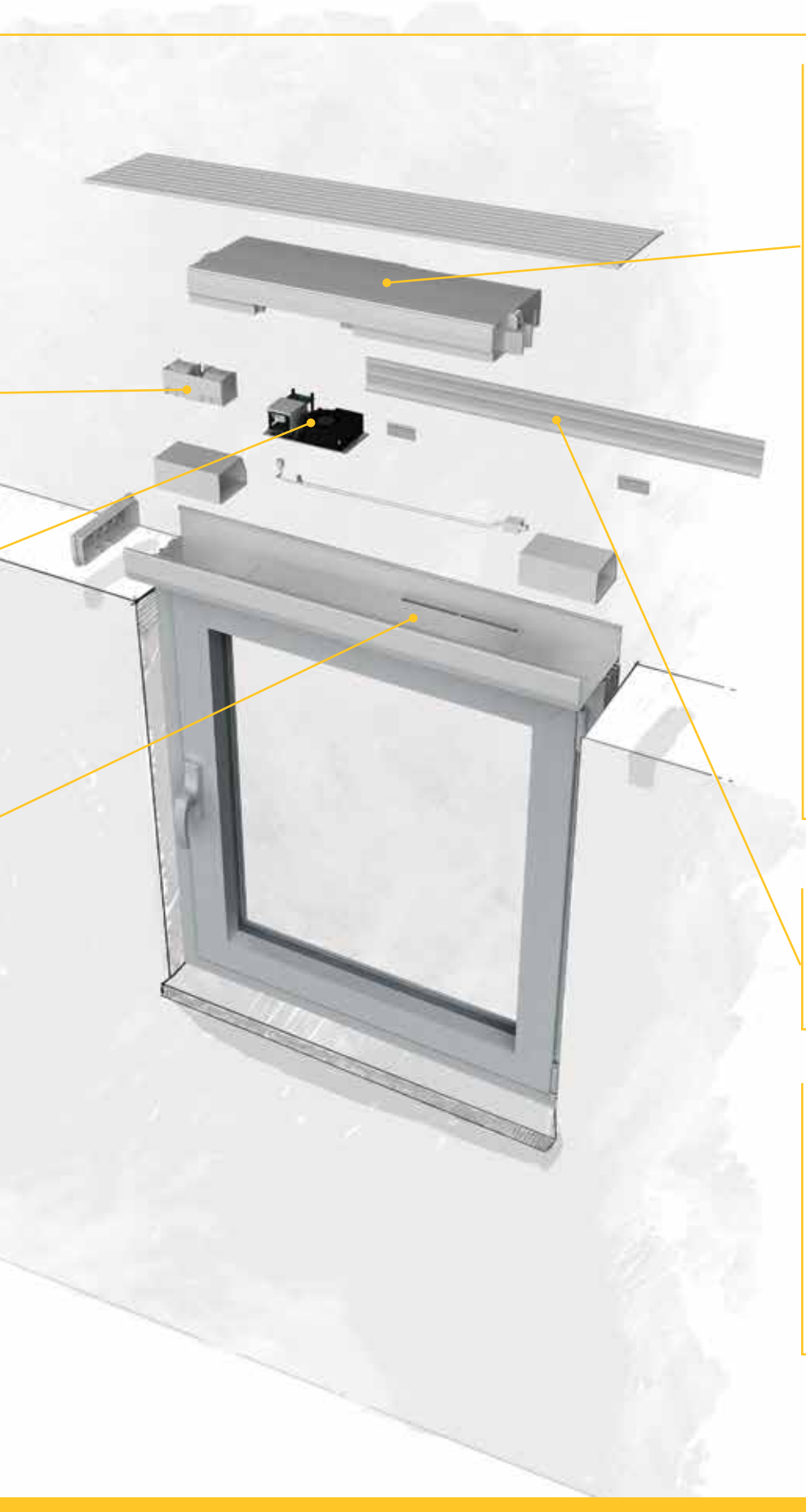
- Turning on and off
- Ventilation adjustment
- Indicates when filters are clogged and need to be cleaned or replaced.

