



Vita

Halton Vita VSN - Installation and maintenance guide

Contents

1 Introduction	3
1.1 Copyright and disclaimers.....	3
1.2 How to use this manual	3
1.3 Summary of changes.....	4
1.4 Safety notes	4
1.5 Contact information.....	6
2 Product description.....	7
2.1 Overview	7
2.2 Function	8
2.3 Structure and materials	9
2.4 Further technical details	9
3 Installation	10
3.1 Before you start	10
3.1.1 Installation process	10
3.2 Step by step instructions.....	10
3.2.1 Preparing Halton Vita VSN for installation.....	10
3.2.2 Installing Halton Vita VSN for Halton Vita OR Space 5.....	12
3.2.3 Installing Halton Vita VSN for Halton Vita OR Space 7.....	15
3.2.4 Installing the ceiling system	18
3.2.5 Installing the HEPA filters.....	18
3.2.6 Installing Halton Vita VSN front panels.....	21
4 Maintenance	22
4.1 Maintenance schedule.....	22
4.2 Step by step instructions.....	22
4.2.1 Removing the Halton Vita VSN front panels.....	22
4.2.2 Cleaning Halton Vita VSN	23
4.2.3 Changing the HEPA filters	24
5 Technical reference data.....	25
5.1 Dimensions and weight.....	25
5.2 Filters.....	31

1 Introduction

1.1 Copyright and disclaimers

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1.2 How to use this manual

This guide provides general instructions on how to install the product(s).

1.3 Summary of changes

Version	Date	Description
1.0	2018-08-28	First version
1.1	2019-10-08	Update in chapter <i>Installing the HEPA filters</i>
2.0	2019-12-06	<p><i>Safety notes</i> and <i>Contact information</i> chapters added</p> <p><i>Installing Halton Vita VSN for Halton Vita OR Space 7</i> chapter added</p> <p>Updates in <i>Dimensions and weight</i></p> <ul style="list-style-type: none"> • Dimension pictures updated • Weight information added
3.0	2020-02-17	<p>Updates in <i>Installation process</i></p> <ul style="list-style-type: none"> • Process flowchart added • Information about fixing material for different VSN models added <p>Pictures added to step-by-step instructions</p> <ul style="list-style-type: none"> • <i>Installing Halton Vita VSN for Halton Vita OR Space 5</i> • <i>Installing Halton Vita VSN for Halton Vita OR Space 7</i> • <i>Installing the HEPA filters</i> <p>New chapter added <i>Installing Halton Vita VSN front panels</i></p>
4.0	2020-02-26	<p>Maintenance section added</p> <p>Picture updated in chapter <i>Function</i></p> <p>Pictures added in chapter <i>Installing Halton Vita VSN for Halton Vita OR Space 7</i></p>

1.4 Safety notes

All information in this section is important and relevant for your safety. Please pay special attention to these icons and the accompanying messages when used later in context in this manual.

Warnings

Warning signs indicate a risk of personal injury including death. There is also a potential risk of material damage. Pay attention to the following signs when performing any tasks or moving in the area:



WARNING!

This symbol indicates a potential hazard, obstacle or condition requiring special attention.

**DANGER OF ROTATING UNIT PARTS!**

This symbol indicates a hazardous location with a risk of personal injury including death and material damage.

**DANGER OF OVERHEAD LOADS!**

This symbol indicates a hazardous location with a risk of personal injury including death and material damage.

**DANGER OF PERSONAL INJURY!**

This symbol indicates a hazardous location (excluding the above-mentioned danger areas) with a risk of personal injury including death and material damage.

Cautions

Caution signs indicate a risk of personal injury or material damage. To ensure your own safety, consider the following cautions:

**CAUTION!**

This symbol indicates a hazardous location with a risk of material damage that can also lead to personal injury.

**CAUTION! HEAVY OBJECT**

Do not lift objects over 20kg (44lbs) alone. Use a lift or seek assistance.

**CAUTION!**

Risk of personal injury or material damage.

Notes

NOTE: Notes are statements to which you should pay special attention.

1.5 Contact information

You can find the contact details from www.halton.com/contact.

2 Product description

2.1 Overview



Halton Vita VSN is a supply air unit for the Halton Vita OR Space 5 and Space 7 solutions.

Applications

- Operating rooms in hospitals
 - Halton Vita OR Space 5 solution
 - Halton Vita OR Space 7 solution

Key features

- The airflow pattern can be adjusted by turning the supply air nozzles
- Modular structure with several size configurations
- Antimicrobial powder paint finishing
- Equipped with low-pressure-drop Halton H14 filters with a gel gasket
- Installation flush to the ceiling
- Fixing brackets for easy installation of the product
- Easy filter change and cleaning through the openable diffuser panel
- Easy access to the measurement nipple for plenum pressure measurement

2.2 Function

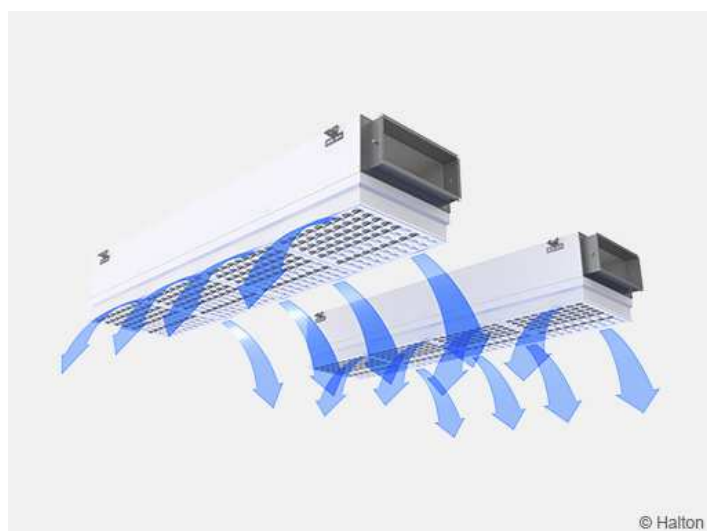
Air is filtered inside the modules by HEPA filters and supplied into space through the air nozzles located in the front panel of the unit.

