



Eurovent Hygienic AHU (HAHU) Programme

ISKID & TTMD Seminar, 25 October 2022
Eurovent Summit 2022

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Introduction

1. Eurovent Certita Certification
2. Eurovent Programmes for Different Air Handling Units
3. Eurovent HAHU Programme
 - a. Certification Requirements
 - b. Certified Performances & Characteristics
4. PG (Product Group) Meeting by Eurovent Association for AHU

1. Eurovent Certita Certification



- Established in 1993
- One of the Eurovent Group companies (ProdBIM, COPILOT, ECC)
- Accredited as a certification body compliant with ISO/IEC 17065:2012
- Third-party product performance certification in the HVAC-R field
 - 40 certified product families
 - 44 countries where the partner laboratories & agencies located

INDOOR CLIMATE



- Air conditioners*
- Chilled beams*
- Comfort chillers
- Stoves & Barbecues
- Domestic solar water heaters
- Fan coil units
- Heat interface units*
- Heat pumps
- Hybrid heat pumps
- Liquid-to-liquid plate heat exchangers
- Micro combined heat and power
- Mobile heaters
- Radiators
- Rooftop units*
- Solar systems
- Thermostatic valves - Temporal value
- Thermostatic valves
- Variable refrigerant flow systems*

VENTILATION & AIR QUALITY



- Air purifiers*
- Air filters*
- Air handling units*
- Air handling units - Hygienic
- Chimneys
- Residential ventilation
- Fans
- Humidity-controlled ventilation
- Indoor air quality and energy efficiency of ventilation systems
- Plate heat exchangers*
- Residential air filters
- Residential air handling units
- Rotary heat exchangers*
- Air ducts

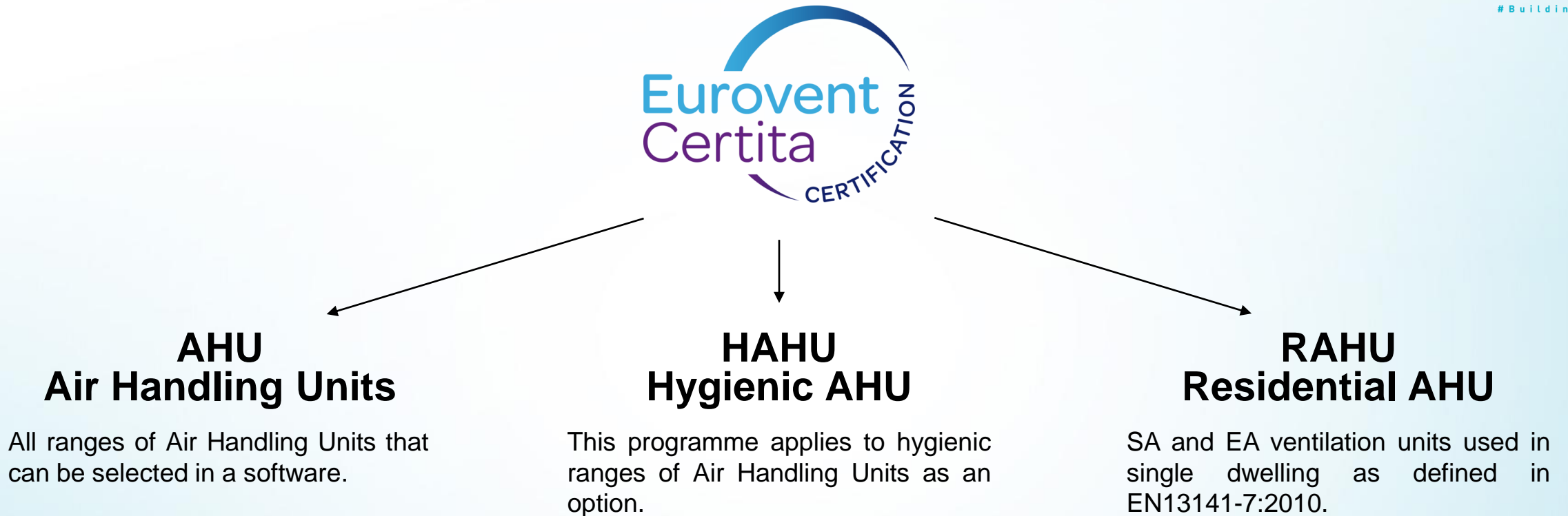
*All models in the production must be certified: Certify-all principle

