

# ***NEW DIMENSION OF COOPERATION***

## ***AeroMaster*** ***Cirrus***

***INNOVATIONS:***

***INCREASED AIR OUTPUT***

***TOP TECHNICAL PARAMETERS FOR DISCRIMINATING CLIENTS***  
***HYGIENE APPLICATIONS***

***VERSION FOR EXPLOSION HAZARDOUS AREAS***  
***COMPLYING WITH ATEX 100***





## Creative Solution of the Casing

Knowledge of our customers' needs, European regulations and local regulations in different countries, as well as the long-term experience of our team has enabled us to develop and launch a new generation of air-handling units.

This new generation features not only significantly better parameters but also even greater reliability. Production efficiency has also been improved. New AeroMaster Cirrus® air-handling units significantly enhance the quality level of REMAK air-handling units and set a new, higher standard.

### Two Unique Principles of Design



#### LAMINATED WALL

- High strength and tightness
- Thin sheets and low-density insulation are used to manufacture the units – excellent parameters in an air-handling unit category without using Al frames
- Wasteless and low energy consumption production
- Fast installation using kanban pads results in short times needed for panel production



#### SELF-CONTAINED PANEL

- Simple Installation
- High mechanical strength and tightness of the casing contributes to energy savings
- Very good thermal insulation
- Excellent casing attenuation

### Excellent Mechanical and Physical Properties

Mechanical strength of casing	D1 (M)
Casing air leakage	L1 (M)
Filter bypass leakage	< 0.5% (F9)
Thermal insulation	T2
Thermal bridging	TB3
Operating temperature	-40 až +50°C
Acoustic insulation of casing (dB / octave band)	
12,1/125Hz, 13,4/250Hz, 17,2/500Hz, 26,5/1kHz,	
29,7/2kHz, 34,2/4kHz, 40,5/8kHz	

#### CASING MECHANICAL PERFORMANCE IN ACCORDANCE WITH EN 1886-2008

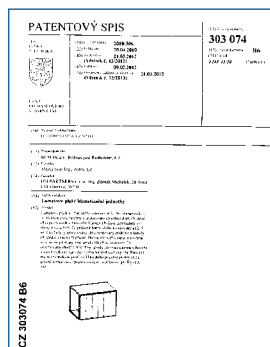
- Achieved parameters allow us to complete even specific applications with the greatest demands for environmental cleanliness
- AeroMaster Cirrus air-handling units are also suitable for coastal environments and pools



# NEW DIMENSION OF COOPERATION

## Protected Design

Protected as an industrial design and has patents pending.



## Surface Finishes for any Application

REMAK air-handling units are characterized by their long service time and trouble-free operation. Thanks to the surface finishing combinations (hot-dip galvanizing, powder coating, and stainless steel) which comply with the grade of atmosphere corrosivity in accordance with EN 12500 and corrosion resistance in accordance with EN ISO 14713, the AeroMaster Cirrus® concept enables deliveries of air-handling units that fulfil the requirements of the highest applicable standards.

Frame	Internal casing	External casing	Corrosivity	Application
hot-dip galvanized	hot-dip galvanized	hot-dip galvanized	C2/C2	air-handling units for indoor environment – low corrosivity (air-handling units for outdoor environment – low corrosivity)
hot-dip galvanized + powder coating RAL	hot-dip galvanized	hot-dip galvanized + powder coating RAL	C2/C4	air-handling units for indoor environment, design – low corrosivity air-handling units for outdoor environment – low corrosivity
hot-dip galvanized + powder coating RAL	hot-dip galvanized + powder coating RAL	hot-dip galvanized	C4/C2	air-handling units for indoor environment – high air corrosivity
hot-dip galvanized + powder coating RAL	hot-dip galvanized + powder coating RAL	hot-dip galvanized + powder coating RAL	C4/C4	air-handling units for indoor environment, design- high air corrosivity air-handling units for outdoor environment, design – high air corrosivity
hot-dip galvanized + powder coating RAL	hot-dip galvanized + powder coating RAL epoxy coating	hot-dip galvanized + powder coating RAL	–	version for pools
hot-dip galvanized + powder coating RAL	hot-dip galvanized + powder coating RAL stainless steel (304 AISI / X5CrNi18-10 ISO)	hot-dip galvanized + powder coating RAL	–	hygienic version
hot-dip galvanized + powder coating RAL	hot-dip galvanized + powder coating RAL stainless steel (316L AISI / X2CrNiMo17-12-2 ISO)	hot-dip galvanized + powder coating RAL	C5 economy 1/C4*	air-handling units for indoor environment – extra high air corrosivity (air-handling units for outdoor environment, design – extra high air corrosivity)
hot-dip galvanized + powder coating RAL	stainless steel (316L AISI / X2CrNiMo17-12-2 ISO)	hot-dip galvanized + powder coating RAL	C5 economy 2/C4**	air-handling units for indoor environment – extra high air corrosivity (air-handling units for outdoor environment, design – extra high air corrosivity)
hot-dip galvanized + powder coating RAL	stainless steel (316L AISI / X2CrNiMo17-12-2 ISO)	stainless steel (316L AISI / X2CrNiMo17-12-2 ISO)	C5/C5	air-handling units for indoor environment – extra high air corrosivity air-handling units for outdoor environment, design – extra high air corrosivity