Outer shell, cover, reinforcements and side caps

These are made from ABS plastic, with the exposed parts painted standard white (RAL 9010). They easily and discreetly fit in with any kind of décor, door and window, interior design. Other colours in RAL range are available on request.

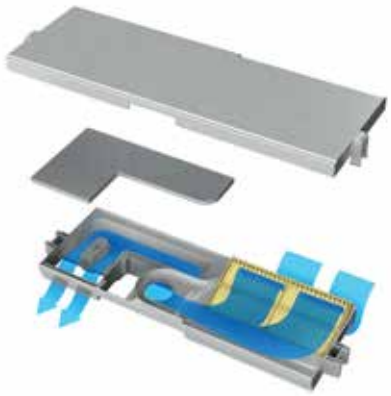
Ex. white color finishing (RAL 9010)

Ex. gray color finishing (RAL 7040)



The filtering system

The second strength of the appliance. Compact, efficient and modular, to give users a number of filtering options. The filter unit is easy to access and inspect. Even inexperienced users can perform the cleaning and maintenance operations, which are as simple as a vacuum cleaner.



Outer cover

Made from aluminium for a more attractive aesthetic.
It can be painted like the building facade.

Power supply system

Power supply of 110 - 230 VAC with mains connection of 50 - 60 Hz.
Direct operating voltage inside (Safety Class I).
Absorbed power depends on the airflow and ranges from 2,7 to 12,8 W.

This is how it works.

The appliance fits between the top of the window frame and the wall. It draws air in from the outside, filters it and the fan blows it into the room. The operating principle is very simple – the same simplicity in the installation system components.

No noise

This is one of the appliance's fundamental features, because it operates in everyday living, working, resting and sleeping environments. See the specifications in the table at the end of the catalogue.

Filtering

Aircare AF is fitted with a filtering system that combines G3 and F8 grade filters, which can filter particulate matter (PM_{10} and $PM_{2.5}$), bacteria, pollens, fungi, dust mites. More powerful filtering systems are available on request.

Air change

The efficient ventilation system in Aircare AF controls the pressure in the environment, ensuring effective and constant air change, the only way to counteract mould caused by dampness and rising Radon.

Thermal insulation

Aircare AF is made from ABS plastic, which guarantees excellent thermal insulation, with a transmittance of U about 0.30 W/m^2K.

Outdoor air intake

This is ensured by grilles with optimised surfaces to prevent the entry of foreign bodies, dust and insects.
It is made perfectly waterproof through a selective closure system based on wind speed.

Indoor air input

This is ensured by grilles that provide even distribution of the filtered air into the room, with minimal operational noise and without vortexes.
On request, motorised flaps can be fitted for even more precise, selective closure.

Soundproofing

Aircare AF helps counteract noise pollution because the air is changed with the windows closed, blocking disruptive or harmful noise.

Lower energy consumption

Aircare AF consumes very little energy.
At maximum power it consumes the same as a low energy consumption bulb delivering 60 candles light.

Energy efficiency

Aircare AF is highly energy efficient. In summer, it helps limit air-conditioning use because fresh air flows into the environment at night; in winter, the air is changed without the need to open windows, so heat is not wasted.

Economical benefits

Aircare AF adds value to your home because by reducing thermal dispersion when renewing the air and keeping the walls dry, clean and mildew-free, it makes frequent cleaning and painting unnecessary.

Configuration.

The European guidelines of the World Health Organization for indoor air quality (2009) indicate that is required a proper ventilation rate to guarantee the minimum confort level and to protect from patologies related to a pollution and humidity excess in the enviroment.

A sample room in a private home

Surface (s): 4x4 = 16 m^2
Volume (v): 16x2,7 = 43,2 m^3
Ventilation (R): R = v/2 = 21,6 m^3/h

