AHU GUIDELINE 01

General requirements for Air Handling Units

February 2026 Edition

Association of Manufacturers of Air Handling Units
(*Herstellerverband Raumlufttechnische Geräte e.* V.)

Foreword

With this **AHU Guideline 01**, "General Requirements for Air Handling Units (AHUs)", the Association of Manufacturers of Air Handling Units (Association of Manufacturers of AHUs) provides the basis for a high-quality standard.

This guideline incorporates all relevant standards and, where requirements are inconsistent or provisions are missing, defines the generally accepted rules of technology / engineering practice.

AHU Guideline 01 is the logical continuation of the "Quality and Testing Regulations" for "RAL-approved units", first published by the Association in 1995 It provides uniform, comparable criteria and therefore serves as a reliable reference for selecting AHUs that are standards-compliant, energy-efficient, and suitable for hygienic applications. The introduction of the energy efficiency classes A+, A and B reflects statutory requirement for clear and comprehensible statements on energy efficiency. All requirements applicable to AHUs for the use of the energy efficiency label issued by the Association of Manufacturers of AHUs are listed in the AHU Certification Guideline, with detailed explanations.

This guideline reflects the generally accepted rules of engineering practice at the time of its preparation.

Additional guidelines by the Manufacturers of Air Handling Units have been published on the following topics related to central air conditioning units:

AHU Guideline 02: Explosion protection requirements for AHUs
AHU Guideline 03: EC conformity assessment of AHUs
AHU Guideline 04: Ventilation systems with smoke extraction function; AHUs with functional integrity during smoke extraction operation
AHU Guideline 05: Building Information Modeling (BIM) for AHUs
AHU Guideline 06: Sustainability assessment of AHUs
AHU Guideline 07: Control systems for AHUs
AHU Guideline Certification: Testing Protocol and Certification Scheme for Evaluating the Energy Efficiency of AHUs

When applying DIN standards and VDI guidelines, the version with the latest edition date shall be decisive. These documents can be obtained from DIN Media GmbH, Burggrafenstrasse 6, 10787 Berlin, Germany.

Ludwigsburg, February 2026
Association of Manufacturers of AHUs

This AHU guideline can be downloaded free of charge from the website of the Association of Manufacturers of AHUs.

Contents:

1. Scope and purpose

This guideline applies to all Air Handling Units (AHUs) and their structural design requirements. An AHU is part of an air handling system in accordance with **DIN EN 13053.** This guideline provides guidance on the energy performance, hygienic properties, and mechanical characteristics of AHUs.

With this guideline, the Association of Manufacturers of AHUs provides an overview of the generally accepted rules of engineering practice for AHUs. Where standards and guidelines do not provide unambiguous requirements, contain recommendations only, or merely define classifications, this AHU guideline establishes specific requirements.

AHU Guideline 01 is intended as a reference for investors, operators, architects, designers, contractors, maintenance companies, and manufacturers to ensure that the state of the art for AHUs is maintained.

AHU Guideline 01 does not address special explosion protection requirements or functional integrity in smoke extraction operation. These topics are covered by **AHU Guidelines 02 and 04.**

2. Laws, regulations, standards, guidelines, and technical bulletins

The following standards and guidelines were considered in the preparation of this **AHU Guideline 01**:

- VDI 3803 Part 1 (05/2020)
- Structural and technical requirements
- VDI 3803 Part 5 (04/2013)
- Heat recovery systems in AHU units
- VDI 6022 Part 1 (01/2018)
- Hygiene requirements for AHU systems and units
- DIN EN 1822-1 (10/2019)
- High efficiency air filter (EPA, HEPA and ULPA)
- DIN EN 1886 (06/2024)
- Mechanical performance and measurement methods
- DIN EN 13053 (05/2020)
- Performance data for units, components, and assemblies
- DIN EN 16798-3 (06/2025) including national annex
- Performance requirements for ventilation and room-conditioning systems
- DIN 1946-4 (09/2018)
- Ventilation and air conditioning systems in healthcare buildings and rooms
- DIN EN 1751 (01/2024)
- Air distribution equipment
- DIN EN 13501-1 (05/2019)
- Fire classification of construction products and building elements
- DIN EN 16890-1 (08/2017)
- Air filters for general room ventilation systems
- AHU Guideline Certification (11/2017)

General Requirements	Mechanical Characteristics	Performance data	Hygienic Requirements
EN 13053 EN 16798-3 VDI 3803-1 **AHU 01**	EN 1886 EN 1751 EN 13501-1 **AHU 01**	EN 13053 EN 16798-3 VDI 3803-5 **AHU 01**	EN 13053 VDI 6022 DIN 1946-4 **AHU 01**

3. Terms and Definitions

Drainage behavior of drain trays:
Drain trays shall have a slope on all sides and a drain connection. Drainage is considered sufficient if any residual water remaining due to surface tension can be fully dried out by operating the system in dry mode. This requirement is deemed fulfilled if, when 5 L of water per 1 m² of pan base area is poured into the pan, at least 95% drains off within 10 minutes.

Service access panel:
A service access panel is an inspection cover plate fastened with metric screws with internal hexagon, external hexagon or Torx drive, or with quarter-turn latches. Slotted screws, Phillips screws, or self-tapping sheet-metal screws are not admissible for service access panels.

Walk-in units:
Units with a clear internal height of 1.6 m or more.

Coating:
Hot-dip galvanized sheet steel with powder coating, or a two-coat wet paint system (primer and top coat, minimum 60 µm), or coil-coated (minimum 25 µm), or materials with corrosion protection classes specified in accordance with DIN EN ISO 12944. See also table in the appendix.

Units with increased hygiene requirements:
Units for which the general normative requirements regarding hygiene for air handling units are not sufficient. These can be, for example, AHUs for areas such as hospitals, clinics, doctors' offices with operating rooms, outpatient surgery centers, facilities for the reprocessing of medical devices, and drug manufacturing in pharmacies and the pharmaceutical industry.

Units with additional functions:
Units that, in addition to air heating, have other thermodynamic functions such as air humidification, air dehumidification, air cooling, etc. This also includes heat recovery systems.

High-performance coolers:
Coolers with a dry pressure loss of over 200 Pa.

Hollow rivets:
Hollow rivets are rivets whose rivet mandrel is completely removed after the setting process, leaving a continuous opening. Only rivets in which the rivet mandrel is mechanically locked after the setting process and is therefore permanently secure are admissible. Rivets must be splash-proof. The rivet mandrel must not protrude above the rivet head after setting (may be recessed).

Interior air temperature:
For the determination of the indoor air temperature in systems with outdoor air intake via the mixing chamber, the inlet temperature of the preheater shall be used as the reference temperature.

Minimum requirements for materials:
If this guideline requires the use of stainless steel, a minimum grade of 1.4301 must be used. If this guideline requires the use of aluminum, a minimum grade of AlMg must be used.

Grooves and recesses:
Structural recesses (e.g. small, narrow, elongated grooves) must be avoided or sealed. Exceptions are recesses due to the radii of rolled profiles, as the seal can only be applied outside the radius in this case. Where the bottom has no grooves or recesses (e.g. due to rubber seals), sealing is not necessary.

Doors:
Doors are to have hinges and a maximum of 3 locks.

Weatherproof Devices:
Appliances for outdoor installation without additional enclosure or cover by buildings.

4. Energy efficiency classes

4.1. Specific fan power (SFP)

DIN EN 16798-3 "Energy performance of buildings – Ventilation for buildings – Part 3: Ventilation for non-residential buildings – Performance requirements for ventilation and air conditioning systems and room cooling systems" describes a "specific fan power (SFP)" in relation to energy consumption. It distinguishes between eight SFP classes.

$$P_{SFP} = \frac{P_m}{q_V}$$

These are

P_{SFP}	[W/(m³/s)]	specific fan power
P_m	[W] incl.	electrical power consumption; specification correction factors (see AHU certification)
q_V	[m³/s]	Nominal air flow rate

Table A 10 in the appendix describes the SFP classes in accordance with DIN EN 16798-3 (06/2023)

Assuming a system efficiency of 0.60, the total pressure increase of the fan can be calculated approximately.

$$\Delta p_{fan} = P_{SFP} \cdot \eta_{total}$$

These are

Δp_{fan}	[Pa]	Total pressure increase fan
P_{SFP}	[W/(m³/s)]	specific fan power
η_{total}	[-]	System efficiency fan motor -drive

The available pressure increase must overcome both the pressure loss of the components in the unit (internal) and the pressure loss of the duct system (external). Since the pressure loss of the duct system is not quantified and is not the responsibility of the unit manufacturer, the SFP values alone are not suitable for assessing the energy efficiency of an air handling unit.

4.2. Energy efficiency classes A+, A and B

If a manufacturer meets the requirements of the **AHU guideline certification**, they can label their unit and the associated technical documentation with the energy efficiency class determined by the certified design software. The labels to be used for this purpose are shown below.

4.3. Compliance with AHU Guideline 01

Under the following conditions, the manufacturer is entitled to indicate compliance with the **AHU Guideline 01**:

- The AHU meets all relevant criteria of this guideline.
- An energy efficiency class of A+, A, or B according to the **AHU Guideline Certification** is achieved.

In this case, the AHU and the associated technical documentation can be marked with the R label. The label to be used for this purpose is shown below.

By labeling the AHU with the regulatory compliance label shown below, the member undertakes to ensure that all criteria are met and that this is verified by means of a self-verification.