\* Possible application variant taking into account the material price \*\* Possible application variant taking into account the operating conditions and concentration of pollutants in the air



## Tailored to Your Size

### Cross-section Variability

Cross-section variability is enabled by the arrangement of four and eight modules (laminas) at basic heights.



### Minimized Length Dimensions

#### NEW CONCEPT

The unique casing design allowed us to abandon the traditional air handling unit sections and relationship between air handling unit casing and internal components. The traditional concept of predefined sections related to the particular built-in components is now consigned to the past. The AeroMaster Cirrus concept is able to "enwrap" internal components with minimum spacing using a casing of optimal length. The length dimensions of each functional part (built-in assembly) of the air-handling unit are designed in modular grid lengths equalling multiples of 102 mm. These functional parts are then integrated into assembly (transport) blocks in lengths equalling multiples of 306 mm (modular width of the lamina). This combination enables the air-handling unit to be designed to specific length requirements.

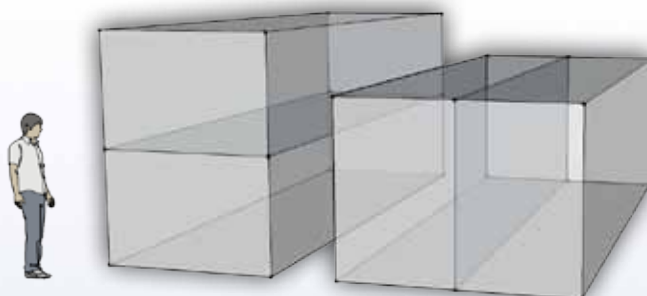
#### OPTIMIZED COMPONENTS

The design of some built-in assemblies itself contributes to the optimized length of units. Combined filtration walls are a good example of this. For example, fitting two filters into the common frame will result in maximum reduction of the length.



### Tailored Precisely to Your Needs

Different locations – different customers – different needs. The laminated AeroMaster Cirrus concept allows you to select the unit height and width for air-handling units in the vertical or horizontal arrangement according to your actual space requirements.



### HYGIENE VERSIONS OF UNITS

The AeroMaster Cirrus units designed for hygiene applications with an air-flow from 16,700 up to 49,600 m³/h have a specific finish of the internal connection of the sections, mounting and structure of the inbuilt assemblies, thus they comply with the requirements for cleaning of the unit's internal areas. Thanks to the surface finish combinations (hot-dip galvanizing, powder coating, and stainless steel) which comply with the grade of atmosphere corrosiveness in accordance with EN 12500 and corrosion resistance in accordance with EN ISO 14713, the modular unit concept allows deliveries of air-handling units that fulfil the requirements of the highest applicable standards.

### AIR-HANDLING UNITS FOR EXPLOSIVE ENVIRONMENTS

AeroMaster XP Cirrus air-handling units for explosion hazardous environments meet the ATEX 100 Directive (European Parliament and Council Directive 94/9/ES) and can be delivered in both outdoor and indoor versions. Each unit in the ATEX version is designed and calculated individually in accordance with the specifications for the given explosive area. A separate Conformity Certificate will be issued for each unit. The units in the ATEX version are checked and tested for safety by the independent Notified Body 1026/AO 210 - FTZÚ Ostrava Radvanice. Each piece of equipment must be labelled in accordance with the specific explosive area of application.



