

HD-CE Specifications

Filtering ceiling operating theatres with unidirectional air flow

1. General

These specifications describe the requirements for the design, manufacture, delivery and installation of a high-efficiency unidirectional operating theatre ceiling, specifically designed for operating theatres located in risk zones 3 and 4 according to NFS90:351. The system must comply with the standards and directives in force for medical environment air quality.

2. Application

The operating theatre ceiling is intended for use in operating theatres and other critical areas where a high degree of air purity and controlled air flow are essential. The system must comply with the most stringent standards and guidelines for air quality in medical environments.

3. Materials and construction

Manufactured from 1.2, 1.5 and 2.0 mm thick galvanised steel, with a RAL9010 epoxy paint finish baked in the oven for increased durability and corrosion resistance.

The plenum and filter housing are pre-assembled in an airtight manner at the factory, with a total height of 450 mm.

The assembly is designed in one or more parts for on-site installation, depending on the dimensions and version. It is equipped with a centred airtight lead-through for the operating light (scalytic lamp). The air supply connections can be on the side or on top of the plenum (dimensions and position depending on the air volume and installation options).

The plenum has a 25 mm finishing profile around the entire perimeter at the bottom for integration with the room ceiling or installation of LED panels.

At the top, a drilled flange is provided around the entire perimeter, and 4 fixing brackets are also provided in the scalytic lamp lead-through to ensure the suspension and alignment of the filtering ceiling. Drilling the plenum is not necessary to achieve a robust and rigid assembly.

4. Functionality and performance

A 100% pressure tap is provided for integrity testing and measuring the pressure difference across filters.

The mating surface is constructed in one piece to ensure airtightness.

The ceiling is suitable for filters with a dry PU seal 68 or 90 mm thick. Depending on the size of the filter, there are 4, 6 or 8 clamping points per filter.

Air distribution is provided by fully perforated grills to ensure even distribution and avoid dead zones.

5. Options

- AISI 304 version (stainless steel).
- Construction for mounting filters with a gel seal.
- Air inlet with special dimensions.
- Lowered construction of 300 mm possible, the maximum height of the air inlet is then 140 mm.

6. Quality assurance

All components and the installation must comply with the standards and directives in force for clean rooms and operating theatres. Full documentation of the installation, including test results, must be provided.

This specification text provides a comprehensive basis for specifying a high-quality unidirectional operating theatre ceiling that meets the stringent requirements of modern operating theatres and high-risk medical environments.