PROCESS COOLING & FOOD COLD CHAIN



- Condensing units
- Cooling and heating coils
- Cooling towers
- Drift eliminators
- Evaporative cooling
- Heat exchangers
- IT cooling units*
- Process chillers*
- Refrigerated display cabinets
- Twin coils heat exchangers

2. Eurovent Programmes for Different Air Handling Units



3. Eurovent HAHU Programme

This programme is an option of the Certification programme for Air Handling Units, only an already certified AHU range is eligible for the hygienic option.

The hygienic aspect of the AHU is certified based on a 3 levels classification, each level declaring an AHU suitable for different application.

Level 1

Offices, commercial buildings, schools, hotels

Level 2

Hospitals (except rooms with high hygienic requirements)

Level 3

Pharmaceutical, food processes, operating theatres, etc.

ECC Reference Documents

[The Certification Manual](#)

[TCR \(Technical Certification Rules\) for AHU](#)

[Appendix H of TCR AHU](#)

3. Eurovent HAHU Programme

- Programme created in 2016
- 6 participants (manufacturers) has chosen the hygienic option for their AHUs
- 7 brands are published as certified in [ECC Web Site](#)
- 36 base models are published as certified
 - 22% - 8 certified for Level 1
 - 70% - 25 certified for Level 2
 - 8% - 3 certified for Level 3
- With the selection software certification in the programme, all these 36 base model units and all the Real Models, which can be derived from the base models, are certified

<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>
Offices, commercial buildings, schools, hotels	Hospitals (except rooms with high hygienic requirements)	Pharmaceutical, food processes, operating theatres, etc.

3. Eurovent HAHU Programme

a. Certification Requirements (Admission Procedure >> Surveillance Procedure)

- **Certify-all** rule applies in this programme for Real Units and for the Model Box construction configurations (according to the Table 1 of the [TCR AHU](#))
- **Selection software** shall be certified according to the minimum software requirements of the programme and the Certification Manual in force.
- **Software checks (audits)** are applied annually or for each new version declaration.
- **Surveillance tests** applied with the frequency depending on the following points.

ISO 9001 Certified Test Type	YES	NO
Model Box test(s)	Every 6 years	Every 3 years
Real Unit test(s)*	Every 3 years	Every year

*Real units are selected through the selection softwares (2 Supply filters, 2 Coils, 1 HEX)

- **On-site factory audits** are applied annually.

AHU
Programme
requirements

3. Eurovent HAHU Programme

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- **On-site factory audits** are applied annually.
- **Hygienic unit requirements** are audited on-site depending on the declared level.
- **One desk study** (software checks for hygienic unit).

AHU
Programme
requirements

When HAHU
option chosen

3. Eurovent HAHU Programme

a. Certification Requirements

Hygienic unit requirements (Section V of the [Appendix H of TCR AHU](#))

- Created mainly from;
 - **DIN 1946-4** – Ventilation and air conditioning - Part 4: Ventilation in buildings and rooms of health care (~ *Level 3*)
 - **VDI 6022-1** – Ventilation and indoor-air quality - Hygiene requirements for ventilation and air-conditioning systems and units (~ *Level 2*)
- What are the requirements?
 - General
 - Planning
 - Manufacture
 - Shipment
 - Unit Housing
 - Metallic Materials
 - Non-Metallic Materials
 - General AHU Arrangement
 - Inner Casing Surface
 - Spacing for Inspection, Maintenance and Cleaning (IMC)
 - Requirement regarding filter maintenance
 - Other requirements related to casing
 - Air Treatment
 - Filter
 - Cooling and Heating Coil
 - Humidifier
 - Dehumidifier
 - Heat Recovery System (HRS)
 - Fans
 - Silencer

