

# Private: Halton OR Zone (VOZ)



## Overview

Halton Vita OR Zone is a complete operating room ventilation solution for *ultraclean* (< 10 CFU/m<sup>3</sup>) operating environments. The solution is based on the low-turbulent-flow (LTF) principle, which provides the necessary air cleanliness for the protected zone around the surgical field.

The solution complies with the cleanliness requirements of the ISO 14644 (class 5) standard as well as many national standards (eg. DIN, HTM, NFS). It is available with or without integrated recirculation:

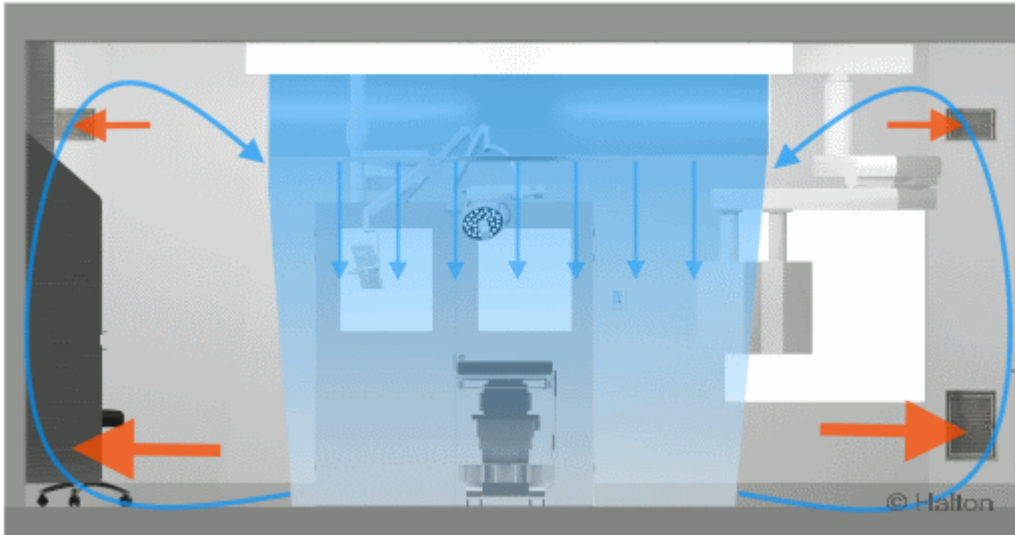
- Halton Vita OR Zone D – unidirectional airflow solution
- Halton Vita OR Zone R – unidirectional airflow solution with integrated recirculation

Halton's total solution includes a fully functional system consisting of supply and exhaust air units, an intelligent ventilation control system, recirculation units, internal ductwork and verification services.

The supply air unit comes with smart design features that maximise the filtering area with few gaps between filters resulting in less turbulence and optimal performance. A hygienic, cleanable single-layer textile membrane ensures an even airflow throughout the unit and enables one or two velocity zones in the protected zone. An advanced filter leakage control system with double seal prevents unfiltered air from entering the protected zone. The unit is complemented with an air-guiding skirt, which further improves the protective effect of the zone.

# Operating principle

A linear stream of filtered air is directed from the operating room ceiling to the surgical field. HEPA-filtered clean air is blown into the protected zone via a single-layer fabric covering the whole air outlet surface at low levels of turbulence. The higher air pressure in the centre of the room limits the inward flow of surrounding less clean air.



## Zone R

### Halton Vita OR Zone R

#### Features

##### Standard features

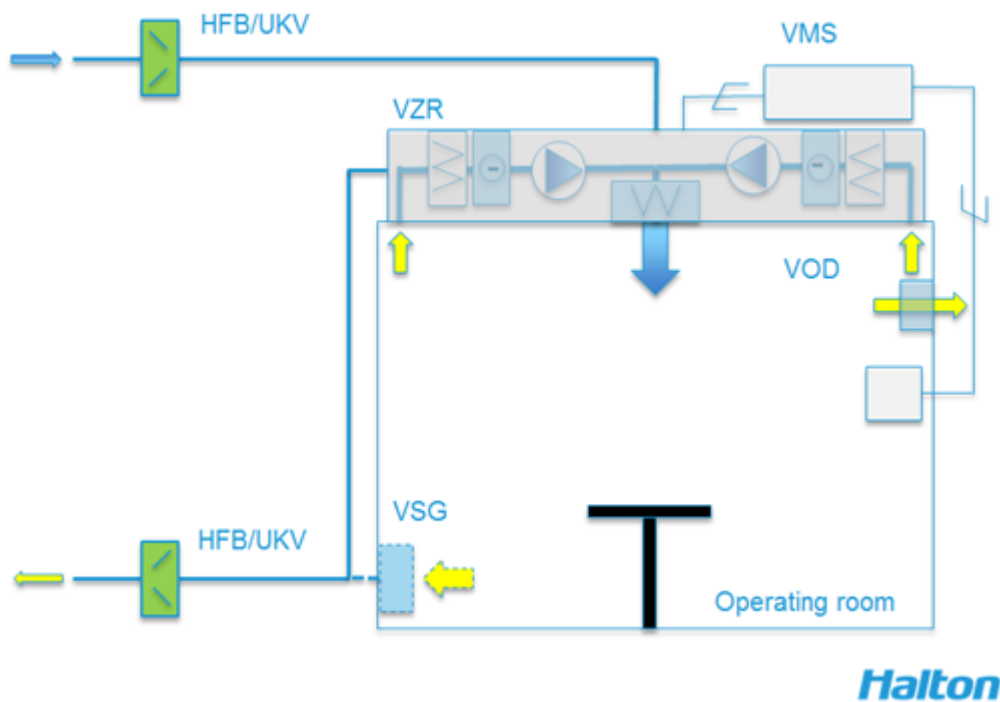
- Ultraclean air
  - Microbial cleanliness *in operation* conditions < 10 CFU/m<sup>3</sup>
  - Complies with the ISO 14644 standard for cleanrooms (particle count in *at rest* conditions ISO 5 in the protected zone and ISO 6 in the periphery)
  - Fast recovery time, in *at rest* conditions < 15 min in the periphery (not applicable to the protected zone)
  - Supply unit includes H14 filters
- Uni-directional airflow distribution solution providing
  - integrated recirculation
  - ultraclean air to the protected zone
  - flexibility in the number of staff present
- Reduced airflow for *clean air* conditions
- Single-layer textile membrane with one velocity zone

