

Eurovent certification for Air Handling Units in hot and humid climates



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Certification



Value of independent verification

- Independent verification of manufacturer's claims
- Developed in cooperation with the industry, high expertise
- Allows comparisons between products
- Certified products are better integrated into a bigger system (e.g., building, AHU, technical building systems, etc.) which makes the system more reliable
- Allows calculation of energy consumption over live span
- Increases confidence for consultants, no need to over-size
- Provides energy labelling, also for hot and humid climates
- Easy to apply, but verification by database recommended

Value of independent verification

Save time and money

- Faster specification and selection process
- Transparent quotation and product comparisons
- Enables reliable energy cost calculation
- Enables informed purchase decisions



ECC programme overview



VENTILATION & INDOOR AIR QUALITY



INDOOR CLIMATE



PROCESS COOLING & FOOD COLD CHAIN



Air Handling Units

- Heavily customised machinery which is difficult to certify
- Other organisations certify individual parts, but not the complete system
- About 80% of AHUs sold in Europe and 60% in Middle East are Eurovent certified
- Global benchmark in specification and certification

Eurovent AHU certification

- Holistic approach
- Tested for mechanical and electrical performance characteristics, incl. sound power, ERC, and selection software
- Testing regime with annual recurrent audits
- Global benchmark

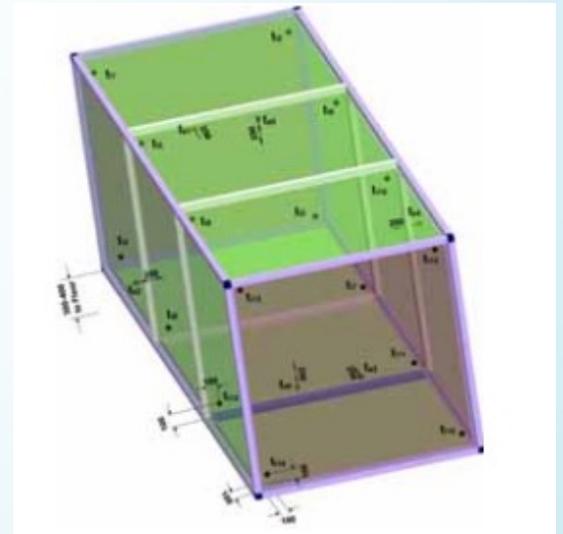
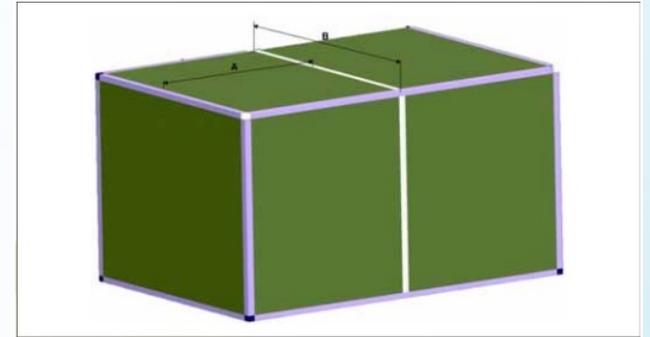
Air Handling Unit

• Third Party Certified

Model Box

Construction envelope built according to specifications presented in manufacturer's literature, used to establish according to relevant standards:

- Mechanical performance
- Thermal performance
- Acoustical performance (Only required for EN)



Air Handling Unit

- Third Party Certification

Real Unit

Unit from the range of a specific size,
used to establish complete performance
for all the available functions of the Air
Handling Unit range