Other standards used in HAHU

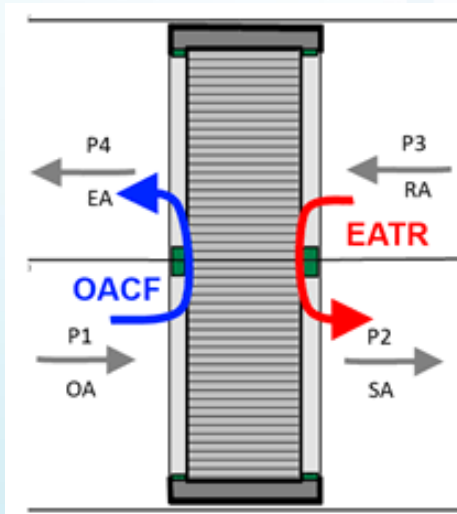
- +
- EN ISO 846:1997
 - EN ISO 2896:2001
 - EN 10088-3:2014
 - EN 1993-1-2:2005
 - EN ISO 16890:2016
 - EN 1822:2010
 - EN ISO 12944-2:1998

3. Eurovent HAHU Programme

a. Certification Requirements

Hygienic unit requirements (Section V of the [Appendix H of TCR AHU](#))

- There are 59 requirements and depending on the requirement and the declared level, each can be applied to;
 - the unit itself, and/or,
 - the quality system of the company/production procedures, and/or,
 - the IOM (manuals),
 - the selection software (specific warning, etc.).



e. Heat Recovery System (HRS)

R53. Cross contamination

Level 1: For rotary heat exchanger, cross contamination between extract air and supply air **at design condition** shall be limited to $EATR \leq 5\%$.

Level 2: For rotary heat exchanger, cross contamination between extract air and supply air **at operational condition** shall be limited to $EATR \leq 5\%$.

Level 3: For rotary heat exchanger, cross contamination between extract air and supply air **at operational condition** shall be precluded (**$EATR = 0\%$**).
(with additional requirements)

3. Eurovent HAHU Programme

a. Certification Requirements

Hygienic unit requirements

(Section V of the Appendix H of TCR AHU)

V.2 Unit Housing

a. Metallic Materials

R10. Metallic material shall be corrosion resistant, minimum requirements for internal surfaces are described under each "Level".

Internal surfaces include the following:

- a) Inside panels / door metallic surface
- b) Metallic parts which hold components (rails, holding constructions, etc.). Housings of the components (filter frame, coil frame, heat exchanger frame, fan frame)
- c) Ventilation component itself (coil fins, heat exchanger fins, fan's impeller)
- d) Motors

Fixing elements should correspond regarding corrosion resistance to the surfaces as indicated above.

If coating or painting is used, refer to coating section (R1)

Level 1 & 2: Minimum materials resistance according to corrosivity class C3 in accordance with EN ISO 12944-2:1998 or aluminum

AND Drain pans shall be in stainless steel with at least 18% Cr and 8% Ni (for instance EN steel 1.4301 - AISI 304; minimum corrosion resistance class CRC: II (2) according EN 1993-1-4:1995 EUROCODE 1-4) or aluminum (at least AlMg; in accordance with DIN 1946/4-6.5.1:2018)