The circumferential supply airflow from the supply air unit is directed partly towards the operating area and partly towards the room periphery. The inward supply airflow displaces the contamination generated in the operating area and prevents the intrusion of the outward supply airflow into the centre. The fine-tuning of the throw pattern is carried out by Halton.

The supply unit size and airflow pattern adjustment are optimised by Halton based on the end-user requirements and specifications.

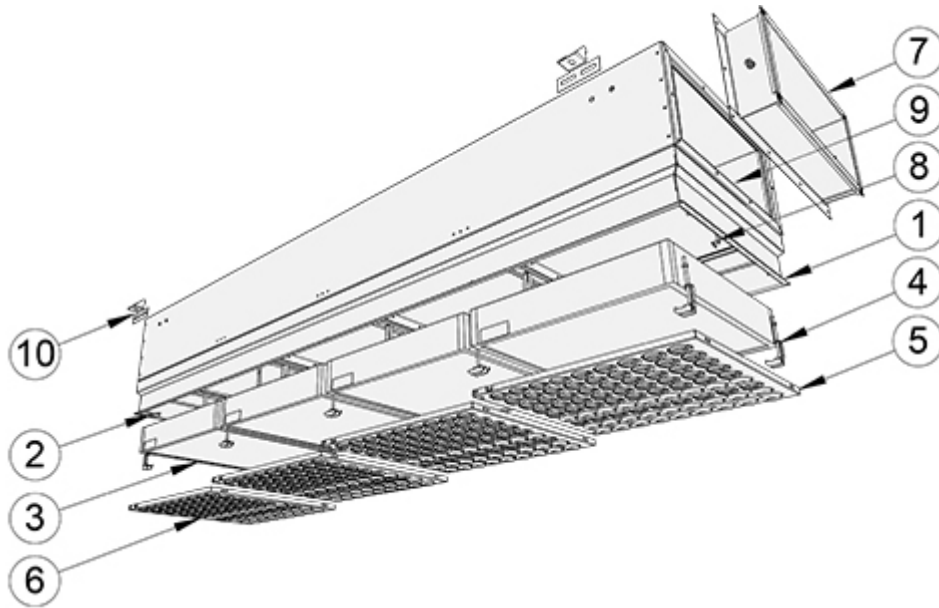


Halton Vita VSN for Space 5



Halton Vita VSN for Space 7

2.3 Structure and materials



No.	Part	Material
1	Casing	Aluminium with antimicrobial epoxy polyester powder paint finishing (white RAL 9010)
2	Pressure measurement port	Polyurethane
3	Filters	Fibreglass paper, aluminium frame and gel gasket
4	Filter brackets	Acid proof steel
5	Front panels	Galvannealed steel with antibacterial epoxy polyester powder paint, white (RAL 9010)
6	Nozzles	Polyacetal (POM), white RAL 9010
7	Duct connection	Galvanised steel
8	Filter springs	Stainless steel
9	Gasket	Cellular polyethylene foam
10	Fixing brackets	Galvanised steel

2.4 Further technical details

For Halton Vita VSN dimensions and weight see the [Dimensions and weight](#) chapter in the technical reference data section.

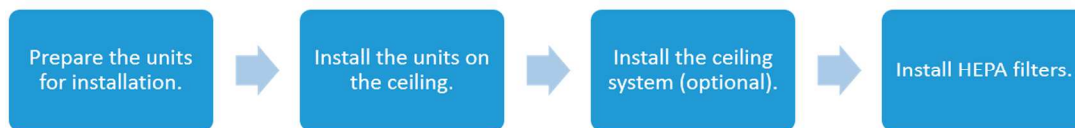
For filter technical data see the [Filters](#) chapter in the technical reference data section.

3 Installation

3.1 Before you start

3.1.1 Installation process

The installation of the Halton Vita VSN unit is carried out in the following order:



3.2 Step by step instructions

3.2.1 Preparing Halton Vita VSN for installation

This procedure shows how to prepare the Halton Vita VSN supply air units for installation.

Procedure

1. Unpack the modules and check their condition.
2. Check that all the parts are present:
 - The dimensions drawing for the rod location
 - Four fastening struts for each module
 - Eight M8 bolts for fastening struts for each module
 - Ten M6 bolts and nuts for each junction connection (10 per each unit)
 - Fixing material for duct connections
 - VSN/A
 - 16 pcs self drilling screws
 - VSN/B and VSN/C
 - 10 pcs M6 x 16mm bolts
 - Filter brackets

3. Detach the front panels and store them in a safe and clean place for the duration of the unit installation.

NOTE: See [Removing the Halton Vita VSN front panels](#).

4. Install the fastening struts in their proper positions with the provided M8 bolts.
5. Install duct connections (optional).

Duct connections can be installed to the units in two ways:

- before mounting, on the ground
- after mounting, up in the ceiling

The choice of the method depends on which way is the easiest on site.