5. Requirements for AHUs

5.1. Housings

Table 1: General Requirements

No	Requirements	Standard	Accompanying standard
Surfaces and materials			
01	Double skinned panels with insulation in between (also for insulated frames).	DIN EN 13053 (6.2)	VDI 3803-1(6.1)
02	Thermal insulation fitted without gaps.	AHU 01	
03	The use of single-skin plastic panels for components in contact with the air, e. g. in heat exchangers, is not permitted owing to fire risk and hygiene considerations.	AHU 01	
04	Insulation material non-combustible, building material class A1 or A2-s1 d0. Exception: Combustible materials building material class A2, B, C-s3 d2 are admissible if the unit is separated from the room by fire and smoke protection dampers. For coatings, thicknesses ≤ 0.5 mm materials class E-d2 are admissible.	DIN EN 1886 (F.2) DIN EN 13501-1	VDI 3803-1(6.1)
05	Minimization of combustible materials. [1)]	DIN EN 1886 (F.2)	VDI 3803-1(6.1)
06	Abrasion-resistant, emission-free, odorless materials and coatings that cannot be metabolized by microorganisms. Seals must not absorb moisture or form a breeding ground for microorganisms.	DIN EN 13053 (6.2)	VDI 3803-1(6.1) VDI 6022 (6.1.1) DIN 1946-4 (6.1.2)
07	Interior wall surfaces smooth and without exposed adsorption surfaces. Porous materials in the air stream (except sound absorbers) are not admissible.	VDI 6022 (6.1.1)	DIN EN 13053 (6.2) VDI 3803-1(6.1) DIN 1946-4 (6.1.2)
08	Surface finish inside and outside (including base frame) at least hot-dip galvanized sheet steel. Inner shell hot-dip galvanized and coated for components directly downstream of the humidifier.	DIN EN 13053 (6.2)	VDI 3803-1(6.1) VDI 3803-1(6.1)
Casing characteristics			
09	Casing characteristics must be marked with the suffix (R) for real units and (M) for model boxes.	DIN EN 1886 (4.2)	
10	Casing strength classification e.g. Class P_{2000} (M) The casing strength classification must be sufficiently dimensioned for the maximum achievable fan pressure. Alternatively, other protective measures are admissible. Mechanical stability class D2 (R).	VDI 3803-1(6.1)	DIN EN 1886 (5.1) DIN 1946-4 (6.5.3)
11	Casing air leakage class L3 (R). Admissible total leakage max. 2% of the nominal volume flow.	VDI 3803-1(6.1)	DIN EN 1886 (6.1)
12	Leakages from the heat recovery system and the housing must be taken into account in the design. Specification of external pressures separated into negative and positive pressure sides.	VDI 3803-1 (6.2.12)	
13	Filter bypass leakage (250 Pa): – Filter class ISO $ePM_1 \geq 80\%$ max. 0.5% – Filter class ISO $ePM_1 \geq 70\%$ max. 1.0% – Filter class ISO $ePM_1 \geq 50\%$ max. 2.0% – Filter class ISO $ePM_{2,5} \geq 50\%$ max. 3.0% – Coarse filters max. 5.0%	DIN EN 1886 (7.1.2)	DIN EN ISO 16890
14	Thermal insulation: – U2 (M): Units without thermodynamic air treatment – U1 (M): Units with air heating and other functions	VDI 3803-1(6.1)	DIN EN 1886 (8.6)
15	Thermal bridging factor for air inlet section and downstream casing parts: – TB2 (M) recommended in case of increased risk of condensation – TB3 (M) when indoor air temperature < -7 °C – TB4 (M) when indoor air temperature -7 °C bis + 5 °C	VDI 3803-1(6.1)	DIN EN 1886 (8.6) DIN 1946-4 (6.5.3)
16	Thermal bridging factor for cooling section and downstream casing parts: – TB2 (M) recommended in case of increased risk of condensation – TB3 (M) when indoor air temperature < 7 °C – TB4 (M) when indoor air temperature is between 7 °C and +13 °C	VDI 3803-1(6.1)	DIN EN 1886 (8.6) DIN 1946-4 (6.5.3)
17	Sound Insertion loss value De (M) must be specified for 63 Hz to 8000 Hz.	VDI 3803-1(6.1)	DIN EN 1886 (9.7)
Doors and access panels			
18	For housing parts with a specified thermal bridge factor TB3 (M) or better, the sight glass must be double-walled; the necessary frame must not form an additional thermal bridge.	VDI 3803-1(6.1)	
19	Removable access panels are admissible for units with a clearance height of less than 1.6 m; above this height, doors must be provided.	VDI 6022 (6.3.5)	

[1)] Flammable materials are not admissible for units with air temperatures > 85 °C or if flammable materials can accumulate. Flammable materials are not admissible for units with air temperatures > 85 °C or if flammable materials can accumulate.

Table 1 continued: General Requirements

No	Requirements	Standard	Accompanying standard
Doors and access panels			
20	Doors to components that pose a hazard must only be openable with tools and must have a warning sign indicating the hazard (e.g. for fans). If this is not possible, the fan must be equipped with inlet, exhaust, and belt guards.	DIN EN 1886 (F.3)	VDI 3803-1 (5.1)
21	The seal or paintwork must not be damaged by the door locks over time.	AHU 01	
22	Access doors of walk-in units must be openable from the inside.	VDI 3803-1 (6.1)	
23	Protection against injuries when opening overpressure-side doors. No protective devices that can be deactivated (e.g. chain for unhooking) may be used.	DIN EN 1886 (F.3)	VDI 3803-1 (5.1)
Additional requirements			
24	Protection against injuries caused by sharp edges or pointed objects.	DIN EN 13053 (6.2)	DIN EN 1886 (F.3) VDI 3803-1 (5.1)
25	All components must be designed in such a way that they are accessible for maintenance and cleaning from the air inlet and outlet sides through doors or access panels. Alternatively, components can be designed to be extendable up to a unit clearance of 1.6 m.	DIN EN 13053 (6.2)	VDI 3803-1 (5.1) DIN 1946-4 (6.1.1) VDI 6022 (6.1.1)
26	Maintenance platforms for units over 3 m in height.	VDI 3803-1 (6.2)	
27	No additional insulation or cover measures are admissible during on-site installation for housing separation points (exception: floor area for units with increased hygiene requirements).	AHU 01	
28	Covering floor openings with gratings on walk-in units or openings in maintenance areas.	VDI 3803-1 (6.1)	
29	Floor without grooves or recesses for residue-free wipeability.	DIN EN 13053 (7.3)	DIN 1946-4 (6.5.1) VDI 6022 (6.3.5)
30	All components must be protected by filters. Apparatus-based filter preheating before the first filter stage is therefore not admissible.	VDI 3803-1 (6.2.2)	

Table 2: Additional requirements for weatherproof unit design

No	Requirements	Standard	Accompanying standard
01	Thermal insulation: – U2 (M): Units without thermodynamic air treatment – U1 (M): Units with air heating and other functions	VDI 3803-1 (6.1)	DIN EN 1886 (8.6)
02	Thermal bridging factor – No requirement for units without thermodynamic air treatment – TB3 (M): Units with air heating and other functions	VDI 3803-1 (6.1)	DIN EN 1886 (8.6)
03	Hot-dip galvanized and coated outer shell.	VDI 3803-1 (6.1)	
04	Weatherproof roof with overhang and drip edge.	VDI 3803-1 (6.1)	
05	Doors with locking mechanism.	VDI 3803-1 (6.1)	
06	Weatherproof units must not be used for structural functions or as part of the roof for the building.	DIN EN 13053 (6.2)	VDI 3803-1 (5.1)
07	Outdoor air intake chamber with stainless steel or aluminum tray, drainage behavior according to chapter 3.	VDI 3803-1 (6.1)	DIN EN 13053 (6.2)

Table 3: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Casing leakage: – Class L2 (R) – Class L1 (R) for clean rooms	VDI 3803-1 (6.1)	DIN 1946-4 (6.5.3) DIN EN 1886 (6.1) DIN EN 13053 (7.6)
02	Thermal insulation: – U1 (M): for all units	DIN 1946-4 (6.5.3)	DIN EN 1886 (8.6)
03	Thermal bridging factor for intake chamber and downstream housing parts: – TB3 (M) when indoor air temperature in the outdoor air chamber is ≥ -7°C – TB2 (M) when indoor air temperature in the outdoor air chamber < -7°C or for weatherproof design. Recommended when there is an increased risk of condensation.	DIN 1946-4 (6.5.3)	DIN EN 1886 (8.6)
04	Side panels and all components whose surfaces are exposed to airflow: hot-dip galvanized and coated. Floor, including slide rails and all surfaces in the floor area that come into contact with condensate made of stainless steel or aluminum.	DIN 1946-4 (6.5.1)	VDI 3803-1 (6.1)
05	Materials with resistance to disinfectants, sealing gasket with closed cell structure.	DIN 1946-4 (6.5.1)	

Table 3 continued: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
06	All units parts on the suction and pressure sides are accessible via doors or, for clearances of < 1.6 m, also via inspection panels. Alternatively, components can be designed to be removable (note pipe connections).	DIN EN 13053 (7.2)	DIN 1946-4 (6.5.1)
07	Door locks have to be suitable for cleaning and are resistant to disinfectants and abrasion (e.g. die-cast aluminum) when located on the inside.	AHU 01	
08	Hollow rivets inside the casing are not admissible.	AHU 01	
09	– Cables to be installed outside the unit if possible – Cable routing in the unit preferably not in empty conduits – Keep cable routes within the unit as short as possible – Air-tight cable entries through the casing to the outside	AHU 01	VDI 6022 (6.3.5)
10	The surface design must not promote the accumulation of dirt deposits.	DIN 1946-4 (6.1.2)	
11	Components should preferably be housed inside the unit.	DIN 1946-4 (6.3)	
12	Inserted, clamped, or foam seals are admissible on doors (no adhesive seals).	DIN 1946-4 (6.5.1)	
13	Filter Bypass Leakage: – All filter classes max. 0.5% of the nominal volume flow	DIN 1946-4 (6.5.3)	DIN EN 1886 (7.1.2)
14	– Outside air inlet area with floor as a tray – DN40 connection pipe made of stainless steel or aluminum – Tray: Length min. 0.5 m, drainage behavior according to Chapter 3. – Provide condensate tray for at least the following components: Outdoor air inlet chamber, cooler, humidifier, and heat recovery system (supply and exhaust air side)	DIN 1946-4 (6.5.2)	
15	Outdoor air inlet chamber with access panel or door.	DIN 1946-4 (6.5.5)	
16	All components must be protected against contamination and damage during the construction period.	DIN 1946-4 (6.1.3)	