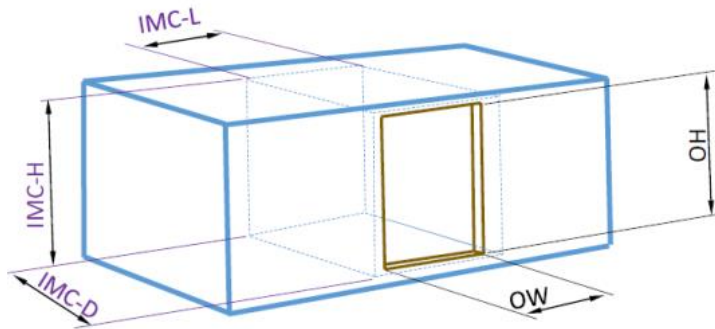
Level 3: Minimum materials resistance according to corrosivity class C4 in accordance with EN ISO 12944-1:2017 or aluminum

AND Floor and drain pans shall be in stainless steel with at least 18% Cr and 10% Ni (for instance EN steel 1.4401 - AISI 316; minimum corrosion resistance class CRC: II (2) according EN 1993-1-4:1995 EUROCODE 1-4) or aluminum (at least AlMg; in accordance with DIN 1946/4-6.5.1:2018)

3. Eurovent HAHU Programme

a. Certification Requirements

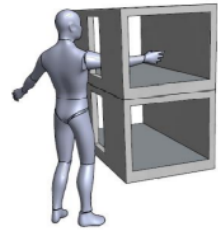
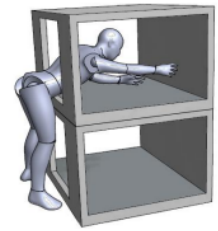
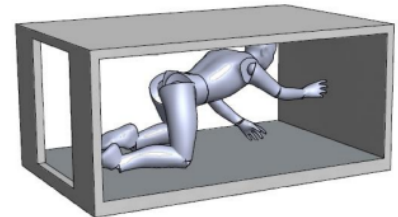
Hygienic unit requirements(Section V of the Appendix H of TCR AHU)



IMC-D: IMC Depth
IMC-H: IMC Height
IMC-L: IMC Length

OW: Opening Width
OH: Opening Height

Figure 3: Opening dimensions – IMC dimensions

AHU SECTION SIZE (+/- 1%)		ALL LEVELS		LEVEL 1	LEVEL 2	LEVEL 3
Internal unit depth (= IMC-D) per air stream	Internal unit height (=IMC-H) per air stream	Designed type of IMC (after entering the unit, all relevant inner surfaces shall be reached with the hand)		Minimum IMC length IMC-L (For quickly removable components: including free space when component is removed)		
< 800mm	> 300 mm and <1900 mm	Standing outside and entering the unit with the arm or with arm plus the shoulder		250 mm	400 mm	550 mm
≤1000mm	>400 mm and < 1900 mm			400 mm	400 mm	550 mm
<1300mm	>550 mm and ≤1300 mm	Standing outside and entering the unit with the upper part of the body.		400 mm	400 mm	700 mm
Any	>600 mm and ≤800 mm	Entering the unit partially or with the full body by crawling and working in lying position.		500 mm	500 mm	700 mm

3. Eurovent HAHU Programme

b. Certification Characteristics & Performance

- Same as in the AHU Programme

Mechanical characteristics

- Casing strength (CS)
- Casing air leakage (CAL)
- Filter bypass leakage (FBL)
- Thermal transmittance of the casing (TT)
- Thermal bridging factor (TBF)
- Acoustical insulation of casing



Performance characteristics

- Air flow - Available static pressure - Power input
- In-duct sound power level
- Airborne sound power level
- Heating capacity*
- Cooling capacity*
- Heat recovery*
- Pressure loss on water side*

* If standard features of the product range

3. Eurovent HAHU Programme

b. Certification Characteristics & Performance

- Specifically for **HAHU** Programme

Services characteristics:







- Manufacturing
- Maintenance
- Quality Management System
- IOM (Installation and Operational Manual)
- Shipment

Hygienic characteristics:

- Materials
- Casing performance
- Components arrangement and performances (filters, coils, heat recovery systems, fans, humidifiers, dehumidifiers and silencers)