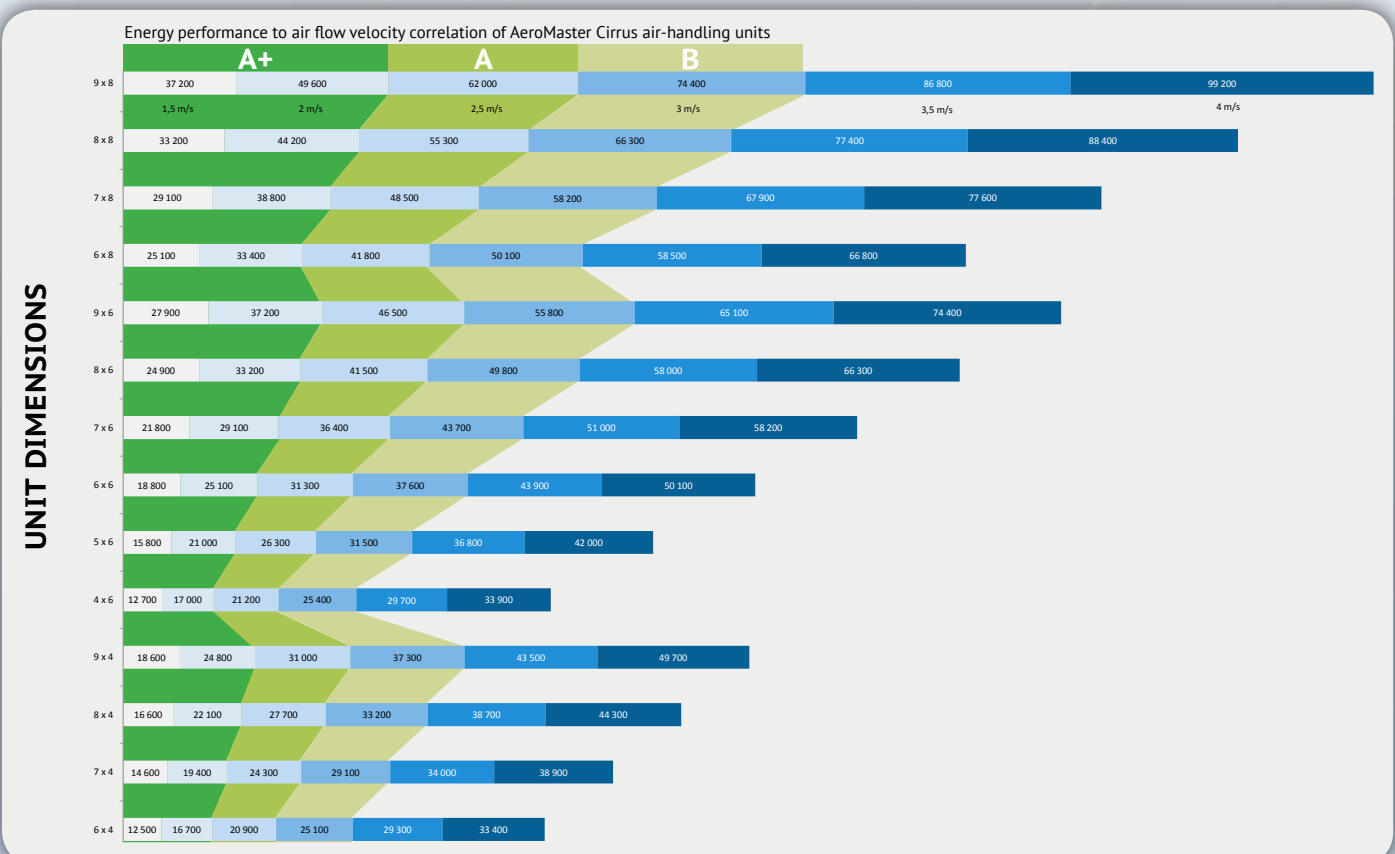
# NEW DIMENSION OF COOPERATION



## Optimized Output According to Energy Classes

### Output Spectrum

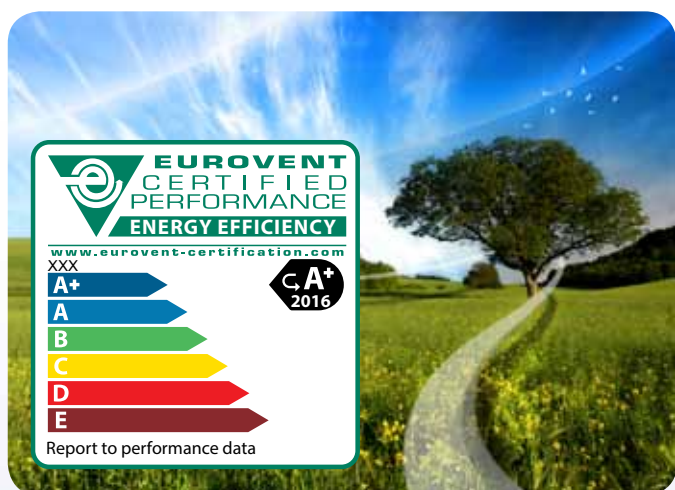
The newly-launched AeroMaster Cirrus air-handling unit range covers quite a wide output range, see the table. At the commonly used velocity of 3 m/s, an air-handling unit with a section area of 9×8 will presently provide you with an output of 74.400 m³/h. Lower air outputs can be conveniently ensured by the well proven AeroMaster XP air-handling units.