NOTE: See step 6 in [Installing Halton Vita VSN for Halton Vita OR Space 5](#) or step 3 in [Installing Halton Vita VSN for Halton Vita OR Space 7](#).

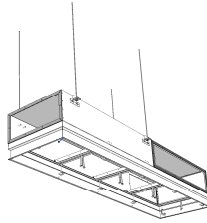
6. Determine the correct location in the ceiling of:
 - a. the unit
 - b. the rods
7. Mark the correct location on the ceiling.

3.2.2 Installing Halton Vita VSN for Halton Vita OR Space 5

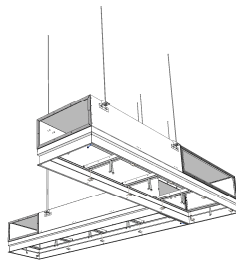
This procedure shows how to install the Halton Vita VSN supply air units on the ceiling.

Procedure

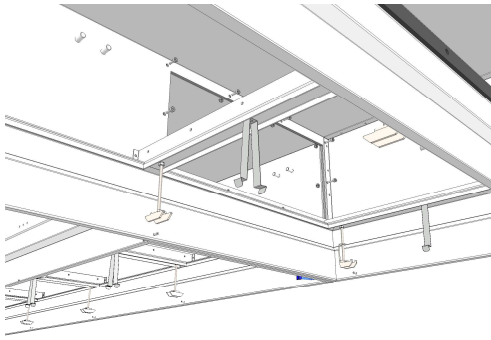
1. Install the first module.
 - a. Install the rods intended for hanging the module from the ceiling.
 - b. Lift the module with a panel lifter or similar.
 - c. Attach the module to the rods by two nuts and two washers: one of each above and one of each below the strut in order to secure the installation.
 - d. Adjust the module height to the desired height.



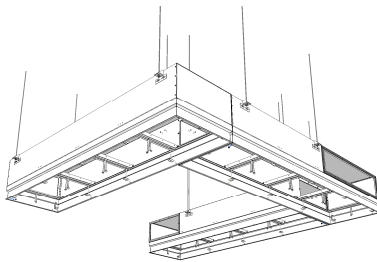
2. Install the second module in the same manner as the first one.



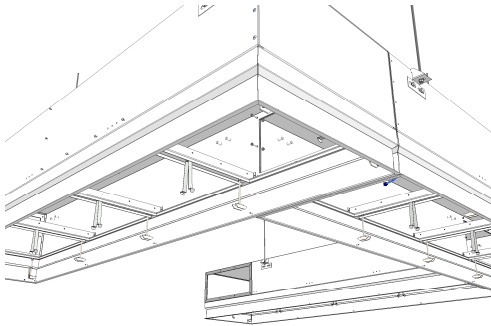
3. Fasten two modules together with M6 type hexagon bolts.



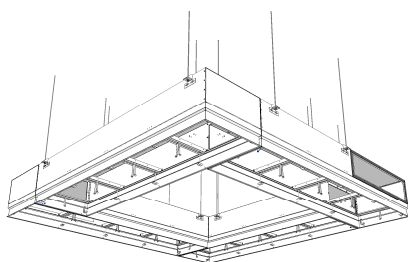
4. Install the third module in the same manner as previous ones.



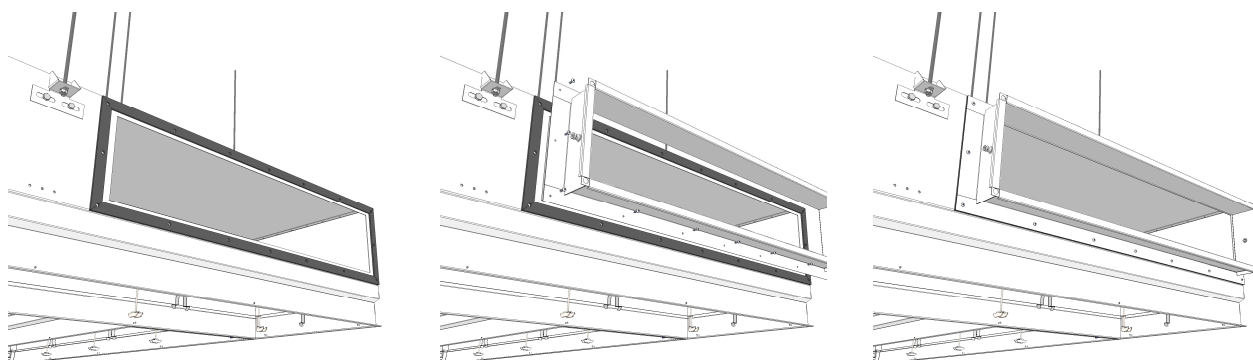
5. Fasten the modules with M6 type hexagon bolts.



6. Install the fourth module and fasten the modules with M6 type hexagon bolts.

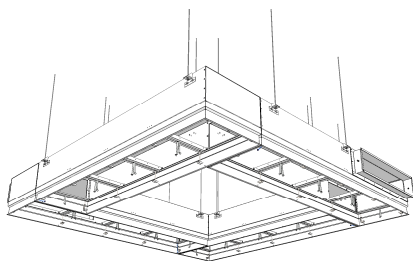


7. Install duct connections.



NOTE: This step can be omitted, if you have installed duct connections beforehand, on the ground.