5.2. Air connections or air openings

Table 4: General Requirements

No	Requirements	Standard	Accompanying standard
01	Air velocity max. 5 m/s (except for fan outlet).	DIN EN 13053 (6.6.1)	VDI 3803-1 (6.2.9)
02	Recommended angle of inflow or outflow: – to opening at least $\alpha = 25°$ – from opening at least $\beta = 35°$ [1)]	DIN EN 13053 (6.6.1)	VDI 3803-1 (6.2.9)
03	Structure-borne sound insulation (no metallic contact).	VDI 3803-1 (6.2)	
04	Equipotential bonding.	VDI 3803-1 (6.2)	
05	Surface finish, exterior and interior at least made of hot-dip galvanized sheet steel.	AHU 01	
06	Outdoor air inlet: – Air ducts to the air handling unit to be kept as short as possible – Cleaning option and procedure for any water that may have entered – Do not connect drainage directly to the wastewater drainage system. – Inspection opening on chamber or duct Exhaust air terminal: – Ensure that any water that may have entered is drained away.	VDI 6022 (6.3.1) VDI 6022 (6.3.4)	

[1)] In DIN EN 13053 the text and sketch regarding the angles are contradictory. VDI 3803-1 adopts the version of the sketch from DIN EN 13053. AHU-01 refers to what we believe to be the correct text of DIN EN 13053.

Table 5: Additional requirements for weatherproof unit design

No	Requirements	Standard	Accompanying standard
01	Suction and pressure side weather protection device with wire mesh (max. 20 x 20 mm) accessible on one side for cleaning. Weather protection device also effective when the system is shut down. Lower angle of the weather protection hood at least 45°.	DIN EN 13053 (6.2)	VDI 3803-1 (6.1) DIN 1946-4 (6.2)
02	Maximum flow velocities in weather protection device: Outside air: – 2.5 m/s with weather protection grille – 3.5 m/s with droplet separator – 4.5 m/s with weather protection hood Exhaust air: – 4.0 m/s with weather protection grille – 5.0 m/s with droplet separator – 6.0 m/s with weather protection hood	DIN EN 13053 (6.2)	VDI 6022 (6.3.4)
03	Exhaust air outlet: if possible, above the roof of the highest part of the building and higher than the outdoor air intake opening.	AHU 01	VDI 6022 (6.3.4) DIN 1946-4 (6.2)
04	Outdoor air supply (notes for system planning): – Select a location that minimizes negative influences from local emission sources. – Away from and downwind of wet cooling towers – For roof intake, minimum distance from the roof surface, at least 1.5 times the snow depth (≥ 0.3 m)	VDI 6022 (6.3.1)	DIN 1946-4 (6.2)
05	Surface finish inside and outside at least sheet steel, hot-dip galvanized and coated.	AHU 01	
06	Minimum distances between outdoor air and exhaust air openings for AHUs installed on roofs.	DIN EN 16798-3 with national annex	

Table 6: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Elastic unit connection made of closed-cell material without grooves or indentations (no flexible connection with folds).	DIN 1946-4 (6.5.1)	
02	Outdoor air intake at least 3 m above ground level.	DIN 1946-4 (6.2)	
03	Surface finish: – exterior at least hot-dip galvanized steel sheet – inside at least steel sheet, hot-dip galvanized and coated	AHU 01	

5.3. Damper and mixing sections

Table 7: General Requirements

No	Requirements	Standard	Accompanying standard
01	Air leakage class 2 for dampers that are closed while the system is in operation, e.g. for mixing dampers or bypass dampers.	DIN EN 13053 (6.6.2)	DIN EN 1751 (C.2) VDI 3803-1 (6.2.9)
02	The air flow through the unit must be prevented during shutdown or maintenance by means of appropriate dampers.	VDI 6022 (6.2.2)	DIN 1946-4 (6.4.1)
03	Outdoor air damper installed internally or double-shell with intermediate insulation.	VDI 3803-1 (6.2.9)	DIN 1946-4 (6.5.6)
04	Flow velocity for dampers max. 5 m/s (except for recirculation and bypass dampers).	DIN EN 13053 (6.6.1)	VDI 3803-1 (6.2.9)
05	Recommended inflow angle to damper: min. $\alpha = 25$ Recommended outflow angle from damper min. $\beta = 35°$ [1)]	DIN EN 13053 (6.6.1)	VDI 3803-1 (6.2.9)
06	Option to install a damper actuator (space reserved or shaft extended).	VDI 3803-1 (6.2.9)	
07	Surface finish: Hot-dip galvanized steel sheet.	AHU 01	
08	In mixing chamber operation, where temperature stratification is to be expected, it is recommended to install the heater after the fan.	VDI 3803-1 (6.2.4)	
09	The damper position must be visible on the outside of the damper.	VDI 3803-1 (6.2.9)	DIN 1946-4 (6.4.1)

[1)] In DIN EN 13053 the text and sketch regarding the angles are contradictory. VDI 3803-1 adopts the version of the sketch from DIN EN 13053. AHU-01 refers to what we believe to be the correct text of DIN EN 13053.

Table 8: Additional requirements for weatherproof unit design

No	Requirements	Standard	Accompanying standard
01	All hinge dampers are installed on the inside.	VDI 3803-1 (6.2.9)	DIN 1946-4 (6.5.6)
02	Surface finish outdoor air damper: Hot-dip galvanized and coated.	AHU 01	

Table 9: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Air leakage class to the room: Class 4 ("airtight" dampers), all other dampers leakage class min. class 2, exception for special requirements all class 4.	DIN EN 13053 (6.6.2)	DIN EN 1751 (C.2) DIN 1946-4 (6.5.6)
02	Surface finish at least hot-dip galvanized and coated.	AHU 01	
03	Gearwheels in the air stream are not admissible.	DIN 1946-4 (6.4.1)	
04	Dampers on all air inlet and outlet openings, arrangement of outdoor air dampers at the unit inlet.	DIN 1946-4 (6.5.6)	
05	Surface finish of outdoor air dampers made of stainless steel or aluminum.	DIN 1946-4 (6.4.2)	
06	Outdoor air dampers must close automatically in the event of a power failure.	DIN 1946-4 (6.4.2)	

5.4. Filter section

Table10: General Requirements

No	Requirements	Standard	Accompanying standard
Characteristics			
01	Only air filters tested in accordance with DIN EN ISO 16890 or DIN EN 1822 may be used. These must be individually marked.	VDI 6022 (6.3.9)	DIN 1946-4 (6.5.7) DIN EN 13053 (6.9)
02	Filter classes to be used: – At the supply and exhaust air intake, at least ISO ePM10 ≥ 50%, preferably ISO ePM1 ≥ 50% (additional coarse filters are admissible) – Class ISO ePM10 ≥ 50% in the exhaust air before heat recovery is recommended. – Second filter stage ISO ePM1 ≥ 50%, better ISO ePM1 ≥ 80% – For single-stage supply air filtration, at least ISO ePM1 ≥ 50% – For filter classes ≥ ePM1-80%, two-stage filtration must be provided. Minimum filter classes also depend on the outdoor air quality (ODA) with particle pollution ePM10 and the requirements of the supply air (SUP classes). The selection of the air quality class should be specified to the equipment manufacturer.	DIN EN 13053 (6.9.2) DIN EN 16798-3 with national annex AHU 01	VDI 6022 (6.3.9) VDI 3803-4 (Tab.5 DIN 1946-4 (6.5.7) DIN EN ISO 16890
03	After the activated carbon filter on the supply air side, a filter stage of at least ISO ePM1 ≥ 70% must be installed. Activated carbon filters should be used for outdoor air category ODA 3.	AHU 01	VDI 3803-1 (6.2.2) DIN EN ISO 16890
04	Filter area for bag design: – min. 10 m² per 1 m² of unit cross-section (based on 610 x 610 mm)	DIN EN 13053 (6.9.2)	VDI 3803-1 (6.2.2) DIN 1946-4 (6.5.7)
05	The dimensioning resistance is calculated as follows: $\frac{\Delta p_{Anfang} + \Delta p_{Ende}}{2}$ Unless otherwise specified, a change in volume flow of ± 10% is acceptable due to filter contamination.	DIN EN 13053 (6.9.2) AHU 01	VDI 3803-1 (6.2.2)
06	Maximum permissible filter end pressure loss: ISO ePM1, ISO ePM2,5, ISO ePM10: The lower value, either from adding 100 Pa to the pressure difference with a clean filter or three times the pressure difference with clean filters. ISO coarse dust: The lower value, either from adding 50 Pa to the pressure difference with an clean filter or three times the pressure difference with clean filters.	DIN EN 13053 (6.9.2)	VDI 3803-1 (6.2.2) DIN EN ISO 16890
07	The filters should maintain their filter class throughout their entire service life.	VDI 6022 (6.3.9)	DIN 1946-4 (6.5.7)
Layout inside the AHU			
08	Filter changes should be from dusty air side or by pulling the filter out.	VDI 6022 (6.3.9)	
09	The first filter stage must be located at the unit inlet. The second supply air filter stage must be located at the unit outlet. A filter stage must be installed behind fans with belt drives (except for flat belts without lateral restraint). Grease filter as the first filter stage for kitchen extract air.	DIN EN 13053 (6.9.2)	DIN 1946-4 (6.5.7) VDI 3803-1 (6.2.2) VDI 6022 (6.3.9)