AHU certification

• Third Party Certification



Model
Box

Real unit
testing

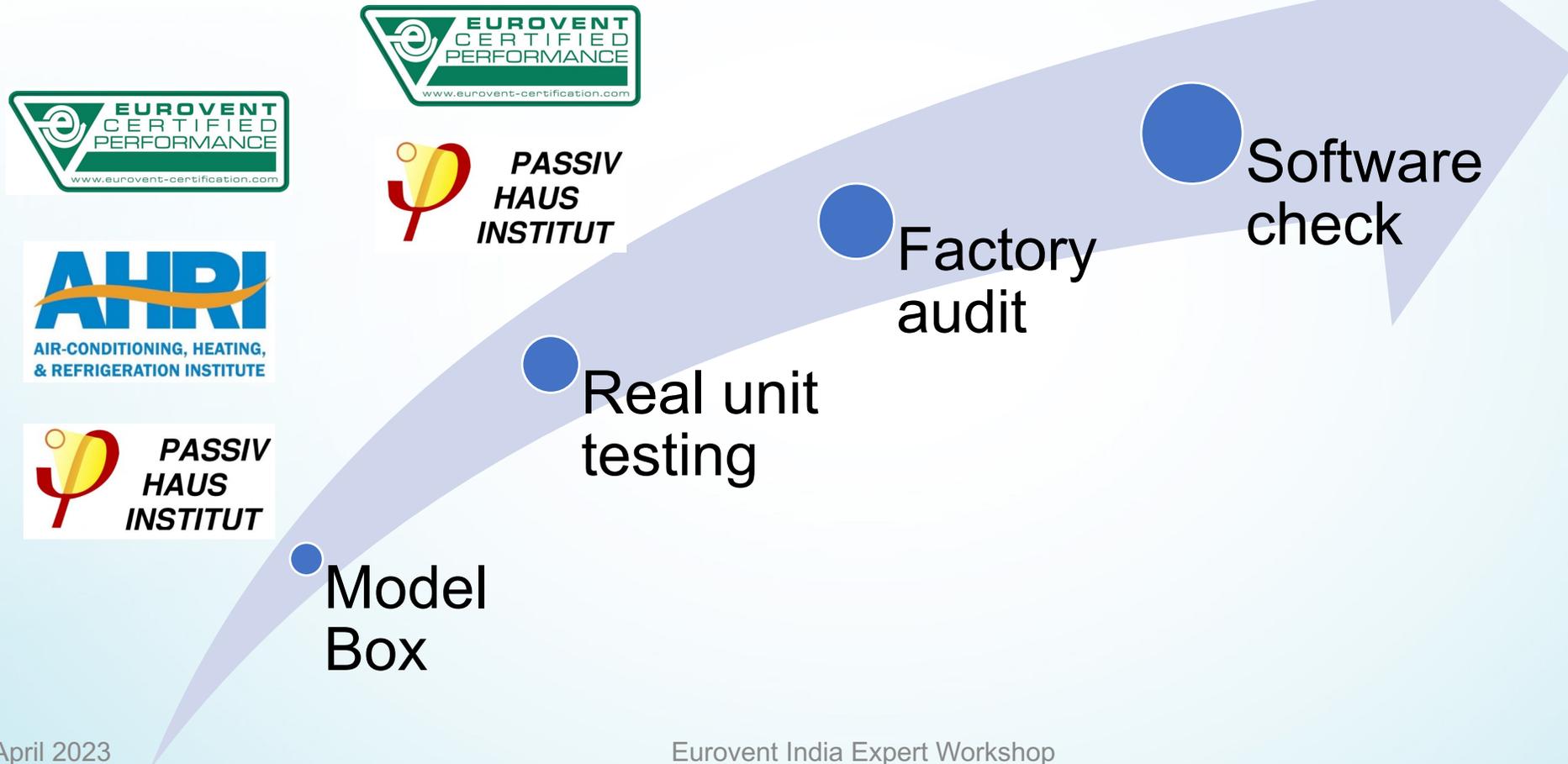
Factory
audit

Software
check

Model box

Casing	ECP	Passivhaus	AHRI
Casing Deflection Rating Class	✓		✓
Casing Air Leakage Class	✓	✓	✓
Thermal Transmittance Class with Leakage	✓		✓ (option)
Thermal Transmittance Class without Leakage			✓ (option)
Thermal Bridging Class	✓		✓ (option)
Acoustic Insulation	✓		
Filter Bypass Leakage	✓		