8. Check the position of the construction and adjust if needed.
9. Check the height and level of the complete installation and adjust if needed.
10. Lock the height by tightening nuts from above the struts.
11. Make sure that bolts are evenly tightened at junctions.



12. Install the HEPA filters for each module and test them for leaks.

NOTE: See [Installing the HEPA filters](#).

NOTE: If filters are to be installed later, attach front panels and protect the unit from dust by using, for example, a plastic sheet.

13. Install the front panels.

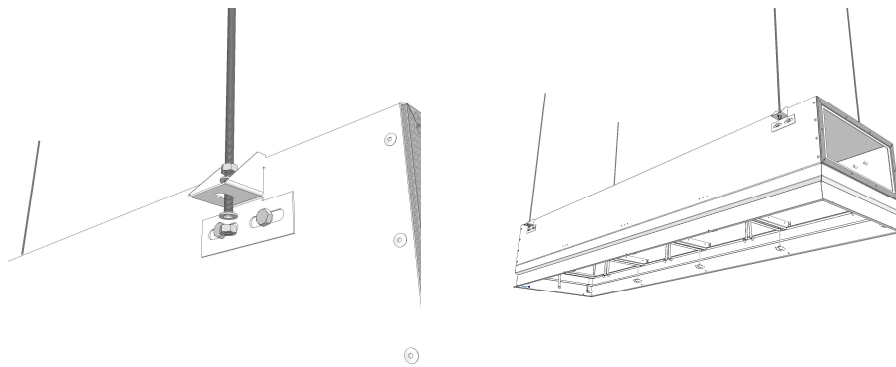
NOTE: See [Installing Halton Vita VSN front panels](#).

3.2.3 Installing Halton Vita VSN for Halton Vita OR Space 7

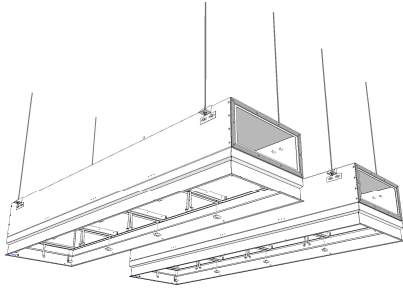
This procedure shows how to install the Halton Vita VSN air supply units on the ceiling.

Procedure

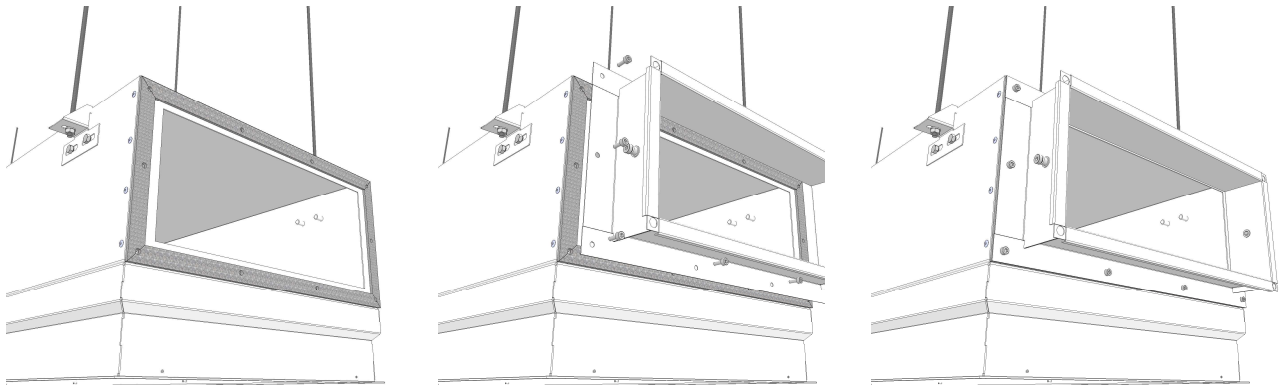
1. Install the first module.
 - a. Install the rods intended for hanging the module from the ceiling.
 - b. Lift the module with a panel lifter or similar.
 - c. Attach the module to the rods by two nuts and two washers: one of each above and one of each below the strut in order to secure the installation.
 - d. Adjust the module height to the desired height.



2. Install the second module in the same manner as the first one. The distance between the modules should be 1200...2400 mm.



3. Install duct connections with M6 x 16mm bolts.



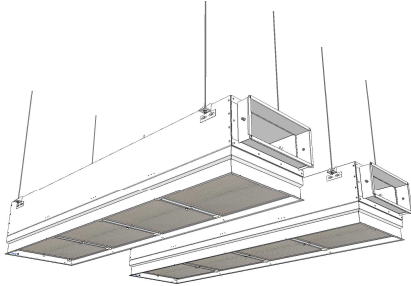
NOTE: This step can be omitted, if you have installed duct connections beforehand, on the ground.

4. Check the position of the construction and adjust if needed.
5. Check the height and level of the complete installation and adjust if needed.
6. Lock the height by tightening nuts from above the struts.

7. Install the HEPA filters for each module and test them for leaks.

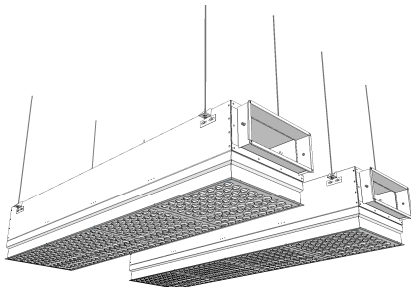
NOTE: See [Installing the HEPA filters](#).

NOTE: If filters will be installed later, attach front panels and protect the unit from dust by using, for example, a plastic sheet.