Table 10 continued : General Requirements

No	Requirements	Standard	Accompanying standard
Layout inside the AHU			
10	The following filter stages must be provided as a minimum: – in recirculation mode, in the direction of airflow behind the recirculation damper ISO $ePM_{10} \geq 50\%$ – in mixed air mode ISO $ePM_1 \geq 50\%$ – for extract air containing particles (ETA 3) ISO $ePM_{10} \geq 50\%$ – with evaporative cooling ISO $ePM_1 \geq 50\%$ – in case of risk of entrained nutrients ISO $ePM_1 \geq 50\%$	AHU 01	VDI 6022 (6.3.9) VDI 3803-1 (6.2.2) DIN 1946-4 (6.5.7) DIN EN ISO 16890
11	Access via a door with dimensions larger than the external dimensions of the filter element to be replaced. Free maintenance space with removable filters at the inlet for unhindered filter replacement Filters should be visible and accessible for inspection at any time.	DIN EN 13053 (6.9.1)	VDI 6022 (6.3.9) DIN 1946-4 (6.5.7) VDI 3803-1 (6.2.2)
12	Measures must be taken with filters (e.g. preheating, more frequent checks, etc.) if the following air conditions persist for a longer period: – relative humidity > 80% at air temperatures > 0 °C – relative humidity > 90%	VDI 6022 (6.1.1)	DIN EN 13053 (6.9) VDI 3803-1 (6.2.2) DIN 1946-4 (6.5.7)
13	Additional air disinfection components must be installed on the pressure side after the last filter stage (min. ISO ePM1 ≥ 50%).	VDI 3803-1 (6.2.2)	DIN EN ISO 16890
14	Closed-cell sealing rubber (including verification), filter materials must not be a breeding ground for microorganisms.	DIN EN 13053 (6.9.2)	VDI 3803-1 (6.2.2) VDI 6022 (6.3.9)
5	Surface finish filter support frame hot-dip galvanized sheet steel.	AHU 01	
16	Only filter elements with vertical pockets are admissible in the floor area.	VDI 6022 (6.3.9)	
17	A permanent seal must be ensured throughout the entire operating period. If springs and clamps hinder the air flow, an additional device is required to maintain a permanent seal.	DIN EN 13053 (6.9.2)	VDI 3803-1 (6.2.2) VDI 6022 (6.3.9) DIN 1946-4 (6.5.7)
18	Regardless of the filter end pressure loss, the following maximum service lives are recommended: – Filter stage I: 1 year – Additional filter stages or extract air filters: Two years	VDI 6022 (7.6.8)	DIN 1946-4 (6.5.7)
19	Viewing opening (diameter min. 150 mm) incl. lighting from a clear unit height of 1.6 m.	VDI 3803-1 (6.2.2)	DIN EN 13053 (6.9) VDI 6022 (6.3.9) DIN 1946-4 (6.5.13)
20	Filter pressure drop monitoring with local display, including measuring tapping point.	DIN EN 13053 (6.9.2)	VDI 3803-1 (6.2.2) VDI 6022 (6.3.9)
21	Dose values of 7 to 70 Ws/m^2 are required to kill germs with UV rays. Ensure that the UV lamps are evenly distributed within the chamber.	VDI 3803-1 (6.2.2)	
22	For filters made of combustible materials, downstream grid (mesh size max. 20 x 20 mm in the system) or downstream suitable component that prevents burning parts from being entrained in the air inlet duct.	DIN EN 1886 (10.6)	M-LüAR

Table11: Additional requirements for weatherproof unit design

No	Requirements	Standard	Accompanying standard
01	Surface finish of outdoor air filter mounting frame Hot-dip galvanized and coated sheet steel.	VDI 3803-1 (6.2.2)	

Table 12: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Surface finish of filter frame hot-dip galvanized and coated sheet steel.	AHU 01	
02	Viewing opening (minimum clear width 150 mm) including lighting with smooth surface from a clear appliance height of 1.6 m.	AHU 01	DIN EN 13053 (7.4)
03	Only reversible (plugged, clamped) or foamed seals are admissible on filter frames. Glued seals are only admissible on the filter for single use.	DIN 1946-4 (6.5.1)	
04	Filter replacement only admissible on the dust air side [not extensible for room classes Ia and Ib]. The corresponding space requirement (at least 1 filter bag length) must be provided in front of the filter section.	DIN 1946-4 (6.5.7.1)	
05	For filters with antimicrobial coatings, proof of effectiveness and toxic safety is required.	DIN 1946-4 (6.5.7.3)	
06	Arrangement of the third, usually final filter stage in the unit is only possible with external approval. Hydrophobic material of the HEPA filter.	DIN 1946-4 (6.5.7.4)	

Table 12 continued : Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
06	Arrangement of the third, usually final filter stage in the unit is only possible with external approval. Hydrophobic material of the HEPA filter.	DIN 1946-4 (6.5.7.4)	
07	Filter classes to be used: – For room classes Ia and Ib, 3-stage filtration: At least ISO ePM1 ≥ 50% / ISO ePM1 ≥ 80% / H13 – For room class II, 2-stage filtration: At least ISO ePM1 ≥ 50% / ISO ePM1 ≥ 80% – In extract air systems with particle contamination: At least ISO ePM1 ≥ 50% in the exhaust air area	DIN 1946-4 (5.7.4)	DIN EN 1822-1 DIN EN ISO 16890
08	Filter classes to be used: – In infection room H13 in extract air – For isolation rooms, at least ISO ePM1 ≥ 80%, H13 in supply air if necessary	DIN 1946-4 (table 1)	DIN EN ISO 16890
09	In recirculation units, the first filter stage can be omitted if dehumidification is excluded at the cooler.	DIN 1946-4 (table 1)	
10	Filter differential pressure loss monitoring without barrier fluid.	DIN 1946-4 (table 1)	

5.5. Heat recovery section

Table 13: General Requirements

No	Requirements	Standard	Accompanying standard
01	Combined units with supply and extract air must be equipped with heat recovery. Exceptions are made in cases of very high waste heat, uneconomical operation, and lack of space, provided that they do not fall within the scope of EU Directive 1253/2014 on heat recovery.	DIN EN 13053 (6.5.1)	VDI 3803-1 (5.3.1)
02	The following extract air qualities are recommended for system selection. The selection of the ETA class should be specified to the unit manufacturer: – ETA 1: Include leaks in the nominal flow rate – ETA 2: Overpressure is required on the inlet air side of the heat recovery unit. – ETA 3: complete air inlet side with overpressure relative to extract air, with moisture transfer max. 5% leakage – ETA 4: Complete avoidance of contamination transfer. Systems with an intermediate medium should be used. Heat recovery systems in which the transfer of extract air into the supply air cannot be ruled out may only be used if recirculated air would be permissible.	AHU 01	VDI 3803-1 (6.2.6) VDI 6022 (6.3.15)
03	Condensate trays made of stainless steel or aluminum, drainage behavior according to chapter 3. In rotary heat exchangers, a tray is only required if condensate occurs.	DIN EN 13053 (6.5.2)	VDI 3803-1 (6.2.6)
04	Surface finish of rotary and plate heat exchangers: – Frame: Hot-dip galvanized steel sheet – Lamella/plates: coated or aluminum or made of plastic that cannot be metabolized by microorganisms	AHU 01	
05	Non-return valve with self-filling function for siphon.	AHU 01	
06	It is recommended that the HRS be equipped with an extract air humidification system in order to reduce the need for mechanical cooling.	DIN EN 13053 (6.5.1)	VDI 3803-1 (6.2.6)
07	Equipment with pressure tapping points on all 4 air flows.	DIN EN 13053 (6.5.2)	
08	Sealing of the heat exchangers to the casing with gaskets.	DIN EN 13053 (6.5.2)	
09	If recirculation mode is not intended, rotors must be equipped with a purge section.	DIN EN 13053 (6.5.2)	
10	HRS with transfer of pollutants and/or odors from extract air to outdoor air only if recirculation air is admissible.	VDI 6022 (6.3.14)	VDI 3803-1 (6.2.6)
11	When designing the preheater capacity, protection against icing and start-up operation must be taken into account. The reheater must be designed without condensation.	VDI 3803-1 (6.2.6)	
12	Special measures are necessary for plate heat exchangers with a construction depth of 1,200 mm or more (based on a 3 mm fin spacing) (e.g. split). For larger fin spacings, the permissible construction depth can be selected proportionally and linearly larger. The minimum fin spacing for plate heat exchangers must be 2 mm.	VDI 3803-1 (6.2.6)	

Table 13 continued: General Requirements

No	Requirements	Standard	Accompanying standard
13	To ensure performance, leakage from the heat recovery system must be taken into account when preparing the planning documents: – In the case of HRS, key figures must be adjusted; for example, the temperature change must be based on the standard volume flows modified by the leakage factor. – The actual volume flows must be used to calculate the pressure losses and power consumption for the fans. If no information is available, a leakage of 10% per air side should be assumed for rotary heat exchangers and switchover storage devices. This means that when designing the heat recovery system and fans, a 10% increase in volume flow for both outdoor air and exhaust air must be considered. If the heat recovery leakage was not taken into account by the device manufacturer, they must point this out. In this case, it is assumed that the leakage was already taken into account during the planning stage.	VDI 3803-5 (5.4) AHU 01	
14	The following values must be specified for HRS systems: – Temperature transfer rationt under dry conditions – Pressure loss of the heat recovery system, including droplet separator, damper, filter, etc. (sum of outdoor air and exhaust air) required solely due to the HRS system – Electrical power consumption Pel caused by pressure losses, including auxiliary energy for the heat recovery system – Energy efficiency ηe (= efficiency of heat recovery system ηHRS)	DIN EN 13053 (6.5.2) VDI 3803-5	EU Ecodesign Regulation 1253/2014
15	Fire transfer between exhaust air and supply air must be prevented (e.g. smoke control or fire dampers with release mechanisms, separate heat exchangers, shutdown, etc.).	DIN EN 1886 (F.2) M-LüAR	
16	The necessary inflow and outflow chambers must be considered with a minimum inflow angle from the previous component to the heat recovery system α = 35° and a minimum outflow angle from the HRS system to the following component b = 25°. [1)]	AHU 01	
17	The rotary heat exchanger must be operated in counterflow mode. In systems that use only outdoor air, it is recommended that the fans be arranged in such a way that transfer into the supply air is minimized and leaks are minimized.	AHU 01	
18	In order to simplify performance measurements on the construction site or in the laboratory, the following conditions are possible for heat recovery systems, deviating from DIN EN 308: – Temperature difference between ODA inlet and EHA inlet 20 K (ODA not necessarily +5 °C) – Conditions without condensation – In RAC systems, performance is measured according to the existing glycol content in the water (0% is also possible). In case of deviation from the design concentration, the manufacturer must specify the performance data for the prevailing proportion of glycol.	AHU 01	