## Keeping Energy in the Mains



**A+ energy class design**

**Highly efficient heat recovery  
up to 85%**

**Highly efficient fans IE2**

**Minimized pressure loss of built-in  
assemblies**

**Excellent casing tightness L1 (M)**

**Complies with the ErP Lot6 2013  
Standard**

### Energy Alphabet is Only the Beginning

The contractor usually ends up with an energy alphabet. For us it is a start and we go even further than others:

#### CASING

- Casing tightness L1 (M)
- Eliminated thermal bridges
- Thermal insulation standard T2

#### FANS

- Highly efficient fans
- Motor effectiveness IE2
- Optional EC motors
- Fans installed in parallel side by side

#### HEAT RECOVERY

- Heat recovery efficiency up to 85%
- Designed for maximum efficiency at minimum pressure loss

#### RESULT: A+ CLASS EFFICIENCY

#### AND FURTHERMORE:

- Wasteless production technology – the cheapest material is the one we do not need to use
- Low-energy technology – minimum energy required for production

### Excellent casing tightness L1 (M)

- Even in the standard version without the need for additional adaptations
- Within whole pressure range

### OPTIMUM OUTPUT AND ENERGY CONSUMPTION CONTROL



- VCS - a new generation of Remak control units

# NEW DIMENSION OF COOPERATION



## Simple Installation and Fast Service

### Excellent Access for Service and Cleaning

With the goal of utilizing the knowledge we have gained from different applications and using information gained from cooperation with you, we focussed on providing excellent access to the internal space when designing the service side of these new air-handling units. We have kept in mind both service access to individual internal components as well as easy cleaning of the unit's internal space in hygienic applications.

- Double door
- Easy-to-remove panels
- Possibility to deliver disassembled units
- Easy to connect to media feeds



## You Can Reckon Upon

### Important Standards and Directives for the Design of Air-handling Systems

When developing the AeroMaster Cirrus air-handling units, we closely adhered to the requirements of technical standards, directives and laws to give you the right conditions for creating the given design with maximum energy economy while complying with highly demanding hygiene and environmental requirements.

Requirements for buildings	Requirements for air-handling systems	Requirements for air-handling units
Directive 2010/31/EU on the energy performance of buildings	EN 13779 Ventilation-performance requirements for ventilation and room-conditioning systems	EN 1886 Ventilation for buildings – Air handling units – Mechanical performance
Law No. 406/2000 Sb. on energy economy, Order No. 148/2007 on the energy performance of buildings	EN 15242 Ventilation for buildings-Cal-culation methods for the determination of air flow rates in buildings including infiltration	EN 13053+A1 Ventilation for buildings. Air handling units. Ratings and performance for units, components and sections
EN 15251 Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics	EN 15243 Ventilation for buildings – Cal-culation of room temperatures and of load and energy for buildings with room-conditioning systems	VDI 6022 Hygiene requirements for ven-tilation and air-conditioning systems and devices
EN 15240 Ventilation for buildings – Ener-gy performance of buildings – Guidelines for inspection of air-conditioning systems	EN 12599 Ventilation for buildings - Tests procedures and measuring methods for handing over installed ventilation and air conditioning systems	VDI 3803 Air-conditioning – Central Air-conditioning Systems – Structural And Technical Principles
EN 15239 Ventilation for buildings – Ener-gy performance of buildings – Guidelines for inspection of ventilation systems	EN 15423 Ventilation for buildings – Fire precautions for air distribution systems in buildings	DIN 1946-4 Ventilation in buildings and health care rooms

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## Creative Solution of the Casing



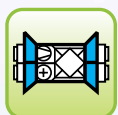
## Tailored to Your Size



## Optimized Output According to Energy Classes



## Keeping Energy in the Mains



## Simple Installation and Fast Service



## You Can Reckon Upon

## Selecting the Solution

We know in detail all the applicable specific requirements for different application types, and we have a solution for them:



Industry



Clean rooms



Hotels and restaurants



Education



Offices



Commercial centres



Culture and sports



# REMAK

SOLUTION FOR A BETTER ENVIRONMENT

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