8. Install the front panels.

NOTE: See [Installing Halton Vita VSN front panels](#).



3.2.4 Installing the ceiling system

This installation step is optional. The supply and installation of a ceiling system is the responsibility of the customer.

The Halton Vita VSN supply air unit is compatible with the T24 T-bar false ceiling systems.

The T-bar runners are installed below the device. The unit is designed to fit in the standard size of the false ceiling grid.

NOTE: For the design of Halton Vita VSN units that are compatible with a different false ceiling system, contact Halton Sales.

Install the main runners parallel to the unit. The runners can be slid in the gap between the modules for a uniform installation. Main runners must have a groove distance that is divisible by 100 mm to support this method, in order to have grid dimensions that match the unit dimensions.

3.2.5 Installing the HEPA filters

Before you start

Make sure that:

- All the site works that produces dust and dirt are completed.
- All non-essential items are removed from the operating room.
- The operating room is clean.
- The ventilation system is tested.
- The amount of air and temperature regulation is tested.
- The air channels are cleaned or properly flushed.



CAUTION!

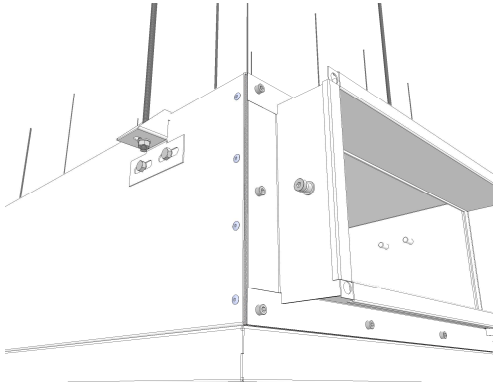
Use extreme caution while fitting the filters. Installation of the filters should be performed by trained personnel. The slightest damage to the filter medium can result in a leaking filter.

Procedure

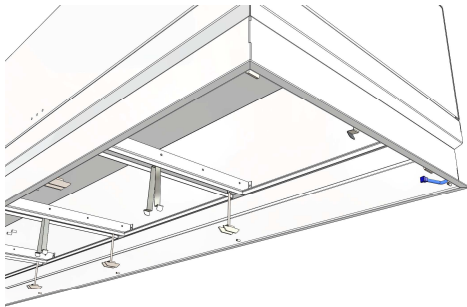
1. Check that challenge ports can be located for the filter leakage test.

Every standard duct connection in Halton Vita VSN has two upstream aerosol challenge measuring ports. This allows you to measure of the aerosol concentration and to verify that the mixing is homogenous.

Make sure that the upstream challenge injection port is located far enough. The position has to allow mixing of test particles within the air duct. When injecting the test aerosol, ensure that the concentration of the test aerosol is even across the back of the whole filter.



2. Remove possible dust protection and front panels.



NOTE: See [Removing the Halton Vita VSN front panels](#) for detailed instructions.

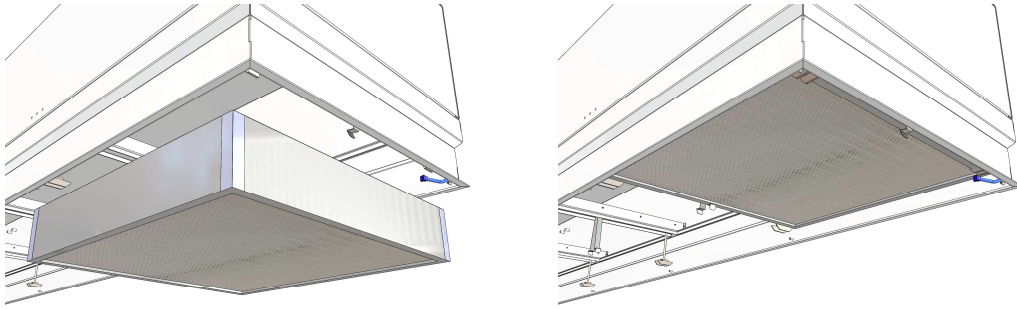


CAUTION!

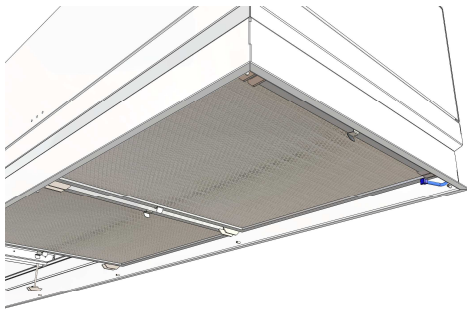
Store the front panels in a safe and clean place during the HEPA filters installation.

3. Remove the filter brackets and clean the interior surfaces and frame components with a disinfectant.

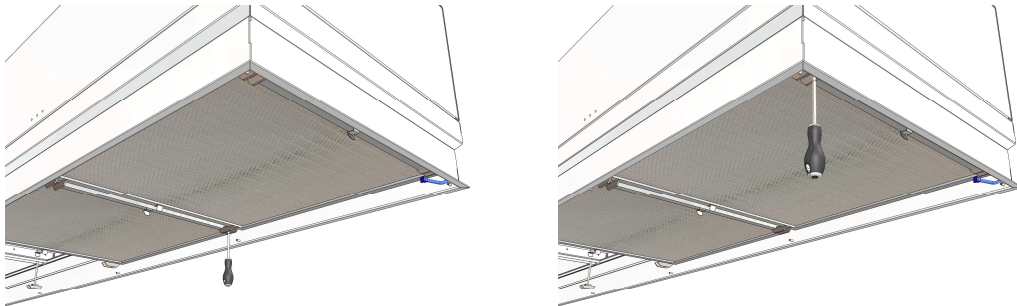
4. Fit the filter inside the module.