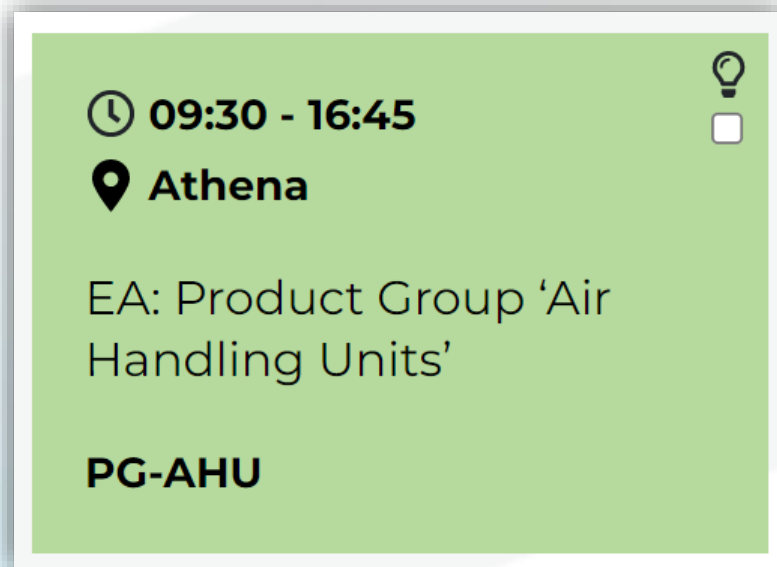
3. Eurovent HAHU Programme

All ECP certified performances and characteristics are available in our [website](#) !

Air handling units – Hygienic													
Hygienic Air Handling Unit													
Help Export CSV Download PPR Export All Data													
		Brand	Range	Model	General								
					Maximum Hygienic Level	CAL Class -400 Pa	CAL Class 700 Pa	TBF Class	Supply Filter Class	Extract Filter Class	FBL Class	Number of Filter on Supply side	Fin Thickness
<input type="checkbox"/>		SYSTEMAIR	BA-H	BA+ -H 50MM PUF	Level 2	LI(M)	LI(M)	TB2	F9	-	F9	2	0.15
<input type="checkbox"/>		SYSTEMAIR	BA-H	BA+ -H 50MM RW	Level 2	LI(M)	LI(M)	TB2	F9	-	F9	2	0.15
<input type="checkbox"/>		SYSTEMAIR	BA-H	BA+ -H 50MM RW	Level 2	LI(M)	LI(M)	TB2	F9	-	F9	2	0.15
<input type="checkbox"/>		SYSTEMAIR	BA-H	BA-H 50MM PUF	Level 2	LI(M)	LI(M)	TB2	F9	-	F9	2	0.15
<input type="checkbox"/>		SYSTEMAIR	BA-H	BA-H 50MM RW	Level 2	LI(M)	LI(M)	TB2	F9	-	F9	2	0.15
<input type="checkbox"/>		SYSTEMAIR	BA-H	BA-H 50MM RW	Level 2	LI(M)	LI(M)	TB2	F9	-	F9	2	0.15

4. PG (Product Group) Meeting by Eurovent Association for AHU

Day 2
Wed 26 October 2022



🕒 **09:30 - 16:45**

📍 **Athena**

EA: Product Group 'Air Handling Units'

PG-AHU

Minimum



required.

AGENDA

- Environmental Product Declarations, Sustainability, Circular Economy
- New work item – IAQ: KPIs, health, airborne transmissions
- New work item – Energy efficiency classification, including the impact of controls, and efficiency monitoring
- New work item – Guidelines for commissioning, servicing and monitoring of operation
- Position paper on material information and resources efficiency requirements in the reviewed VU Regulation
- Systematic review of PG-AHU recommendations
- Update on the recommendation of the joint AHU/ERC Task Force

Thank you !



Building Bridges



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