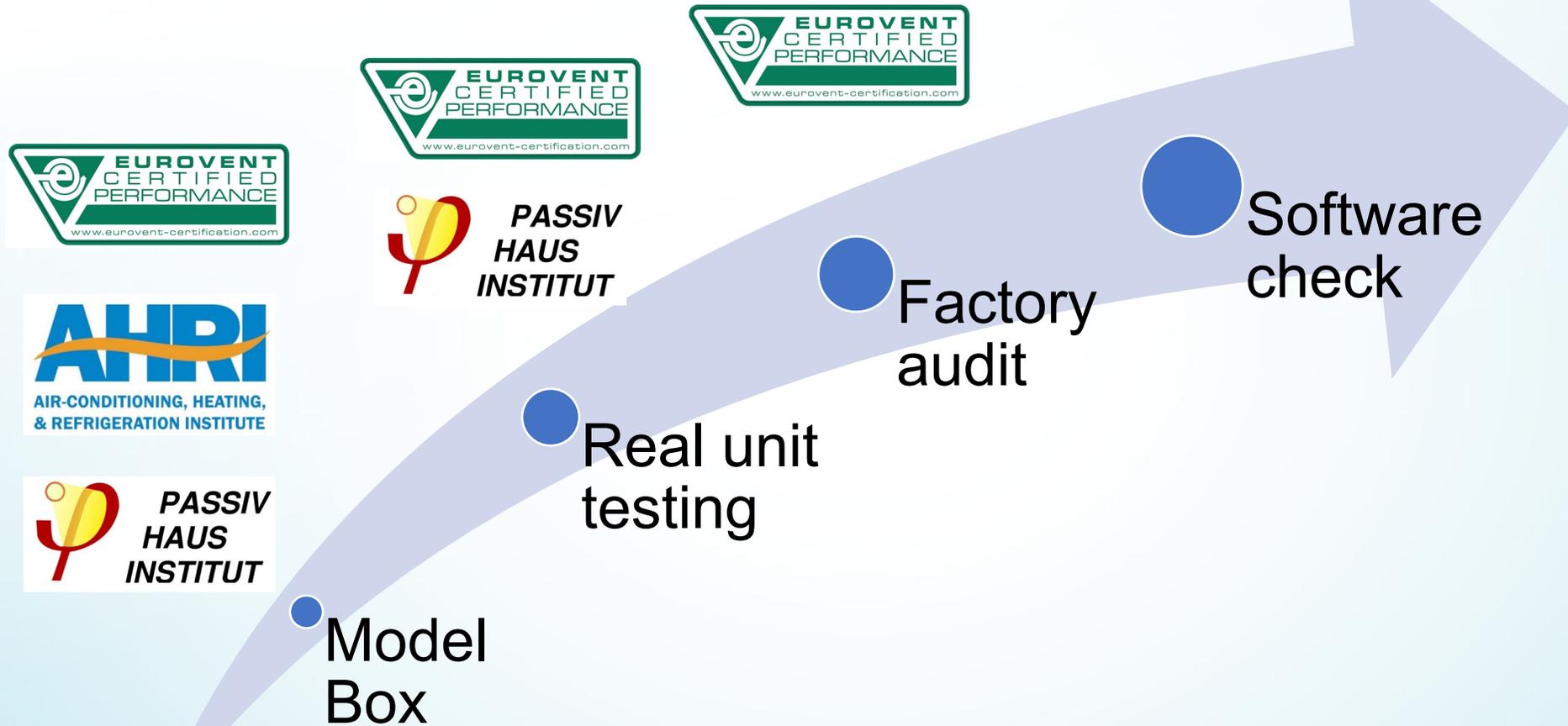
AHU certification



Real unit testing

Real Unit Performances	ECP	Passivhaus	AHRI
Heat Recovery Rate	✓	✓	N/A
Octave band in-duct sound power level	✓		
Air flow	✓		
Total electrical power consumption of the ventilation apparatus	✓	✓	
Acoustic Performance	✓	✓	
Energy Efficiency	✓	✓	