5. Fit the rest of the filters in the same manner as the first one.



6. Secure the filters with the filter brackets.

**CAUTION!**

While tightening the filter brackets, take care not to damage the threads.

What to do next

- After installing the HEPA filters, do not switch off the fan to protect the filter underside from dirt and dust accumulation.
- Perform an installed filter system leakage test according to the ISO 14644-3 Cleanrooms and associated controlled environments standard.

3.2.6 Installing Halton Vita VSN front panels

Procedure

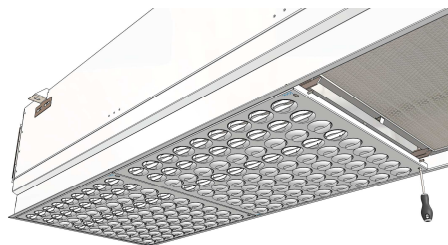
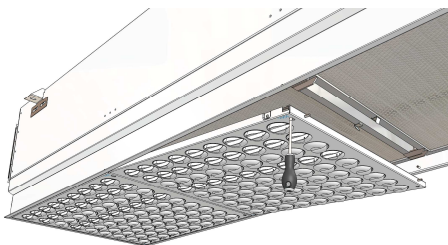
1. Starting from the outside corner of the unit, fit the front panel inside the module.



2. Push-in the front panel using the tool. There are two openings on the side of the front panel.



3. Install the rest of the front panels in the same manner as the first one.



4 Maintenance

4.1 Maintenance schedule

The required servicing tasks include filter change and cleaning the unit. Determining the cleaning frequency is the responsibility of the customer.

To ensure that air quality meets the requirements check the HEPA filter in regular time intervals and replace the filter when necessary. The servicing frequency of a filter depends on the air cleanliness of the supply air and room air. Replace the filter immediately if:

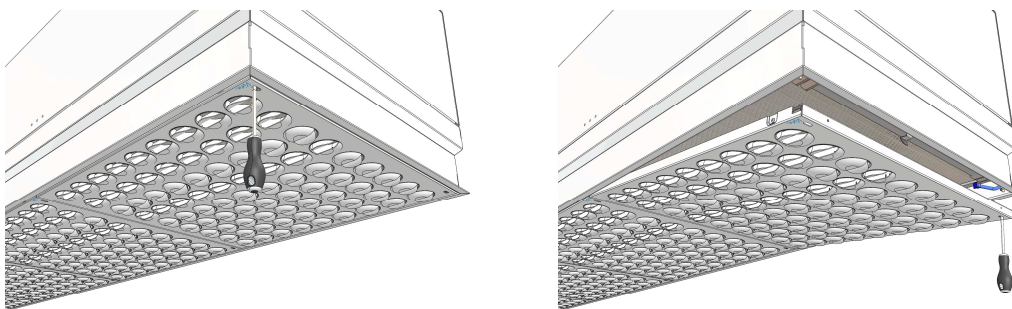
- the final differential pressure has been reached
- filters have been contaminated, or there is visible growth on the filter media
- the particle count has been exceeded (filter is damaged)

4.2 Step by step instructions

4.2.1 Removing the Halton Vita VSN front panels

Procedure

1. Starting from the outside corner of the unit, open the front panel. There are two openings on the side of the front panel. Pushing and release with the tool.



2. Remove the first front panel.



3. Remove the rest of the front panels, in the same manner as the first one.



4.2.2 Cleaning Halton Vita VSN

Clean the unit with alcohol based disinfectants.



CAUTION!

Do not wet the filters. Dampening the filter media will permanently decrease the filter efficiency.

The front panel can be detached and cleaned in the pre autoclave washing machine (<95°C).

NOTE: See [Removing the Halton Vita VSN front panels](#) for detailed instructions.

Lockable nozzles ensure that nozzles setting is not changed during cleaning.

4.2.3 Changing the HEPA filters

Before you start

- Switch off the air conditioning system, or close the shut-off damper (if any).
- Wear protective equipment.

Procedure

1. Remove the front panel.

NOTE: See [Removing the Halton Vita VSN front panels](#).

2. Detach the filter brackets.

3. Support filter and press the filter springs to loosen the filter.



CAUTION!

Risk of injury from a falling filter!

4. Remove the filter from the casing.
5. Dispose the contaminated filter.

Filters and cleaning materials that have been contaminated with bacterial, toxic or radio active particles are considered hazardous waste and have to be disposed in compliance with local regulations.

6. Wipe the surface of the diffuser with a disinfectant.

NOTE: See [Cleaning Halton Vita VSN](#).

7. Install the HEPA filter.

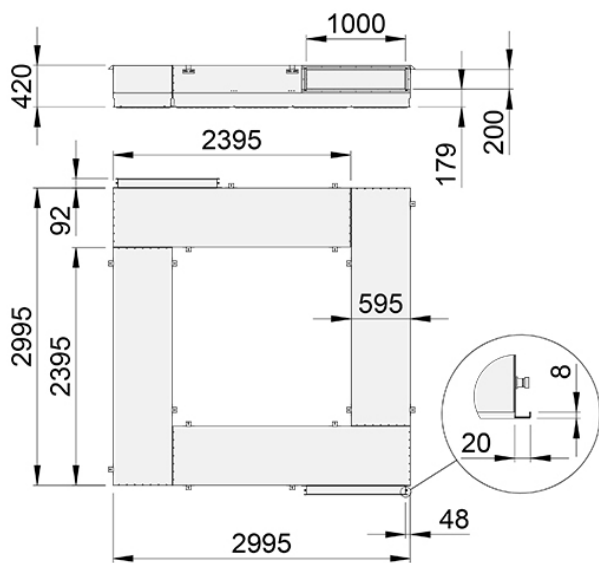
NOTE: See [Installing the HEPA filters](#).

