# Halton Vita VHT, HEPA diffuser - Technical description

# Contents

# 1 Introduction

## 1.1 Copyright and disclaimers

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## 1.2 About this document

The purpose of this document is to give technical information and design examples for salespersons, technical support and designers.

## 1.3 Summary of changes

| Release | Date | Description |
|---|---|---|
| 2.0 | 20-Feb-2026 | ▪ Updated all images (Overview, operating principle, product models, structure & materials and dimensions & weight)<br>▪ Updated chapters (Overview, operating principle, product models, Filters, specification, installation and order code)<br>▪ Updated dimension tables<br>▪ Updated order code (J=Jet type and FT=fitting type/bracket height, MA=Material, FG=Filter gasket type)<br>▪ Renamed couple of titles (Function=Operating principle, Servicing = Maintenance)<br>▪ Other minor corrections and updates |
| 1.2 | 03.12.2024 | Release for Swedish translations |
| 1.1 | 23.05.2024 | Added % gloss for colour codes |
| 1.0 | 25.11.2021 | First approved version |

# 2 Product description

## 2.1 Overview


Halton Vita VHT is a diffuser that is dedicated for hospitals and cleanrooms. It is suitable to install flush with the ceiling. The diffuser is connected to a supply air duct, and air is supplied to a space through an air filter and adjustable nozzles.

The diffuser is also available with a fully-perforated front plate for vertical air supply or exhaust. The diffuser is designed to be equipped with a HEPA filter with a frothed polyurethane gasket (PUR) gasket or a polyurethane gel gasket (GEL) as an alternative.

Halton Vita VHT is available in three sizes with two different types of duct connection.

### Applications

- Cleanrooms in hospitals and laboratories
- Suitable for supply and exhaust ventilation
- Can be installed flush with the ceiling

### Key features

- Radial, swirl or low turbulent flow pattern
- Air supply through adjustable nozzles or perforated front panel
- Lockable nozzles that allow easy cleaning without changing the nozzles setting
- E10, H13 and H14 class standard and high airflow HEPA filters available
- Antibacterial epoxy-polyester powder paint finishing to prevent microbial growth
- Easy filter change through the front panel
- Test probe for measuring the filter pressure loss
- Test probe for measuring particle concentration above the filter
- Pressure difference transmitter to inform the user when to change the filter (optional).

## 2.2 Operating principle

Halton HEPA diffuser can be used both to supply and exhaust air.

The diffuser supplies the filtered air into the space. Adjustable nozzles allow the creation of the desired airflow pattern. Nozzles can be adjusted in 15-degrees intervals.

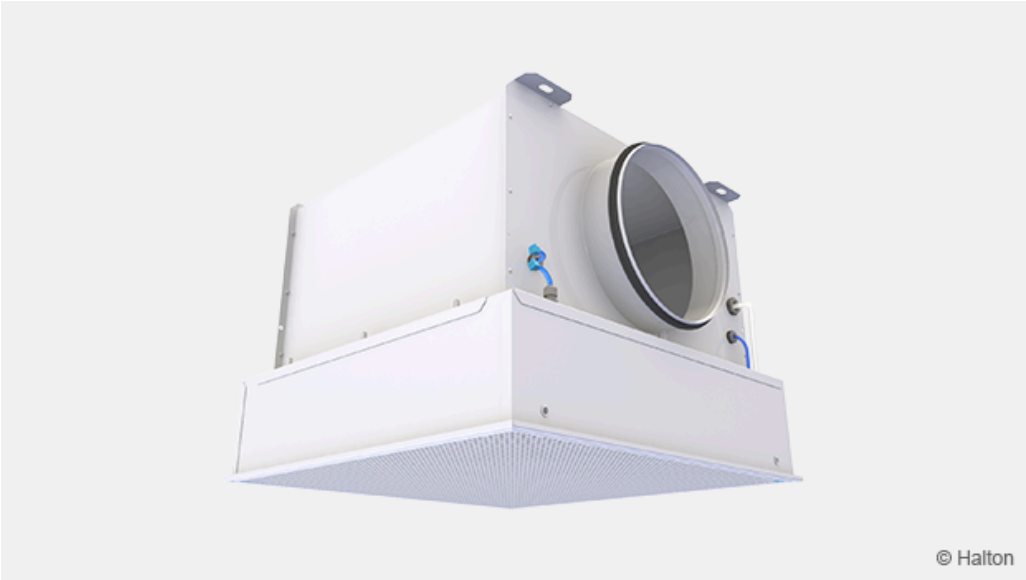

In the case of exhaust application, the air is exhausted through the diffusers perforated front panel.

## 2.3 Product models

The Halton Vita VHT is available in two models.

The models differ in the front panel type. The available options are:

**Diffuser with perforated fron panel (for air supply and exhaust)**




**Diffuser with nozzle front panel (for air supply)**


Other options

**Diffuser with optional pressure difference transmitter**


**Note:** The diffuser can be delivered with or without the front panel. Delivering the front panel later is recommended in case of a lengthy break between diffuser's installation and commissioning.

