

Subject: **Review No. 1.6/pos/19/14**

Hygiene evaluation of REMAK X series modular Air-Handling Units

Expertise No.: SZÚ/3326/2019, EX

Reviewer: REMAK a.s., Zuberská 2601, 756 61 Rožnov pod Radhoštěm, Czech Republic

Producer: REMAK a.s., Zuberská 2601, 756 61 Rožnov pod Radhoštěm, Czech Republic

Subject of assessment: **REMAK X series modular Air-Handling Units**

Referencies:

- Technical documents of the manufacturer REMAK a.s., incl. Installation and operating instructions and methodology for cleaning Air-Handling Units of hygienic design
- Test -certificate hygiene -conformity check of plate heat exchanger Hoval Type G, K, S, F, Hygiene-Institut des Ruhrgebiets, Gelsenkirchen issued of 03.04.2019 (in accordance VDI 6022.1/2018, VDI 3803.1E/2018, DIN 1946.4/2018, ÖNORM H6021/2018, SWKI VA 104-01/2019, SWKI VA105-01/2015)
- Protocol on conformity assessment of the type registration number 12.250.867, for Assembly air handling units REMAK X series, issued by TUV SÜD Czech s.r.o. on May 31, 2019 (Protokol o posouzení shody typu ... *only in Czech version*)
- Construction technical certificate registration number 11.901.497 for Assembly air handling units REMAK X series, issued by TUV SÜD Czech s.r.o. on April 04, 2019 (Stavební technické osvědčení ... *only in Czech version*)
- Data sheets and certificates of used sealing materials, powder paints, plastics and air conditioning components
- VDI 6022 Blatt 1/2018 Hygienische Anforderungen an Raumluftechnische Anlagen und Geräte (*Ventilation and indoor-air quality - Hygiene requirements for ventilation and air-conditioning systems and units*)
- RLT -RICHTLINIE OI (Ausgabe Februar 2018) Allgemeine Anforderungen an Raumluftechnische Geräte (*RLT-Guideline 01 General requirements for Air Handling Units*)
- DIN 1946-4/2018 Raumluftechnik -Teil 4: Raumluf-technische Anlagen in Gebäuden und Räumen des Gesundheitswesens (*Ventilation and air conditioning - Part 4: Ventilation in buildings and rooms of health care*)
- ČSN EN 13053+A1/2011 Větrání budov - Vzduchotechnické jednotky - Hodnocení a provedení jednotek, prvků a částí (*Ventilation for buildings - Air handling units - Rating and performance for units, components and sections*)
- ČSN EN 15780/2012 Větrání budov - Vzduchovody - Čistota vzduchotechnických zařízení (*Ventilation for buildings - Ductwork - Cleanliness of ventilation systems*)

Product description:

REMAK X series modular Air-Handling Units are designed for comfortable air-handling and air-conditioning in both standard and clean rooms with high demands on air exchange. They are produced in three material versions (hot-dip galvanized steel sheet, painted hot-dip galvanized steel sheet, stainless steel sheet). They are composed of sections on a common frame, their construction ensures the tightness of the entire unit.

The construction of the units is panel, frameless (sandwich construction panels). The casing of the units is made of steel sheets with a hot-dip galvanized surface DX51 D + Z275 + NAC with a possible further surface treatment with continuous or powder-coated polyester varnish. Mineral wool is used as the insulating material of the sandwich panels of the casing. The outer and inner casing of the units is completely smooth, guaranteeing easy cleaning. There is no release of any substances from the used seal, the seal is permanently elastic and non-absorbent. Condensate drains are made of stainless steel with a longitudinal and transverse slope, easily accessible and cleanable. All components of the REMAK X-Series units are easily accessible and / or removable and easy to clean. The units can be fitted with sight glasses and interior lighting for visual inspections during operation without the need for opening - this ensures permanent hygienic separation of internal parts from the external environment.

Conclusion

On the basis of the above documents, we state that

REMAK X series modular Air-Handling Units *meet hygienic requirements*

for this type of air-conditioning equipment from the material, design aspect and operational point of view and can be used for air-conditioning in all types of rooms according to the manufacturer's data. For air conditioning of clean rooms type C according to ČSN EN 15780, it is necessary to choose only air-handling units with a plate heat exchanger. The design of the air-conditioning project must take into account the second stage of filtration and possible humidification units in a hygienic design, both depending on the requirements arising for the type of space.

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