5 Technical reference data

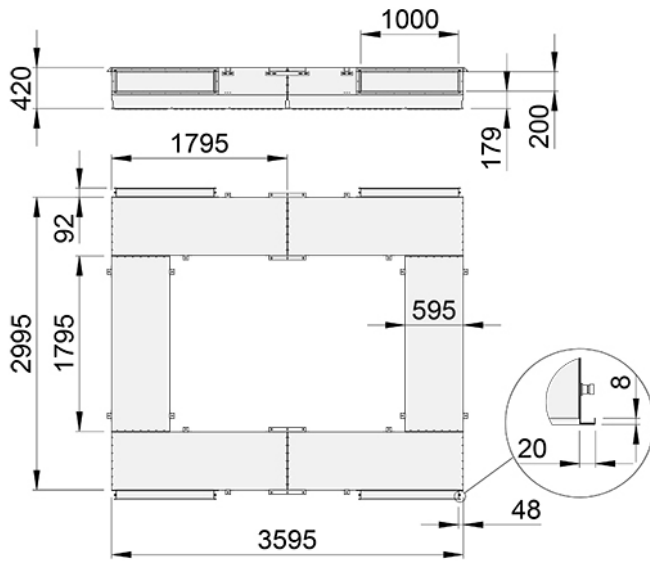
5.1 Dimensions and weight

Halton Vita VSN/A (Halton Vita OR Space 5)

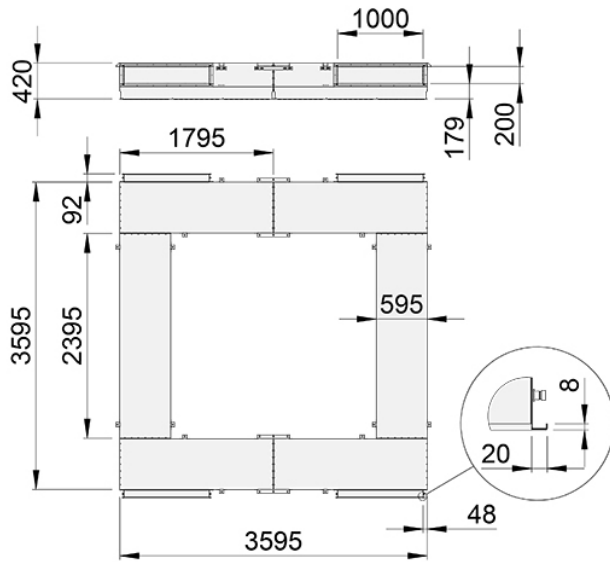
Halton Vita VSN/A for Halton Vita OR Space 5 consists of 4-8 modules forming a square or rectangular ring.