Table 14: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Surface finish of rotary and plate heat exchangers: Frame made of hot-dip galvanized and coated sheet steel, fins/panels coated or made of aluminum or microbiologically non-degradable plastic.	AHU 01	
02	Stainless steel or aluminum mounting rails.	AHU 01	
03	Drip tray on supply and extract air side made of stainless steel or aluminum, connection pipe DN40, drainage behavior according to chapter 3.	DIN 1946-4 (6.5.5)	
04	In rooms where cross-room recirculation is not admissible, only such systems that prevent the transfer of substances from the extract air to the supply air are allowed.	DIN 1946-4 (6.5.9)	
05	Heat recovery systems must be installed on the outdoor air side after the first filter stage. Extract air filter min. ISO ePM10 ≥ 50%. When using indirect evaporative cooling, filter class ISO ePM1 ≥ 50% is recommended.	AHU 01	DIN EN ISO 16890

5.6. Air heating and air cooling sections

Table 15: General Requirements

No	Requirements	Standard	Accompanying standard
Materials and surfaces			
01	Use of corrosion-resistant materials, technically smooth fins (without punch-outs, burr-free and without internal splices in the direction of air flow). The use of corrugated fins is admissible.	DIN EN 13053 (6.4.1)	VDI 3803-1 (6.2.3) DIN 1946-4 (6.5.8) VDI 6022 (6.3.15)
02	Mounting rails for stainless steel or aluminum coolers.	DIN 1946-4 (6.5.1)	
03	Heating coil surface finish for Cu/Al or Cu/Cu: – Fins: Aluminum or copper – Frame: hot-dip galvanized – Pipes: Copper – Collectors made of painted black steel, galvanized steel, or copper	AHU 01	DIN 1946-4 (6.5.8)
04	Cooler hot-dip galvanized	VDI 3803-1 (6.2.5)	
05	Cooling coil surface finish for Cu/Al and Cu/Cu: – Fins: Aluminum or copper – Frame: Stainless steel or aluminum: for Cu/Al, hot-dip galvanized and coated versions are also possible if it does not need to be removed for cleaning. – Pipes: Copper – Collector: Copper	DIN EN 13053 (6.4.4) AHU 01	VDI 3803-1 (6.2.5) DIN 1946-4 (6.5.8)
06	Condensate tray made of stainless steel or aluminum, drainage behavior according to chapter 3.	DIN EN 13053 (6.4.4)	DIN 1946-4 (6.5.5) VDI 3803-1 (6.2.5) VDI 6022 (6.3.15)
07	Minimum fin spacing: – min. 2.0 mm for cooling coils without dehumidification – min. 2.5 mm for cooling coils with dehumidification – min. 4.0 mm for outdoor air preheaters – min. 2.0 mm for other heat exchangers	DIN EN 13053 (6.4.3)	VDI 3803-1 (6.2.3) VDI 6022 (4.3.15) DIN 1946-4 (6.5.8)
08	Water resistance under normal design conditions (without heat recovery): – Heater: max. 20 kPa – Cooler: max. 50 kPa – HRS systems: max. 150 kPa (per heat exchanger)	AHU 01	
09	Maximum ribbed construction depths for cleaning down to the core (based on 2 mm fin spacing; for larger fin spacings, the permissible construction depth can be selected proportionally and linearly larger): – 300 mm for staggered pipes – 450 mm for in line pipes In addition, the heat exchanger must be designed in multiple parts.	DIN EN 13053 (6.4.3)	VDI 3803-1 (6.2.3) DIN 1946-4 (6.5.8) VDI 6022 (6.3.15)
10	Design Inlet temperature heater overlapping with air outlet temperature after HRS (considering start-up conditions and/or frost protection control).	AHU 01	
Additional requirements			
11	Recommendation for cooler arrangement: – Cooling coil with dehumidification on the suction side (after heating effect of the fan) – Cooling coil without dehumidification on pressure-side (higher temperature difference)	VDI 3803-1 (6.2.5)	
12	Heat exchanger accessible from both sides when installed or extendable up to a device clearance height of 1.6 m without having to remove other built-in components.	DIN EN 13053 (6.4.4)	VDI 3803-1 (6.2.5) VDI 6022 (6.3.15) DIN 1946-4 (6.5.8)
13	No water drops to carry over into downstream sections.	DIN EN 13053 (6.4.4) DIN 1946-4 (6.5.8.3)	VDI 6022 (6.3.15)
14	Droplet eliminators should only be used when necessary. Cooling coils without drip separators are preferable.	DIN EN 13053 (6.4.4)	VDI 6022 (6.3.15) DIN 1946-4 (6.5.8) VDI 3803-1 (6.2.5)
15	Corrosion-resistant droplet eliminator for cleaning purpose, extendable with access via door or operating cover. Fins can be demounted for cleaning.	DIN EN 13053 (6.4.4)	VDI 6022 (6.3.15) DIN 1946-4 (6.5.8) VDI 3803-1 (6.2.5)
16	Insulated wall penetration for cooling coil connection pipe. The connection pieces for HRS coolers and HRS heaters must also be insulated.	DIN EN 13053 (6.4.4)	VDI 3803-1 (6.2.5)
17	Non-return valve with self-filling function for siphon. Direct connection to the wastewater system is not admissible.	VDI 6022 (6.3.15)	
18	Heat exchangers must be sealed against the unit casing with gaskets to prevent bypass leakage.	DIN EN 13053 (6.4.3)	
19	Cooling coils with dehumidification must not be installed directly in front of filters or silencers. Heaters or fans must be installed in between.	DIN EN 13053 (6.4.4)	VDI 3803-1 (6.2.5) DIN 1946-4 (6.5.7)

Table 15 continued: General Requirements

No	Requirements	Standard	Accompanying standard
20	For droplet separators made of combustible materials, downstream grid (mesh size max. 20 x 20 mm in the system) or downstream suitable component that prevents burning particles from being carried into the supply air duct.	DIN EN 1886 (10.6)	M-LüAR
21	For heat exchangers, inlet at the bottom, return flow at the top for better venting (except for steam).	VDI 3803-1 (6.2.3)	
22	Retrofitting a drip separator on dehumidifying cooling coils must be easy to accomplish. The necessary space for retrofitting must be provided.	VDI 3803-1 (6.2.5)	
Electric air heater/direct-fired heat exchanger			
23	Safety devices for electric air heaters: – Safety temperature limiter with manual reset Shutdown temperature 110 °C – Note on the device regarding required flow monitoring – Note on the device regarding required fan run-on time	VDI 3803-1 (5.4.5)	DIN EN 1886
24	At least 300 mm clearance to next component when surface temperature of the electric air heater > 100 °C.	AHU 01	
25	Air heaters with surface temperatures > 160 °C: – Downstream temperature monitor in the air flow (automatic shut-off > 110 °C) – flow monitor (automatically switches off when there is no air flow)	DIN EN 1886 (F.2)	

Table 16: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Heater: Collectors made of galvanized steel and coated or copper.	AHU 01	
02	Cooling coil surface finish for Cu/Al or Cu/Cu: – Frame: Stainless steel, aluminum, or equivalent – Fins: coated or corrosion-resistant aluminum or Cu – or: Heat exchanger completely coated with epoxy resin if it does not need to be removed for cleaning	AHU 01	DIN 1946-4 (6.5.8)
03	Drip eliminator frame made of corrosion-resistant materials, e.g. stainless steel or aluminum.	AHU 01	
04	All condensate connections must be located on the same side.	DIN 1946-4 (6.5.8.1)	
05	All parts in the wet area can be cleaned.	DIN 1946-4 (6.5.8.2)	
06	Coolers and droplet eliminator must be installed upstream of the second filter stage.	DIN 1946-4 (6.5.8.2)	
07	Fin spacing on cooling coils at least 2.5 mm.	DIN 1946-4 (6.5.8.2)	
08	The cooling coil must be visible from both sides.	DIN 1946-4 (6.5.8.2)	
09	Viewing windows on air filters, fans and humidifiers	DIN 1946-4 (6.5)	

5.7. Sound attenuator section

Table 17: General Requirements

No	Requirements	Standard	Accompanying standard
01	Minimum distance to built-in components: – upstream: 1.0 max. width of splitter (excluding filter section) – downstream 1.5 max. width of splitter	DIN EN 13053 (6.10)	VDI 3803-1 (6.2.8)
02	Increased pressure loss must be avoided. Recommended pressure loss max. 50 Pa.	VDI 3803-1 (6.2.8) AHU 01	
03	Surface finish permanently abrasion-resistant and made of cleaning-resistant material (e.g. glass fibre).	VDI 6022 (6.3.12)	DIN 1946-4 (6.5.12) DIN EN 13053 (6.10) VDI 3803-1 (6.2.8)
04	Splitter can be dismantled for cleaning without having to remove other built-in parts.	DIN EN 13053 (6.10)	VDI 3803-1 (6.2.8) VDI 6022 (6.3.12)
05	Sound attenuators should be installed in the AHU close to the fan, as well as between the first and second filter stages. They must not be placed directly downstream from dehumidifying coolers or humidifiers.	DIN EN 13053 (6.10)	VDI 3803-1 (6.2.8) VDI 6022 (6.3.12) DIN 1946-4 (6.5.12)
06	The use of flow profiles is recommended (e.g. rounded splitters).	DIN EN 13053 (6.10)	VDI 3803-1 (6.5.2.8)
07	Measures must be taken for silencers (e.g. preheating by 3 K) if the following air conditions persist for long periods: – Relative humidity > 80% at air temperature > 0 °C – relative humidity > 90%	VDI 6022 (6.1.1)	
08	Surface finish of sound attenuators: frames, chamber plates, and flow profiles are hot-dip galvanized.	AHU 01	
09	Determine insertion loss of silencer at 63 Hz to 8 kHz.	VDI 3803-1 (5.7.2)	