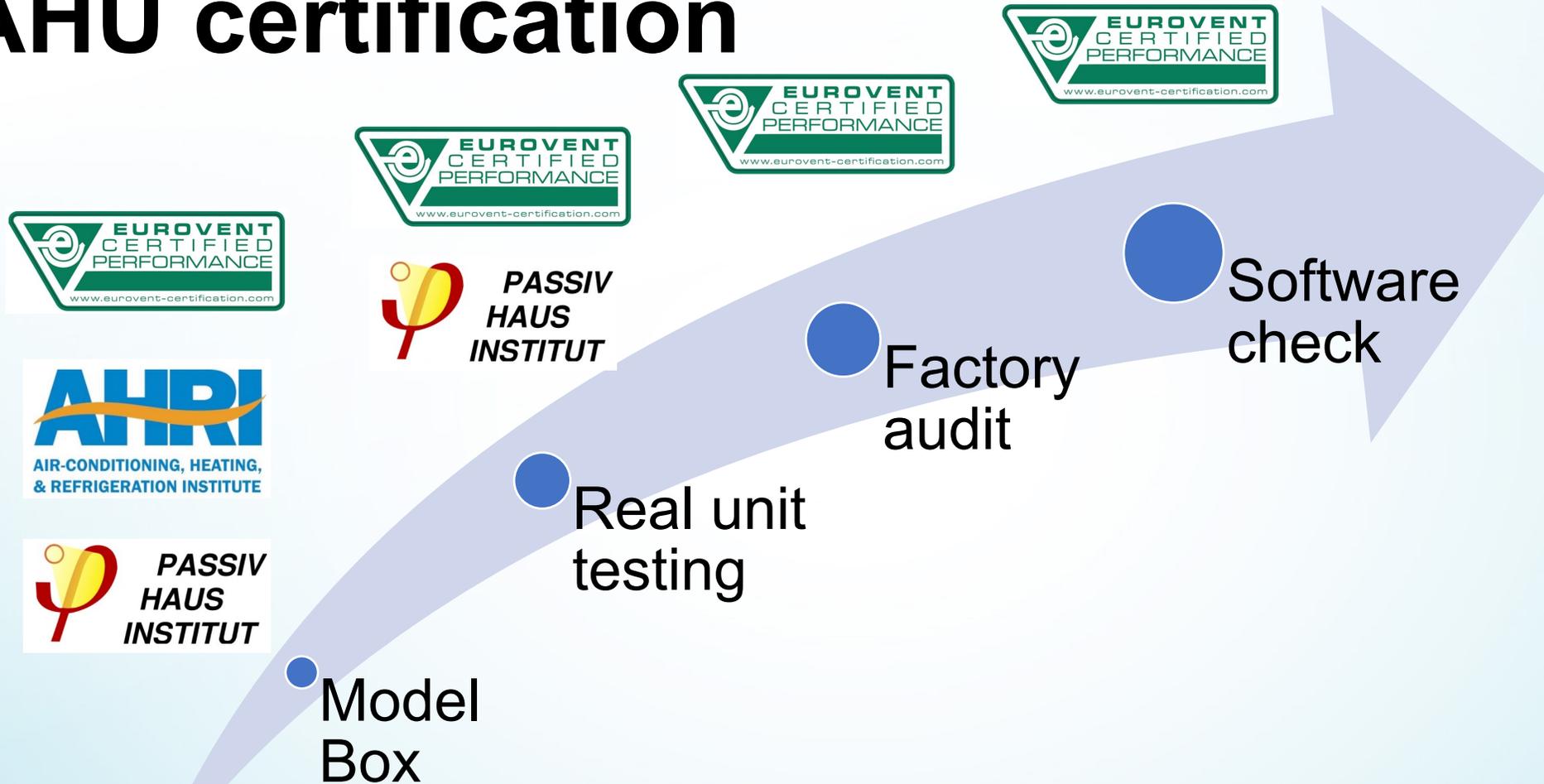
AHU certification



Factory audit



AHU certification



Software check

WU Audit Training 23+24 08-2017 Guidelines for Real Unit Selection

Methodology

4. Air Flow and way of selecting

- Option 1 : Select and set the conditions component by component
- Option 2 : Select all the components, and then go through each, to set the condition