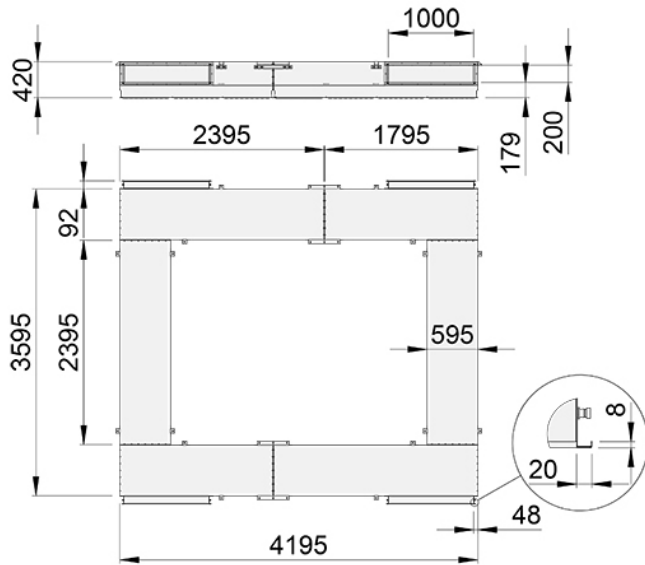
Halton Vita VSN/A, 3000x3000



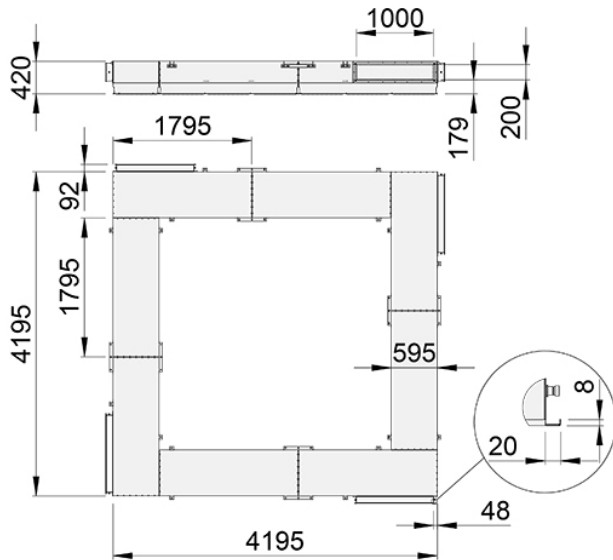
Halton Vita VSN/A, 3600x3000



Halton Vita VSN/A, 3600x3600



Halton Vita VSN/A, 4200x3600

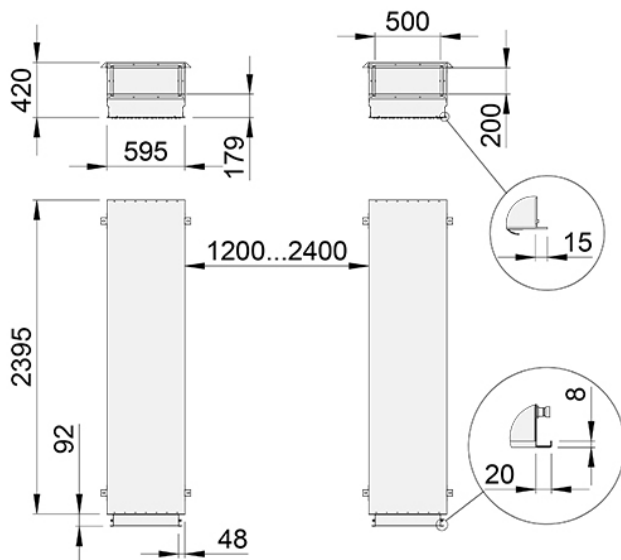


Halton Vita VSN/A, 4200x4200

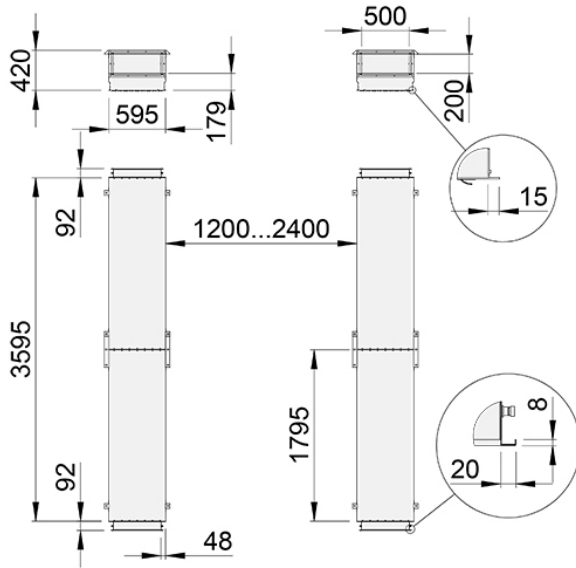
NS	Weight (kg)
3000x3000	165
3600x3000	204
3600x3600	221
4200x3600	237
4200x4200	271

Halton Vita VSN/B (Halton Vita OR Space 7)

Halton Vita VSN/B for Halton Vita OR Space 7 consists of 2 parallel units. The parallel units consist of 1 or 2 modules. The distance ($S=1200\dots2400$) between the parallel units is specified separately for each project.



Halton Vita VSN/B, 2400x600

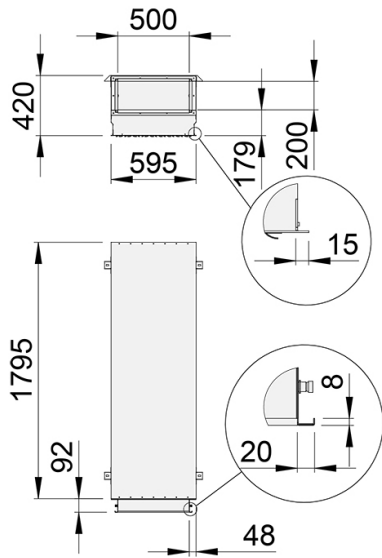


Halton Vita VSN/B, 3600x600

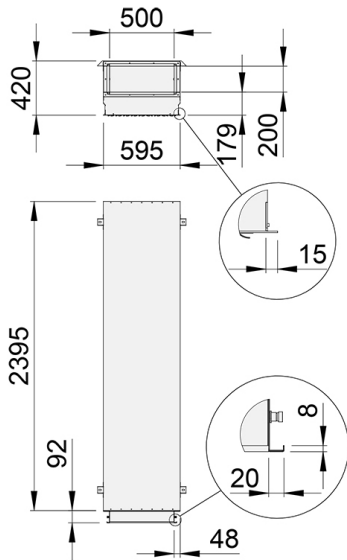
NS	Weight (kg)
2400x600	84
3600x600	130

Halton Vita VSN/C

The Halton Vita VSN supply air module is available as a spare part (VSN/C) for Halton Vita OR Space supply air units.



Halton Vita VSN/C, 1800x600



Halton Vita VSN/C, 2400x600

NS	Weight (kg)
1800x600	32.5
2400x600	42

5.2 Filters



Description

High efficiency particulate air (HEPA) filters are widely applied in cleanrooms where high air quality standards are essential.

Performance data of HEPA filters

Filter compatible with Halton VSN is available in class H14 (European Standard EN 1822-1:2009) with gel gasket.

Operating range:

- Temperature max. 70 °C
- Humidity max. 90 %
- Final pressure drop max. 500 Pa

Dimensions WxHxD (mm)	Weight (kg)	Filter class	Order code
557x557x102	5.3	H14	AF-H14-AL-557*557*102-GEL