Table 18: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Built-in rail made of stainless steel or aluminum.	AHU 01	
02	Surface finish of sound attenuators: frame, chamber sheets, and airflow profiles are hot-dip galvanized and coated.	DIN 1946-4 (6.5.1)	

5.8. Humidifier section

Table 19: General Requirements

No	Requirements	Standard	Accompanying standard
01	Humidifiers must not be installed directly upstream of filters or silencers (except for steam humidifiers).	DIN EN 13053 (6.8.1)	VDI 3803-1 (6.2.2) VDI 6022 (6.3.7) DIN 1946-4 (6.5.7)
02	All built-in parts must be removable. All parts in contact with water to be accessible for inspection and cleaning and consisting of corrosion-resistant and disinfectant-resistant material.	DIN EN 13053 (6.8.3)	DIN 1946-4 (6.5.11) VDI 3803-1 (6.2.10) VDI 6022 (6.3.7)
03	Supply air systems must be designed with at least two filter stages (first stage at least ISO ePM1 ≥ 50%) (exception for steam humidifiers: only one filter stage). The humidifier is placed between the filter stages.	DIN EN 13053 (6.8.1)	VDI 3803-1 (6.2.10) DIN EN ISO 16890
04	Sealing compounds are not metabolizable (test certificate to be included). Plastics are not a breeding ground for microorganisms.	VDI 3803-1 (6.2.10)	
05	Seals must be closed-cell and must not absorb moisture or form a breeding ground for microorganisms.	VDI 3803-1 (6.2.10)	
06	Finish of the inner surface of the components downstream of the humidifier: hot-dip galvanized and coated.	VDI 3803-1 (6.2.10)	
07	Maximum bacterial count in circulating water: – based on total colony count 1,000 CFU/ml – based on Legionella spec. 100 CFU/100 ml	VDI 6022 (6.3.7)	DIN EN 13053 (6.8)
08	Equipped with condensate tray with drain and siphon (with non-return valve).	VDI 6022 (6.3.7)	
09	The relative humidity after the humidification section must not exceed 90%. It must be ensured that no water droplets enter subsequent components.	VDI 6022 (6.3.7)	DIN 1946-4 (6.5.11)
Nozzles or evaporative humidifiers			
10	Complete emptying and drying of the humidifier when the system is shut down (e.g. by fan run-on). When the device is switched off, the humidifier must switch off automatically. All water-bearing components with sufficient slope. The use of UV disinfection is recommended.	DIN EN 13053 (6.8.1)	VDI 3803-1 (6.2.10) VDI 6022 (6.3.7)
11	Tray with slope; drainage behavior according to chapter. 3	DIN EN 13053 (6.8.3)	VDI 3803-1 (6.2.10) VDI 6022 (6.3.7)

Table 20 continued: General Requirements

No	Requirements	Standard	Accompanying standard
12	Drip eliminator and rectifier (if present) can be removed for cleaning.	VDI 6022 (6.3.7)	DIN EN 13053 (6.8) DIN 1946-4 (6.5.8)
13	Inspection opening	DIN EN 13053 (6.8.3)	
14	Inspection window (clearance min. 150 mm) with means of darkening, including lighting. No light may enter through the lighting housing. The operating status of the lighting must be visible from the outside.	DIN EN 13053 (6.8.3)	VDI 3803-1 (6.2.10) VDI 6022 (6.3.5) VDI 6022 (6.3.7)
15	Dry-running protection for pump.	DIN EN 13053 (6.8.3)	
16	Blowdown device for circulating water	DIN EN 13053 (6.8.3)	VDI 3803-1 (6.2.10) VDI 6022 (6.3.7)
17	Internal surface finish: – Scrubbers and high-pressure evaporator: Stainless steel, aluminum, or fiberglass cable – Contact humidifier: Hot-dip galvanized and coated steel sheet.	DIN EN 13053 (6.8.3)	VDI 3803-1 (6.2.10) VDI 6022 (6.3.7)
18	For contact humidifiers and droplet separators made of combustible materials, an outlet-side grid (mesh size max. 20 x 20 mm in the system) or a suitable downstream component that prevents burning particles from being carried into the supply air duct.	DIN EN 1886 (F.2)	
Steam and ultrasonic humidifiers			
19	The length of the humidifier section must comply with the manufacturer's specifications and/or droplet separators must be installed. Homogeneous distribution across the unit cross-section must be ensured.	DIN EN 13053 (6.8.3)	VDI 6022 (6.3.7) DIN 1946-4 (6.5.11)
20	Viewing opening (clear width min. 150 mm) incl. lighting.	DIN EN 13053 (6.8.3)	VDI 3803-1 (6.2.10) VDI 6022 (6.3.5) VDI 6022 (6.3.7) DIN 1946-4 (6.5.13)
21	Stainless steel or aluminum tray with slope; drainage behavior according to chapter 3	DIN EN 13053 (6.8.3)	VDI 3803-1 (6.2.10) VDI 6022 (6.3.7)
22	Internal surface finish of humidifier and humidification section: Hot-dip galvanized and coated steel sheet.	DIN EN 13053 (6.8.3)	VDI 3803-1 (6.2.10)

Table 21: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Surface finish: stainless steel.	DIN 1946-4 (6.5.11)	
02	Only steam humidifiers are admissible in operating rooms, installed before the second filter stage (class ISO ePM1 ≥ 80%).	DIN 1946-4 (6.5.11)	DIN EN ISO 16890
03	Equipment with stainless steel or aluminum tray on the supply and exhaust air side, connection pipe min. 40 mm with siphon. Drains with different pressure levels with a single siphon, drainage behavior according to chapter 3	DIN 1946-4 (6.5.5)	
04	In the event of operational malfunctions, condensation must be prevented in the supply air system.	DIN 1946-4 (6.5.11)	

5.9. Fan section

Table 22: General Requirements

No	Requirements	Standard	Accompanying standard
Arrangement in the air handling unit			
01	Supply air fans should be arranged in such a way that leakage on the suction side is minimized.	DIN EN 13053 (6.3.1)	VDI 3803-1 (6.2.1)
02	The supply air fan must be positioned between the first and second filter stages in a two-stage filtration system.	DIN EN 13053 (6.9.2)	VDI 3803-1 (6.2.2) DIN 1946-4 (6.5.10)
03	A filter stage must be installed behind fans with belt drives (except for flat belts without lateral restraint).	VDI 6022 (6.3.13)	
04	Position the fan in the device so that an even inflow and outflow is ensured.	DIN EN 13053 (6.3.1)	VDI 3803-1 (6.2.1)
05	Suction side clearance: – From built-in components/walls in the axial direction at least 0.5-wheel diameter – For radial flow, at least 1.5 impeller diameters or flow intake device	AHU 01	
06	Distance on the pressure side: – For built-in components: free-running wheels, at least 1 wheel diameter – For built-in components: other fans Outflow angle α min. 45° – To walls: for free-running wheels, the manufacturer's specifications must be observed for pressure-side clearance.	AHU 01	

Table 21 continued: General Requirements

Fan equipment and accessories			
07	For belt drive, fan with motor including motor clamping device mounted on horizontal base frame.	AHU 01	
08	For belt drives, motors up to size 200 can be moved parallel to the axis (motor rocker not permitted).	AHU 01	
09	Tensioning bushing system for belt drive.	AHU 01	
10	Viewing opening (diameter min. 150 mm) incl. lighting from a unit height clearance of 1.6 m.	VDI 3803-1 (6.2.1)	DIN EN 13053 (6.3) VDI 6022 (6.3.5)
11	Motor protection from 0.25 kW	AHU 01	
12	Lockable repair switch near the fan.	DIN EN 13053 (6.3.1)	VDI 3803-1 (6.2)
13	Potential equalization.	AHU 01	
14	Equipment with volume flow measuring device.	AHU 01	
15	Fans with housings to have condensate drainage and from size 400 additionally inspection opening.	VDI 6022 (6.3.13)	DIN 1946-4 (6.5.10)
16	If the electrical power consumption classes P1-P7 are specified, these must be determined in accordance with the correction factors described in the AHU guideline certification.	AHU 01	AHU guideline certification (7.3)
17	Fans with backward-curved blades are preferable. Energy-saving motors are recommended. The use of free-running wheels at total pressures < 1,500 Pa is recommended.	DIN EN 13053 (6.3.1) VDI 3803-1 (6.2.1)	VDI 6022 (6.3.13)
18	Fans without belt friction (especially free-running fans) are recommended.	VDI 6022 (6.3.13)	DIN 1946-4 (6.5.10)
19	Unless otherwise specified, the dry cooling coil pressure loss should be used to dimension the fan.	DIN EN 13053 (6.3.1) VDI 3803-1 (6.2.11)	
20	Take fan heat (1 to 2 K) into account in the design.	VDI 3803-1 (6.2.1)	
21	Surface finish: – Fan impeller generally protected against corrosion – Fan housing made of hot-dip galvanized sheet steel – Fan motor base frame, hot-dip galvanized sheet steel Installation rails, hot-dip galvanized sheet steel	AHU 01	
22	Doors to components which present a risk may only be opened with tools. In addition, a warning sign must be affixed to the door indicating the danger (e.g. a fan).	DIN EN 1886 (F.3)	
23	When specifying the operating values of fans, it is recommended to comply with accuracy class 1 according to DIN EN 24166.	AHU 01	