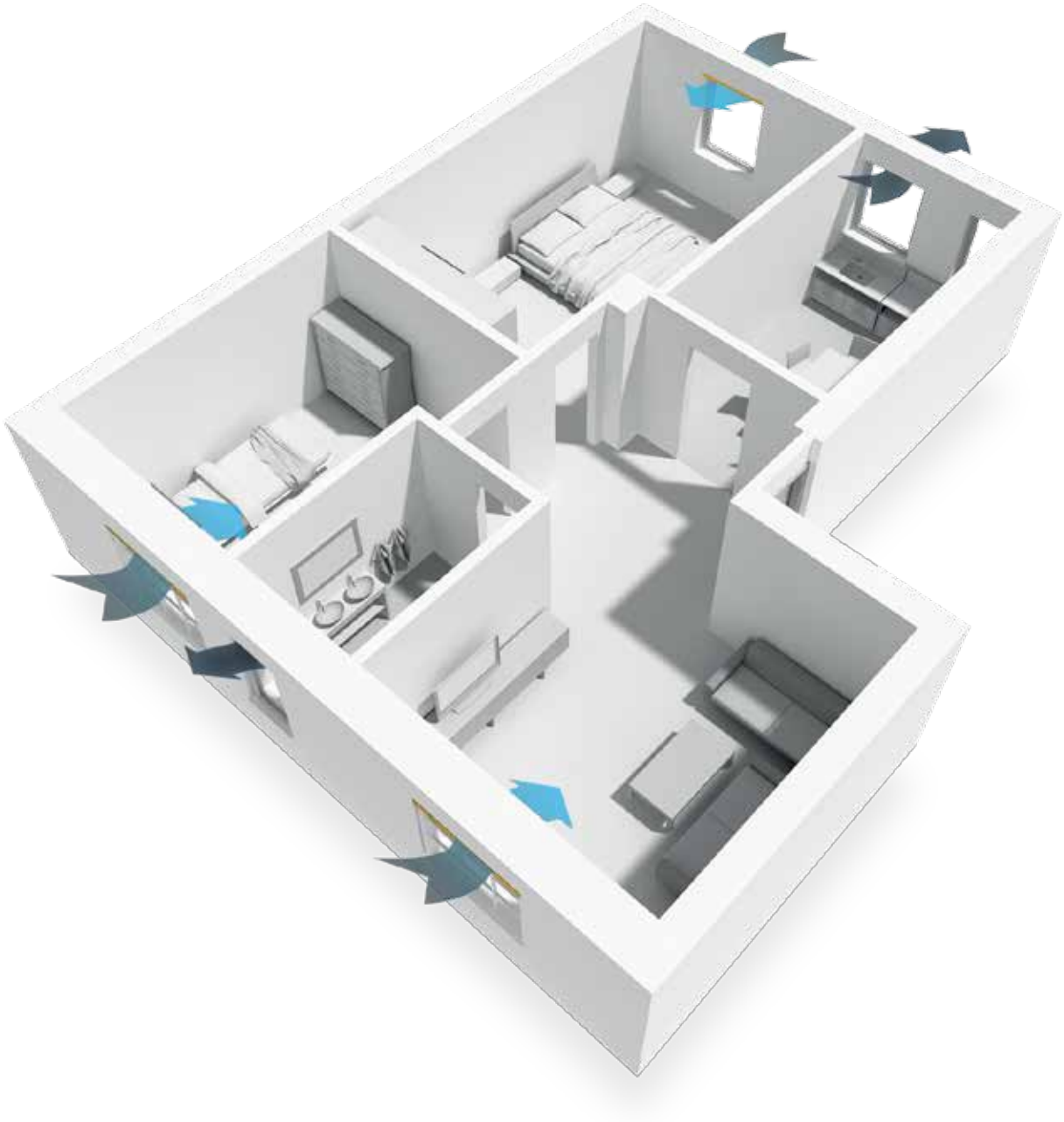
Requires 1 Aircare AF

A sample room in an office /retail building

Surface (s): 10x8 = 80 m^2
Volume (v): 80x2,7 = 216 m^3
Ventilation (R): R = v/2 = 80 m^3/h

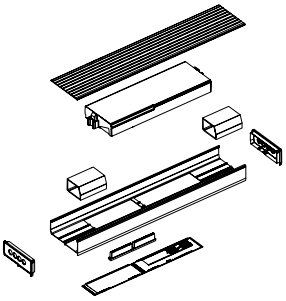
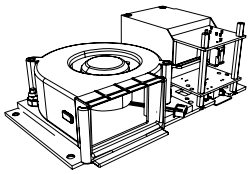
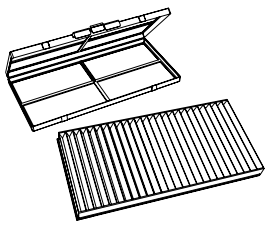
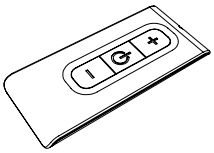
Requires 2/3 Aircare AF