Methodology

4. Air Flow and way of selecting

Size Name	Air Velocity	Return Air Velocity	Coil Air Velocity
CASE 110 X 080	2.25 m/s	2.25 m/s	4.17 m/s
CASE 110 X 110	1.51 m/s	1.51 m/s	2.43 m/s
CASE 140 X 110	1.12 m/s	1.12 m/s	1.74 m/s
CASE 140 X 140	0.83 m/s	0.83 m/s	1.23 m/s
CASE 170 X 140	0.66 m/s	0.66 m/s	0.90 m/s
CASE 170 X 170	0.52 m/s	0.52 m/s	0.70 m/s
CASE 200 X 170	0.46 m/s	0.46 m/s	0.60 m/s

Usual values :
From 2000m³/h to 8000m³/h
ESP From 200 to 500 Pa

Suggestions :
3000 to 5000 m³/h
300 to 500 Pa (Not below 200 Pa)

B. Methodology

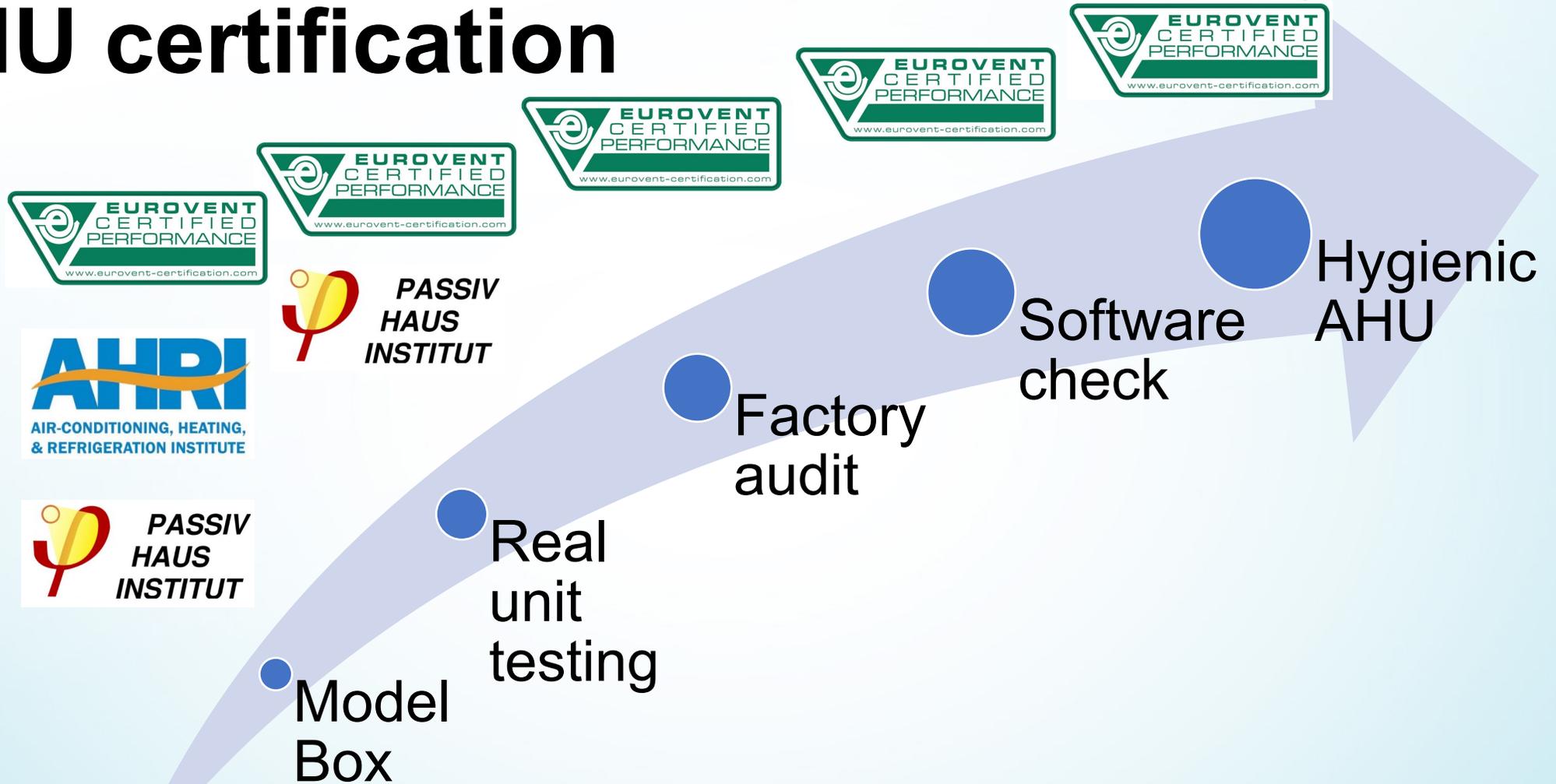
3. Overview of 11 Points

The following points will be carried out, in different conditions, however it shall be ensured that the unit, physically, is same in terms of dimensions, and components: The manufacturer will send only one unit...

Air Flow & Sound Performances (supply fan only)	95%	97.5%	Nominal	102.5%	105.0%	Air Flow * 5 + Sound*1
ESP - External static pressure (Pa)	5800	6045	6200	6355	6510	
Power input @ terminal of motor or VFD (kW)	X>>300	X>300	300	X<300	X<<300	
Fan speed @ working point (rpm)	3287	3286	3286	3287	3287	
Cooling Coil (Wet conditions)	Cooling Point 1		Cooling Point 2			

Selection is now finished...

AHU certification



Hygienic AHUs

- The Hygienic option is a certification by range proposing