Table 23: Additional requirements for units with increased hygiene requirements

No	Requirements	Standard	Accompanying standard
01	Surface finish: – Fan impeller generally protected against corrosion – Fan housing made of hot-dip galvanized and coated sheet steel – Fan motor base frame Hot-dip galvanized and coated sheet steel – Installation rails made of hot-dip galvanized and coated sheet steel	DIN 1946-4 (6.5.10)	
02	Fan motor units can be pulled out on spiral casing fans with a casing height of up to 1.0 m. Sliding surfaces of pull-out rails corrosion-resistant and abrasion-resistant, e.g. stainless steel.	AHU 01	
03	Viewing opening (minimum clearance 150 mm) including lighting with smooth surface from a clear appliance height of 1.6 m.	AHU 01	DIN EN 13053 (7.4)
04	Easy access for operation and maintenance.	DIN 1946-4 (6.5.10)	
05	Equipment with volume flow meter with display.	DIN 1946-4 (6.5.13)	

5.10. Additional equipment and documentation

Table 24: General Requirements

No	Requirements	Standard	Accompanying standard
01	Transport protection for vulnerable components (e.g. fans on spring isolators) with a note on the device. Particularly sensitive components at device separation points must be protected from damage.	DIN EN 13053 (8.1)	VDI 3803-1 (6.4)
02	Lifting eyes, wooden beams or pallets for forklift trucks or crane transport.	DIN EN 13053 (8.1)	VDI 3803-1 (6.3)

Table 25 continued: General Requirements

No	Requirements	Standard	Accompanying standard
03	Permanent type plate with permanent marking and fastening, containing the following minimum information: for filter: – Nominal volume flow, number of filters, filter type, dimensions, filter class, medium type, initial pressure loss, final pressure loss for fan: – Type and year of manufacture – Nominal flow rate – Total pressure increase – Static efficiency considering the usable pressure increase – Rated and maximum speed – Rated motor output – Direction of rotation arrow on the housing – Permanent labeling of system components to indicate their function	DIN EN 13053 (6.9.2) DIN EN 13053 (8.3) Regulation (EU) No. 1253/2014	VDI 3803-1 (6.4) VDI 6022 (6.3.9) DIN 1946-4 (6.5.10) DIN 1946-4 (6.1.4)
04	Unit labeling with energy efficiency class label A+, A, or B.	AHU 01	
05	Scale unit drawings with all main and duct connection dimensions.	DIN EN 13053 (8.3)	VDI 3803-1 (6.4)
06	Spare parts list.	DIN EN 13053 (8.3)	VDI 3803-1 (6.4)
07	Installation, commissioning, and maintenance instructions.	DIN EN 13053 (8.3)	VDI 3803-1 (6.4)
08	Doors to components that present a risk may only be opened with tools. In addition, a warning sign must be affixed to the door indicating the danger (e.g. a fan).	DIN EN 1886 (11)	VDI 3803-1 (6.4)
09	The unit and components must be cleaned after manufacture. Transport protected from the weather, dry, and clean. Protection against construction site dust and moisture during storage on the construction site.	VDI 6022 (6.1.2) VDI 6022 (6.4)	DIN 1946-4 (6.1.3)
10	The technical data sheet must specify the values listed in the criteria in the AHU guideline certification.	AHU 01	AHU guideline certification (6)
11	CO_2eq values for sustainability assessment according to method AHU 06: Manufacture, operation, and recycling potential of the AHU design	AHU 01	EN 15804, AHU 06

Table 26: Installation, commissioning, and maintenance instructions

No	Chapters and requirements that must be included in the manual	Standard	Accompanying standard
01	Table of content.	VDI 3803-1 (6.4)	
02	Intended use: Describe the contents in sufficient detail, including visual representations, to ensure that the AHU unit and its components are used as intended.	DIN EN 13053 (5.4) VDI 3803-1 (6.4)	
03	Safety: – Risk potential presented by AHU unit (type, severity, source, consequences) – Warnings (using signal words and symbols) – Protective measures taken and their benefits	VDI 3803-1 (6.4)	Machinery Regulation (EU) 023/1230
04	General information: – Area of application – Accessories – Decommissioning for maintenance purposes	VDI 3803-1 (6.4)	
05	Storage, transport, and assembly: – Storage of units and assemblies – Transport of equipment and assemblies to construction sites – Fixing points for lifting devices (illustration by drawing) – Transport guarding devices – Assembly of delivery units for indoor and outdoor installation – Foundation – Structure-borne noise decoupling – Equipotential bonding – Air connections – Water side connections – Waste water connections (condensate, drain, overflow pipes, siphon) – Medium-side connections (hot water, cold water, refrigerant, steam) – Fuel-side connections (oil, gas) – Filters – Frost protection – Space requirements for operation and maintenance	VDI 3803-1 (6.4)	

Table 27 continued: Installation, commissioning, and maintenance instructions

No	Chapters and requirements that must be included in the manual	Standard	Accompanying standard
06	Commissioning and maintenance: – Maintenance (type and frequency) per component in table form – Inspections (type and frequency) per component in tabular form – Repair work – Cleaning agents, disinfectants	VDI 3803-1 (6.4) DIN EN 13053 (8.1)	VDI 6022 (6.5)
07	Decommissioning, dismantling, and disposal.	VDI 3803-1 (6.4)	
08	Emergency: – Firefighting – Escape of harmful substances in case of fire	VDI 3803-1 (6.4)	
09	Manufacturer address.	VDI 3803-1 (6.4)	

6. Appendix

Table A1: Mechanical stability (DIN EN 1886)

Housing class	max. deflection [mm/m]
D1 (R).	4
D2 (R)	10
D3 (R)	>10

Table A2: Casing leakage under positive/negative pressure (DIN EN 1886)

Leakage class	Max. air leakage rate at - 400 Pa test pressure [l/(sm2)]	Filter class according to DIN EN ISO 16890
L1 (R)	0.15	ISO ePM1 > 80%
L2 (R)	0.44	ISO $ePM_1 \geq 80\%$
L3 (R)	1.32	ISO $ePM_1 \geq 65\%$

Table A 3: Casing strength class (DIN EN 1886 - model box)

Strength class	Maximum compressive strength (Pa)
P xxxx (M)	Specification of increased strength classes
P 2000 (M)	2000 Pa
P 1600 (M)	1600 Pa
P 1250 (M)	1250 Pa
P 500 (M)	500 Pa

Table A 4: Thermal insulation (DIN EN 1886)

Housing class	Heat transfer coefficient U [W/(m²K)]
U1 (M)	U ≤ 1,0
U2 (M)	1.0 < U ≤ 1.8
U3 (M)	1.8 < U

Table A 5: Thermal bridging factor (DIN EN 1886)

Housing class	Thermal bridging factor k_b [-]
TB 1 (M)	$0.75 \leq k_b < 1.00$
TB 2 (M)	$0.60 \leq k_b < 0.75$
TB 3 (M)	$0.45 \leq k_b < 0.60$
TB 4 (M)	$0.30 \leq k_b < 0.45$

Note: Index (**M**) means determined on a model box; (**R**) means specification refers to the actual AHU

Table A 6: Dampers(DIN EN 1751)

Leakage class	Max. leakage rate at test pressure 500 Pa [dm³/(sm2)]
4	4
3	20
2	100
1	500

Table A 6: Building material classes for insulation material (DIN EN 13501)

Building material class	Description
A1 A2-s1 d0	not flammable
A2 B C-s1 d0...C-s3 d2	flame-retardant (flammable)
D-s1 d0...D-s3 d2 E...E-d2	normally flammable (combustible)
F	highly flammable (combustible)

s = smoke development (s1 to s3)

d = dripping behavior (d0 to d2)

Table A 7: Classes for flow-through velocity in the clear casing cross-section (DIN EN 13053)

Class	air velocity in the unit, relative to the filter section or fan section, if no filter is present [m/s]
V1	≤ 1.6
V2	> 1.6 to 1.8
V3	> 1.8 to 2.0
V4	> 2.0 to 2.2
V5	> 2.2 to 2.5
V6	> 2.5 to 2.8
V7	> 2.8

Table A 8: Classes for electrical power consumption of fan drives (DIN EN 13053)

Class	Power consumption [kW]
P1	$\leq P_{m\,ref}$ 0.85
P2	$\leq P_{m\,ref} \cdot 0.90$
P3	$\leq P_{m\,ref} \cdot 0.95$
P4	$\leq P_{m\,ref} \cdot 1.00$
P5	$\leq P_{m\,ref} \cdot 1.06$
P6	$\leq P_{m\,ref} \cdot 1.12$
P7	$> P_{m\,ref} \cdot 1.12$

The electrical power consumption depends on the respective air flow rate and the static pressure increase of the fan.
Pressure losses for fan guard and baffle plate are not included in the static pressure increase, but are to be evaluated as fan losses.

$$P_{m\,ref} = \left(\frac{\Delta p_{stat}}{450}\right)^{0,925} \cdot (q_v + 0{,}08)^{0,95}$$

$P_{m\,ref}$	[kW]	electrical power consumption
Δp_{stat}	[Pa]	static pressure increase fan
q_v	[m³/s]	air flow rate

Table A 9: Classification of heat recovery (DIN EN 13053)

Class	Energy efficiency $\eta_{e\,1:1}$
H1	≥ 74
H2	≥ 70
H3	≥ 65
H4	≥ 60
H5	< 60

$$\eta_e = \eta_t \cdot \left(1 - \frac{1}{\varepsilon}\right)$$

η_e	[%]	Energy efficiency (= η_{WRG} Efficiency of heat recovery systems)
η_t	[%]	Temperature transfer coefficient in dry conditions Conditions
ε	[-]	Coefficient of indicator

The values apply to balanced mass flows (1:1).
Empirical formula for unbalanced mass flows:

$$\eta_{t1:1} = \eta_t \cdot \frac{\left(1 + \frac{m_2}{m_1}\right)}{2}$$

Table A 10: Specific fan power per fan (DIN EN 16798-3)

Class	Specific fan power [W/(m³/s)] (See table A12 for any aggregates.)
SFP 0	< 300
SFP 1	≤ 500
SFP 2	≤ 750
SFP 3	≤ 1,250
SFP 4	≤ 2,000
SFP 5	≤ 3,000
SFP 6	≤ 4,500
SFP 7	> 4,500

Table A 11: Additions on specific fan power (DIN EN 16798-3)

Component	Added on SFP class [W/(m³/s)]
additional mechanical filter stage	+ 300
HEPA filter	+ 1,000
EPA filter	+ 500
Gas filter	+ 300
H2-H1 class heat recovery system	+ 300
Additons must be considered when the component is installed in the AHU (possibly also outside the air handling unit). No additions for reserved for sections kept empty.	