Sample apartment

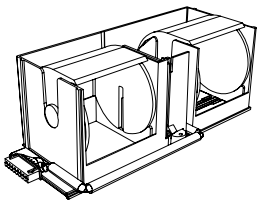
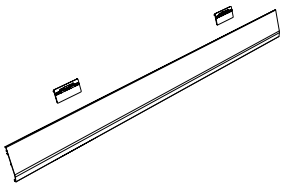


Aircare AF is installed in bedrooms and living areas, ensuring air out take from kitchen and bathrooms.

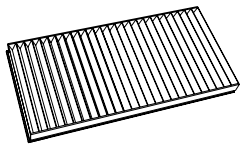
Aircare AF - articles

CODE	DENOMINATION	DESCRIPTION	QT/PACK	
AC-AF002-XX00 AC-AF002-XX01 AC-AF002-XX02	Structure Length= 1000 mm Structure Length= 1500 mm Structure Length= 2000 mm	Product structure's plastic components other than motor-fan assembly, remote control, filtering unit, motorized shutter kit and external cover	1	
AC-AF004-0000	Motor-Fan assembly	Motor-fan assembly with plate, electronic board, electrical cables 2+Tx0,5 mm^2 L= 700 mm	1	
AC-AF003-0000	Filtering unit	Filtering unit made of G3 pre-filter molded into the frame and F8 replaceable filter	1	
AC-AF005-0000	Aircare AF remote control	Remote control and manual instruction	1	

Aircare AF - optional

CODE	DENOMINATION	DESCRIPTION	QT/PACK	
AC-AF006-0000	Motorized shutter kit	Motorized shutter kit with connection cable bagged together with screw	1	
AC-AF007-XX00	External cover Length= 1000 mm	External aluminium cover with brackets	10	
AC-AF007-XX01	Cover Length= 1500 mm			
AC-AF007-XX02	Cover Length = 2000 mm			

Aircare AF - spare parts

CODE	DENOMINATION	DESCRIPTION	QT/PACK	
AC-AF008-0000	Spare filter	F8 spare filter.	2	

Finishing:

The following abbreviations indicate different color finishing and replace XX in the item code:	
82	White plastic (RAL 9010)
83	Gray plastic (RAL 7040)
V2	Glossy white liquid coating (RAL 9010)
V3	Gray liquid coating (RAL 7040)
VS	Silver liquid coating (RAL 9006)

Specifications.

Length	Min 720 mm
Width	218 mm
Height	78 mm
Weight	4,8 kg (L1000) – 6,6 kg (L1500) – 8,4 kg (L2000)

Level	1	2	3	4	5
Air flow	17 m^3/h	26 m^3/h	30 m^3/h	35 m^3/h	43 m^3/h
Absorbed power	2,7 W	4,3 W	5,6 W	7,7 W	12,8 W

At the envisaged capacity for night operations, the sound pressure (perceived noise on the basis of the law) is below 28 dB

Rated voltage	110 - 230 V~ 50 - 60 Hz	Thermal conductivity	U=0,30 W/m^2K
Class	I	Sound reduction with shutter open	D n,e,w=53 dB
Environment temperature	min -10°C max 50°C	Permissible load per linear meter	1000 kg
Maximum working temperature	max 50°C	Standard filtering unit	F8 + G3
IP code Aircare AF	IP65	IP code Motor-Fan assembly	IP35

Note: CE marking in progress

Thesan Aircare AF.
A new era of fresh air has begun.

A new era of fresh air quality in our living environments begins today, bringing with it new quality in wellbeing and health.

According with the harmonized european regulation EN 60335.

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THESAN
The green thinking

www.thesan.com
Via Torino, 25 - 10050 Chiusa di San Michele, Torino - Italy
Tel. +39 011 19870791 - info@thesan.com