- 3 levels of certification represented by stars



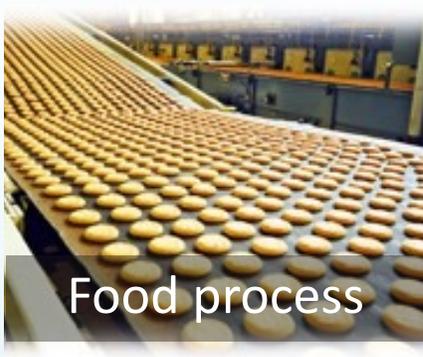
Hygienic AHUs



Hygienic AHUs



Hygienic AHUs



A level 3 unit can also be used for a hospital, an office, a school, a hotel or a retail

Hygienic AHUs

	Offices, schools, hotels, retail ... Level 1 ★☆☆	Hospitals Level 2 ★★☆☆	Pharmaceutical, food processes, white rooms Level 3 ★★★
Corrosivity class for metallic materials	At least C3		At least C4
Thermal Bridging class	At least TB3		At least TB2
Casing Air leakage Class	At least L2 (M)* & L2(R)*		At least L1 (M) & L1(R)
Water Drainage from pans, condense trays and water tanks	95%		
Filters class (supply side)	Epm1 50%		Epm1 85%
Number of filter on supply side	1	2	
Fin thickness	0.10 mm	0.12 mm	
Minimum distance between fins (cooler)	2.5 mm		3.0 mm
Minimum distance between fins (heating)	2.0 mm		2.5 mm

Specifications are subject to change without notice.

* M= model box, R= real unit

All the requirements are listed in the Appendix H TCR ECP-05-AHU-2021 , they are related to the following topics:

General

- Planning
- Manufacture
- Shipment

Unit Housing

- Metallic Materials
- Non-Metallic Materials
- General AHU Arrangement
- Inner Casing Surface
- Inspection, Maintenance and Cleaning
- Filter Maintenance