Table A 12: Guiding values for electrical power input classes (VDI 3803-1)

Volume flow [m3/h]	Systems without thermodynamic air treatment.	Systems with air heating	Systems with additional functions
2,000 bis 4,000	SFP 5	SFP 5	SFP 5
up to 25,000	SFP 4	SFP 4	SFP 4
up to 50,000	SFP 3	SFP 4	SFP 4
above 50,000	SFP 3	SFP 3	SFP 3

Table A 13: Guideline values for component pressure losses in ventilation systems

Component	Pressure loss [Pa]		
	Low	Normal	High
Supply air duct system	200	300	600
Extract air duct system	100	200	300
Heating coil	40	80	100
Cooling coil	100	140	200
HRS unit class H3	100	150	250
HRS unit class H2-H1	200	300	400
Humidifier	50	100	150
Air washer	100	200	300
Air filter (final pressure):			
ISO ePM_1 ≥ 50%	100	150	250
ISO ePM2.5 ≥ 50%	100	150	250
ISO ePM1 ≥ 50%	100	150	250
ISO ePM1 ≥ 70%	150	250	400
HEPA filter	400	500	700
Activated carbon filters	100	150	250
Silencer	30	50	80
Air terminal	30	50	100
Air inlet or outlet	20	50	70

Table A 14: Classification of extract air (DIN EN 16798-3)

Extract air class	Description
ETA 1	Extract air with low contamination levels
ETA 2	Extract air with moderate contamination levels
ETA 3	Extract air with high contamination levels
ETA 4	Extract air with very high contamination levels

Table A 15: Classification of exhaust air (DIN EN 16798-3)

Exhaust air class	Description
EHA 1	Exhaust air with a low level of contamination
EHA 2	Exhaust air with moderate level of contamination
EHA 3	Exhaust air with high contamination levels
EHA 4	Exhaust air with a very high level of contamination

Table A 16: Classification of outdoor air (DIN EN 16798-3)

Outdoor class	Description
ODA 1	Outdoor air, only temporarily dusty.
ODA 2	Outdoor air with high concentrations of dust or fine dust and/or gaseous pollutants.
ODA 3	Outdoor air with very high concentrations of dust or particulate matter and/or gaseous pollutants.

Table A 17: Classification of supply air (DIN EN 16798-3)

SUP 1	Supply air with very low concentrations of dust or fine dust and/or gaseous contaminants.
SUP 2	Supply air with low concentrations of dust or fine dust and/or gaseous contaminants.
SUP 3	Supply air with moderate concentrations of dust or fine dust and/or gaseous contaminants.
SUP 4	Supply air with high concentrations of dust or fine dust and/or gaseous pollutants.
SUP 5	Supply air with very high concentrations of dust or particulate matter and/or gaseous pollutants.

Table A 18: Specification of air types (DIN EN 16798-3)

Abbreviation	Description
ODA	Outdoor air
SUP	Supply air
IDA	Indoor air
TRA	Transfer air
ETA	Extract air
RCA	Recirculation air
EHA	Exhaust air
SEC	Secondary air
LEA	Leakage air
INF	Infiltration
EXF	Exfiltration
MIA	Mixed air
SRO	Single room outdoor air
SRS	Single room supply air
SET	Single room extract air
SEH	Single room exhaust air

Table A 19: Room Classes in Healthcare Buildings (DIN *1946-4)*

Room class	Description
Ia	Operating rooms – Protected Zone with Low-Turbulence replacement Flow (TAV)
Ib	Operating Rooms – System with Mixed or replacement Airflow
II	Other Rooms – used for medical purposes

Table A 20: Performance Indicators of HRS Systems (VDI 3803-5)

Performance Indicators for the Comparability of HRS systems under defined operating conditions	
$\eta_t = \Phi_t$	Ratio of temperature change (previously heat recovery efficiency)
Ψ	Ratio of humidity change (previously moisture recovery figure)
E	Performance ratio
η_e	Energy Efficiency ((=η_{WRG} Efficiency of the heat recovery system)
–	Ratio of heat availability (unsuitable for AHU units)
–	Reference operating condition
Energy indicators calculated over a year to provide information on the cost-effectiveness and benefits of heat recovery.	
ε_a	Annual performance factor
N_a	Annual coverage ratio
Φ_a	Annual ratio of temperature change
η_a	Annual efficiency
The leakage figures describe the mass flow increases caused by leaks compared to a leak-free system. The recirculation rate describes the proportion of recirculated air in the outdoor air.	
L1	Leakage rate of exhaust air flow
L2	Leakage rate of outdoor air flow
U	Recirculation air flow rate

Table A 21: Translation table for filter designations DIN EN 779 to DIN EN ISO 16890 (FGK Status Report 44 and EVIA FAQ)

Description DIN EN 779	Minimum quality according to DIN EN ISO 16890
G1	ISO coarse < 30%
G2	ISO coarse ≥ 30%
G3	ISO coarse ≥ 45%
G4	ISO coarse ≥ 60%
M5	ISO ePM_{10} ≥ 50%
M6	ISO $ePM_{2.5}$ ≥ 50%
F7	ISO ePM_1 ≥ 50%
F8	ISO ePM_1 ≥ 70%
F9	ISO ePM_1 ≥ 80%

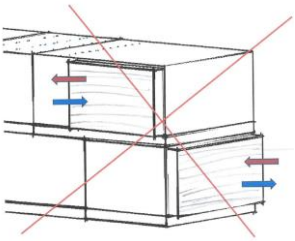
Table A 22: Classification of the outdoor air correction factor (DIN EN 16798-3)

	OACF	
Class	Outdoor air to exhaust air	Extract air to supply air
0	1.00	1.00
1	1.03	0.97
2	1.05	0.95
3	1.07	0.93
4	1.10	0.90
5	Not classified	

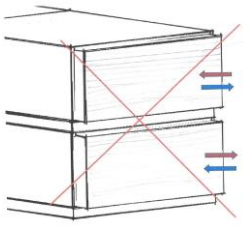
Table A 23: Corrosion protection classes based on EN 12944

Corrosion protection class / category	Corrosiveness	Typical environment	Examples
C2	Low	Unheated installation in enclosed spaces, outdoor air with low air pollution	Technical rooms, warehouses, etc.
C3	Moderate	Outdoor air with higher air pollution and humidity	Industrial areas, proximity to non-saline water bodies, urban areas, etc.
C4	High	Outdoor air with high air pollution, coastal regions with moderate salinity	Industrial areas with emissions, emissions from combustion processes, proximity to electroplating plants, swimming pools, etc.
C5	Very high	High humidity and air pollution, coastal regions with high salt content	Proximity to heavy industry, waste incineration, power plants, ports, etc.

Table A 26: Distance between outdoor and exhaust air openings for individual AHUs installed on the roof (EN16798-3 with national annex)



Not admissible



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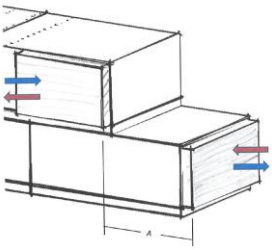
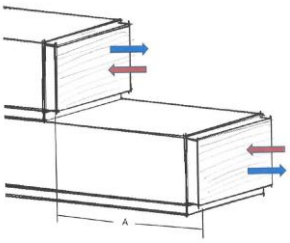


A > 2.0 m



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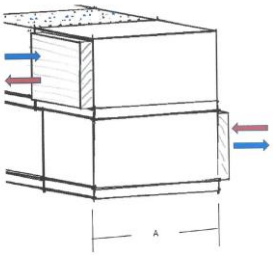
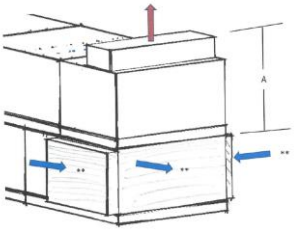
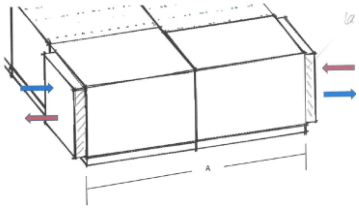


A > 1.3 m

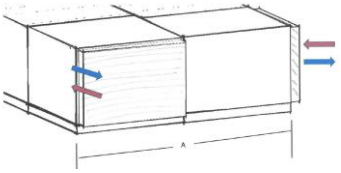


A > 1.3 m

** Air intake possible on all three sides



A > 1.3 m



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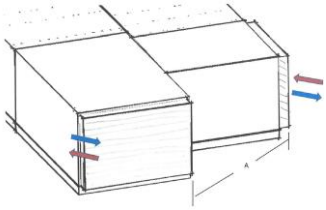

A > 2.0 m

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