- High-quality components with flexible sizing
- Digital management system (Halton VMS) with an easy-to-use touch panel user interface for an intelligent control of air cleanliness, airflow, pressure and temperature

## Optional features

- Integrated cooling
- General lighting system
- Single-layer textile membrane with two velocity zones for extending the protected zone
- Halton Services for the planning, implementation and maintenance phases of the building project

## System components



## Standard components

- Halton VZR supply air unit
- Halton VOD overflow damper
- Halton HFB or UKV airflow control dampers
- Halton VMS air cleanliness and ventilation management system

## Optional components

- Additional Halton VSC exhaust units or Halton VSG exhaust grilles as an alternative to integrated recirculation chambers

# Zone D

## Halton Vita OR Zone D

### Features

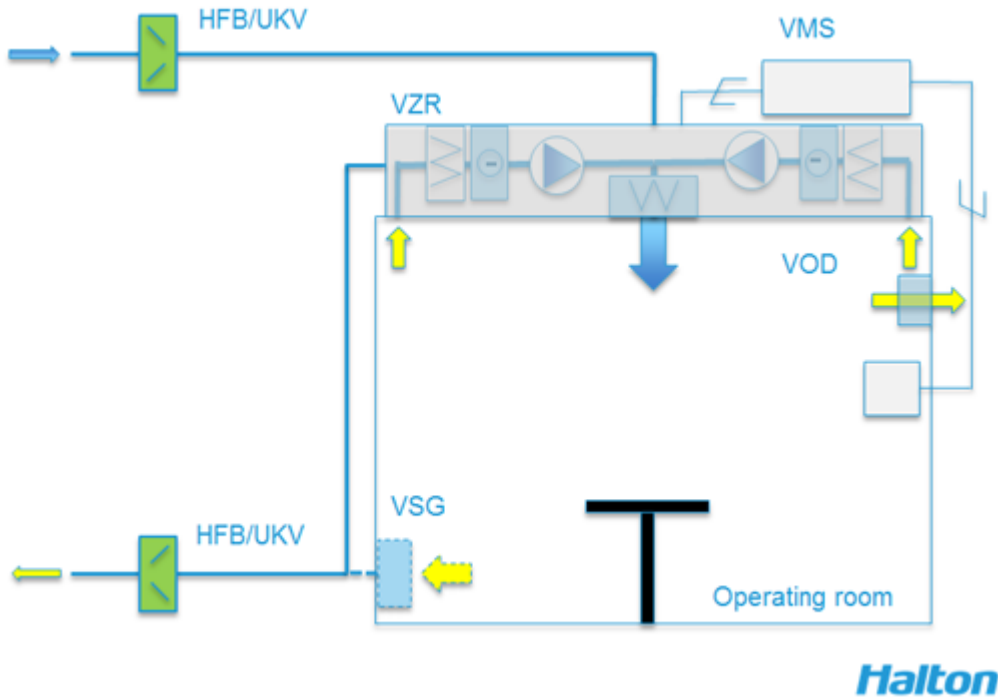
#### Standard features

- Ultraclean air
  - Microbial cleanliness in operation conditions < 10 CFU/m<sup>3</sup> in the protected zone
  - Complies with the ISO 14644 standard for cleanrooms (particle count in at rest conditions ISO 5 in the protected zone and ISO 6 in the periphery)
  - Fast recovery time, in at rest conditions < 15 min in the periphery (not applicable to the protected zone)
  - Supply unit includes H14 filters
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- Reduced airflow for clean air conditions
- Single-layer textile membrane with one velocity zone
- High-quality components with flexible sizing
- Digital management system with an easy-to-use touch panel user interface for an intelligent control of air cleanliness, airflow, pressure and temperature
- Heating, cooling and air filtration with a separate recirculation air-handling unit (AHU)
- Ideal for spaces with low ceilings

