

DIF-OT



	DIF-OT
Class according to ISO14644-1:2016	ISO5 «operational»
Initial pressure drop	100 Pa
Suggested final pressure drop	250 Pa
Structure	AISI304 stainless steel RAL 9010 painted
Diffusion	Differential airflow velocities
Suggested for class	A (ECC-GMP-Annex 1)

DIF-OT is a ceiling mounted HEPA filter system for Ultra Clean Ventilation (UCV), specifically designed for operating theatres requiring ISO5 classification also in “operational” mode, such as orthopaedics, heart surgery, transplants, and neurosurgery.

This ground-breaking system provides differential airflow velocities decreasing from the centre towards the perimeter of the active surface, ensuring a constant and effective purging of the surgery area. The low-velocity perimetral unidirectional airflow eliminates air induction, preventing contaminated air entering the working area, without the need for restrictive guide curtains.

Its three differential velocities act by keeping the surgical table in overpressure compared to the surrounding area and actively pushing the contaminants from the operating area towards the walls and, therefore, to the extraction grilles.

Thanks to this feature, the highest degree of protection for the patients is achieved, despite the turbulence generated by the operating staff, by the heating sources and by the presence of the surgical light into the airflow stream.

ADVANTAGES

- Self-balanced differential airflow velocities
- No air induction
- Effective ultra clean central airflow to protect the patients from airborne particles
- Draft-free airflow velocities around the surgical table
- Utmost flexibility in positioning light stem and suspended equipment
- Ultimate solution for hybrid operating room
- The highest airflow uniformity thanks to the downstream equalizer
- Colour coded filters for correct filters installation

MATERIAL AND FINISHES

- AISI304 stainless steel RAL 9010 painted frame and plenum
- Reverse liquid seal H14 class HEPA filters, with integrated downstream air equalizer
- HEPA filters individually tested and packaged according to EN1822:2019.

APPLICATION

- Highly aseptic operating theatres such as: transplantation, cardiac surgery, orthopaedics, neurosurgery, ophthalmic, hybrid rooms in ISO5 Class ‘operational’ according to ISO14644-1:2016
- Hybrid surgery rooms

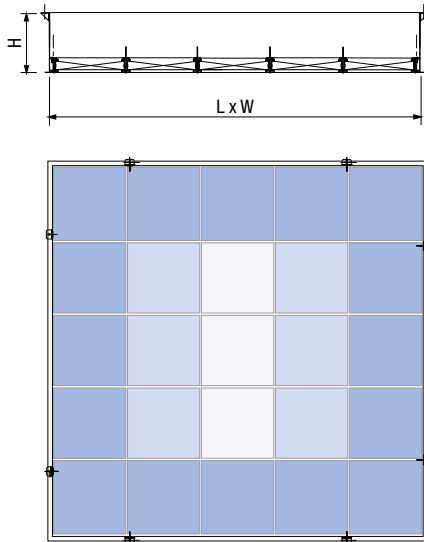
VERSIONS

- AISI316L stainless steel frame and plenum
 - Integrated air recirculation system
- Each module includes the following components:
- Filtering ceiling with HEPA H14 filters at different velocities.
 - High-efficiency fans.
 - Sound attenuating sections
 - Air recovery units at the four corners of the room.

SERVICES ON REQUEST

- Anti-seismic verification
- Installation assistance
- Validation tests:
 - filtering system integrity verification
 - cleanliness class verification
 - verification of degrees of protection.

DIF-OT


DIMENSIONS AND TECHNICAL DATA
DIF-OT

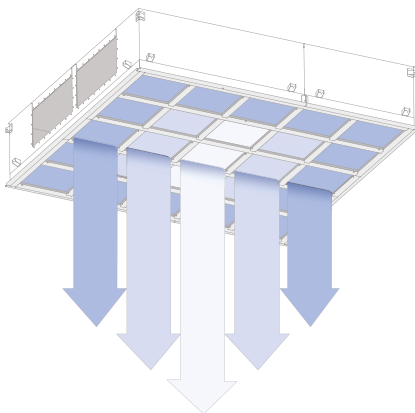
Code	Dimensions [mm]			Nom. air flow rate Q		
	L	W	H	[m ³ /h]	[l/s]	[ft ³ /min]
5 / 435	2400	2400	420	4800	1333	2825
6 / 435	2800	2400	420	5900	1638	3473
7 / 435	3200	2400	420	6900	1917	4061


DIF-OT ISO5

Code	Dimensions [mm]			Nom. air flow rate Q		
	L	W	H	[m ³ /h]	[l/s]	[ft ³ /min]
5 / 555	3000	3000	420	7900	2194	4650
6 / 555	3500	3000	420	9600	2667	5650
5 / 610	3200	3200	420	9600	2667	5650


DIF-OT for HYBRID Rooms

Code	Dimensions [mm]			Nom. air flow rate Q		
	L	W	H	[m ³ /h]	[l/s]	[ft ³ /min]
7 / 555	4000	3000	420	11250	3125	6621
7 / 610	4400	3200	420	13600	3778	8005

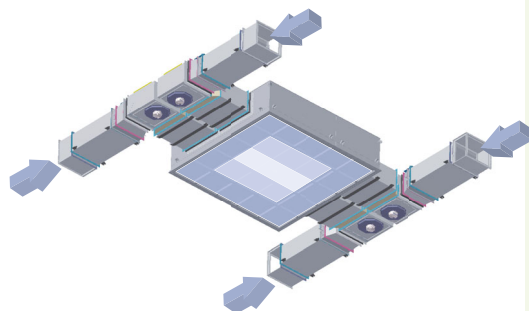

OPERATING PRINCIPLES

To protect patients from the risk of contracting surgical site infections, due to airborne microorganisms, it is fundamental to reduce the presence of contaminants, during the entire duration of each surgery, in particular inside the critical zone occupied by the patient and the surgical instrumentation and medical staff (Protected zone).

The final filtration system must be able to dilute and remove every type of pollutant, as quickly and efficiently as possible. Since it is impossible to eliminate the sources that generate and release biologically active particles, as the main sources of contamination are the same people who work in operating room, it is necessary to rely upon a really effective ventilation and air filtration system.

This is the main reason why SagiCofim has developed a unique and unconventional solution to allow the engineers to reach the highest level of excellence in the indoor air quality, even in the most critical surgery rooms.

- Mechanically self-balanced to 3 differential air velocities, decreasing air velocities from centre.
- Suitable for Operating Theatres with Colony Forming Units concentration less than 10 CFU/m³ in operating conditions.
- Effective removal of contaminants thanks to the combined action of the bell-shaped velocity profile and the air extraction points located on the four corners of the room, wall mounted at both floor and ceiling level.


UNIDIRECTIONAL FILTRATION SYSTEM WITH RECIRCULATION FANS

Nowadays almost all world standards stand that the airflow rate introduced into an operating room is made up of an outside portion (fresh air) and a considerable proportion of recirculated air from the same room. The HVAC industry commonly uses systems that include centralized Air Handling Units for fresh air treatment (Make Up Air unit) to service of one or more zones, and dedicated Air Handling Units for the handling of recirculation air.

However, some architectural constraints may make difficult or even impossible to use the system above explained. Especially in the case of renovation or retrofit market. In this case, the recirculation module with integrated solution is able to provide the designer and installer maximum flexibility.