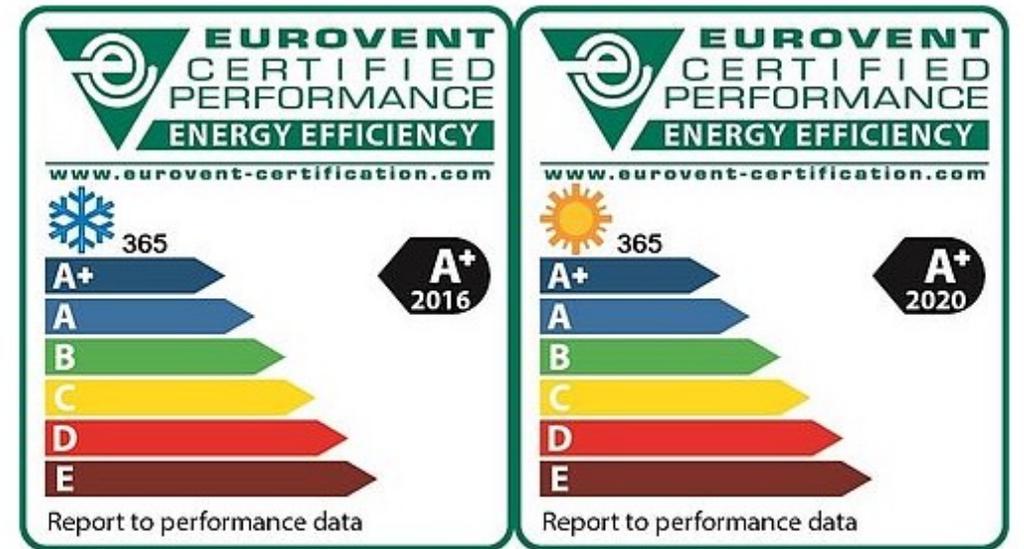
Air Treatment

- Filter
- Cooling and Heating Coil
- Humidifier
- Dehumidifier
- Heat Recovery System
- Fans
- Silencer

Eurovent AHU certification

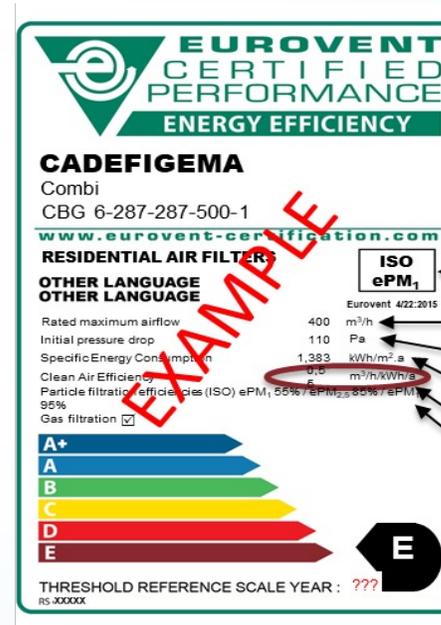
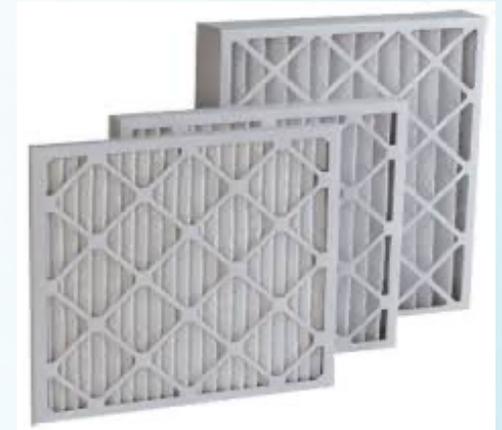
Summer label

- Calculated based on ASHRAE weather data
- Energy label according to project location



Eurovent Filter certification

- Filters are 2nd largest contributor to pressure drop
- Only filter certification verifying energy AND filtration efficiency
- ISO16890



EXAMPLE

- ISO ePM₁ group
- Rated maximum airflow (Eurovent 4/22:2015)
- Initial pressure drop corresp. to rated max airflow
- Specific Energy Consumption
- Clean Air Efficiency
- ISO ePM_x class reporting values

Key takeaways

- Security for your configuration: You can design precisely to the operating point; safety margins are not necessary
- Transparent and realistic comparisons of units
- Saves money and time
- Investment security
- Fair competition
- Highest level of confidence in product performance