#### Optional features

- Humidity control (add-on to the recirculation AHU)
- General lighting system
- Single-layer textile membrane with two velocity zones for extending the protected zone
- Halton Services for the planning, implementation and maintenance phases of the building project

# System components



## Standard components:

- Halton VZD supply air unit
- Halton VSC exhaust units or Halton VSG exhaust grilles
- Halton VOD overflow damper
- Halton HFB or UKV airflow control dampers
- Halton PRA airflow adjustment damper
- Halton VOA recirculation air-handling unit (vertical or horizontal model)
- Halton VMS air cleanliness and ventilation management system

## Optional components:

- Halton VOH steam humidifier (requires Halton VOA)
- Halton VDW Internal ductwork

# Halton Services

Halton with its turnkey solutions and end-to-end services is your trusted partner throughout the lifecycle of the building.



## Halton Design Studio

For support in the design phase and for a cost-effective validation of your design, the following optional Halton Design Studio Services are available:

- Advanced project design and support in cooperation with your design team.
- Halton CFD simulations for optimising room conditions, especially when experiments are difficult to set up.
- Halton Mock-up for ensuring that the indoor climate conditions are in accordance with the system safety and other design features.
- Simulated operations for evaluating the impact of different variables to the cleanliness level, such as the number of people, the quality of the clothing system, the impact of door opening and the ventilation airflow rate.



## Halton Tune

The following Halton Tune Services help you ensure that all the design criteria are met in the real operating environment:

- Installation and commissioning of the Halton Vita OR Space and Zone solutions, including HEPA filter integrity testing.
- Complete system performance validation, including
  - space air tightness measurements
  - airflow and diffusion validation
  - temperature, humidity and sound level measurements
  - adjustment of airflows and pressure rates
- Operating room validation, including
  - particle and microbial cleanliness classification
  - containment leak and entrainment tests
  - operating room and surgical light recovery time tests
  - face velocity measurement
- User training for medical and technical staff.



## Halton Life Cycle

The following Halton Life Cycle Services help maintain safe and comfortable working conditions for space users, and prevent unexpected, costly and time-consuming renovations:

- Regular validation of safety, hygiene and comfort conditions to ensure continuous compliance with operating room standards.
- Halton Survey for gathering valuable user feedback about the perceived indoor environmental conditions.
- Maintenance services for preventive management of the ventilation system.

For further information of our services, please contact sales.

# Zone R

## Halton Vita OR Zone R

### Features

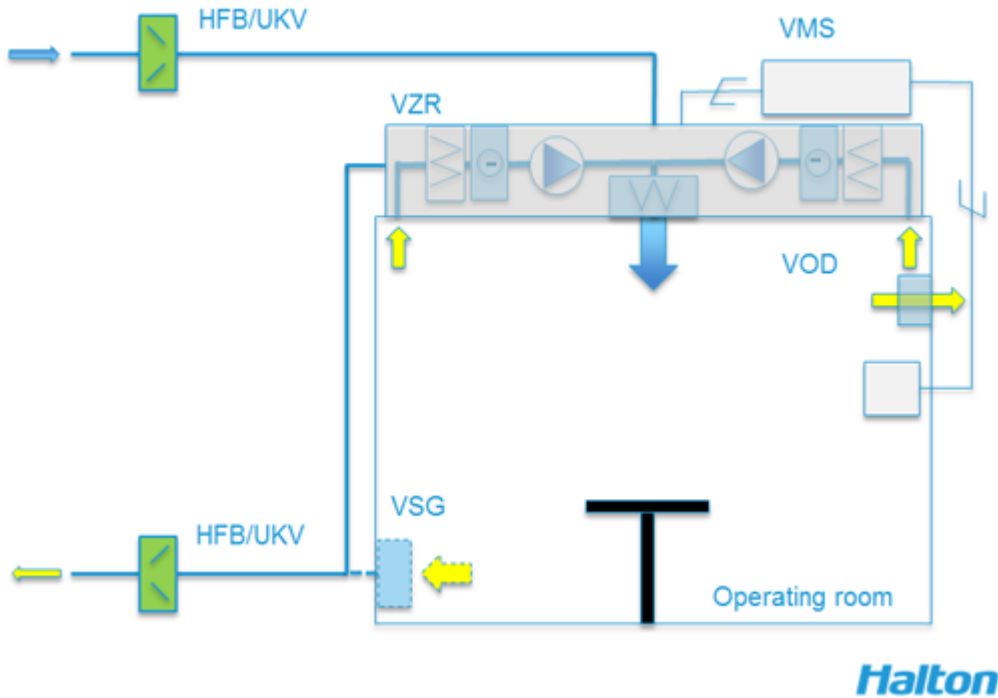
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# Zone D

## Halton Vita OR Zone D

## Features

### Standard features

- Ultraclean air
  - Microbial cleanliness in operation conditions < 10 CFU/m<sup>3</sup> in the protected zone





- Halton VSC exhaust units or Halton VSG exhaust grilles
- Halton VOD overflow damper
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- Halton VOA recirculation air-handling unit (vertical or horizontal model)
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## Specification

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