Other product options include:

- Three physical sizes: 300 x 600 mm, 600 x 600 mm and 1200 x 600 mm
- Two filter options: Frothed polyurethane gasket (PUR) or polyurethane gel gasket (GEL)
- Two optional duct connection location: top or side
- Several duct connection size

## 2.4 Quick selection

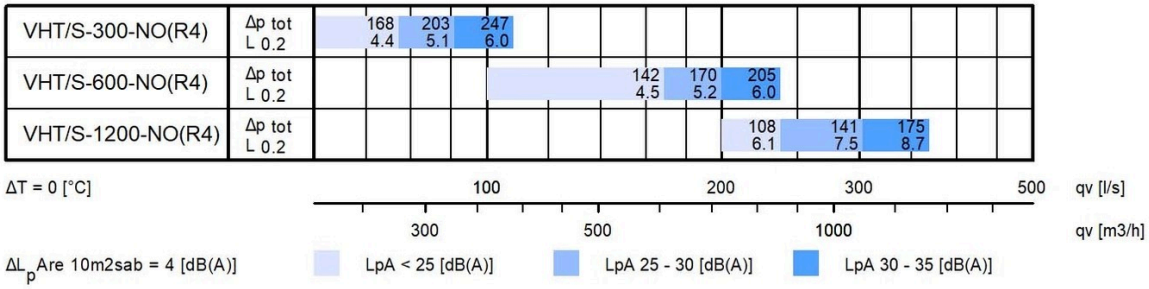



*Fig. 1. Halton Vita VHT radial jet 4 directions, supply diffuser with H14 (height 90mm) foam gasket*

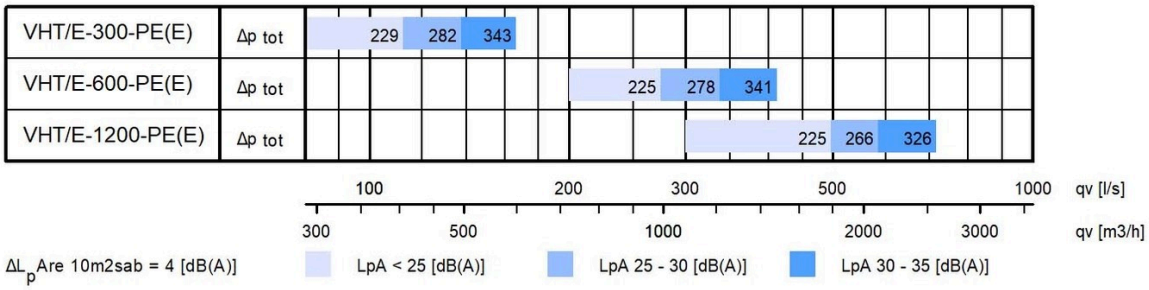
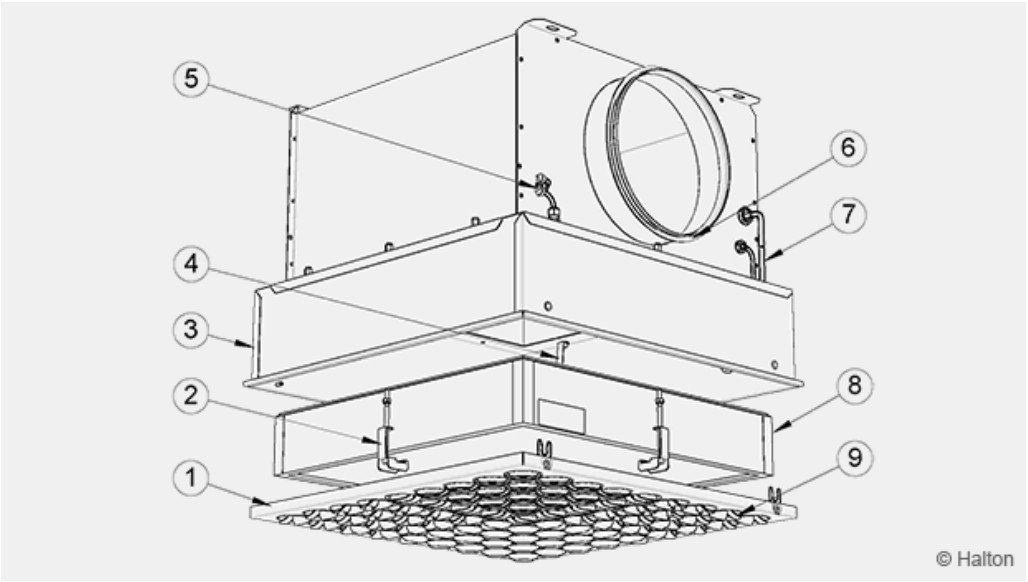



*Fig. 2. Halton Vita VHT, exhaust*

## 2.5 Structure and materials




| No. | Part | Description | Note |
|---|---|---|---|
| 1 | Front panel | Steel with epoxy polyester powder paint, white (RAL 9003/30%) finishing | Antimicrobial epoxy polyester powder paint, white (RAL 9003/30%) and special colours available on request |
| 2 | Filter brackets | Acid proof steel | - |
| 3 | Casing | Steel with epoxy polyester powder paint, white (RAL 9003/30%) finishing | Antimicrobial epoxy polyester powder paint, white (RAL 9003/30%) and special colours available on request. |
| 4 | Filter springs | Stainless steel | - |
| 5 | Pressure measurement ports | Polyurethane | - |
| 6 | Duct seal gasket | Rubber | - |
| 7 | Test probes | PVC hoses | - |
| 8 | Filter | Fibreglass paper, aluminium frame and PUR gasket | - |
| 9 | Nozzles | Polyacetal (POM) | White and blue, also grey and black available |

## 2.6 Dimensions and weight

Halton Vita VHT is available in three sizes (600 x 300, 600 x 600, 1200 x 600). The possibilities of duct connection type and size are listed in the tables.

The dimensions are given in millimeter [mm].

**Halton Vita VHT 600 x 300**

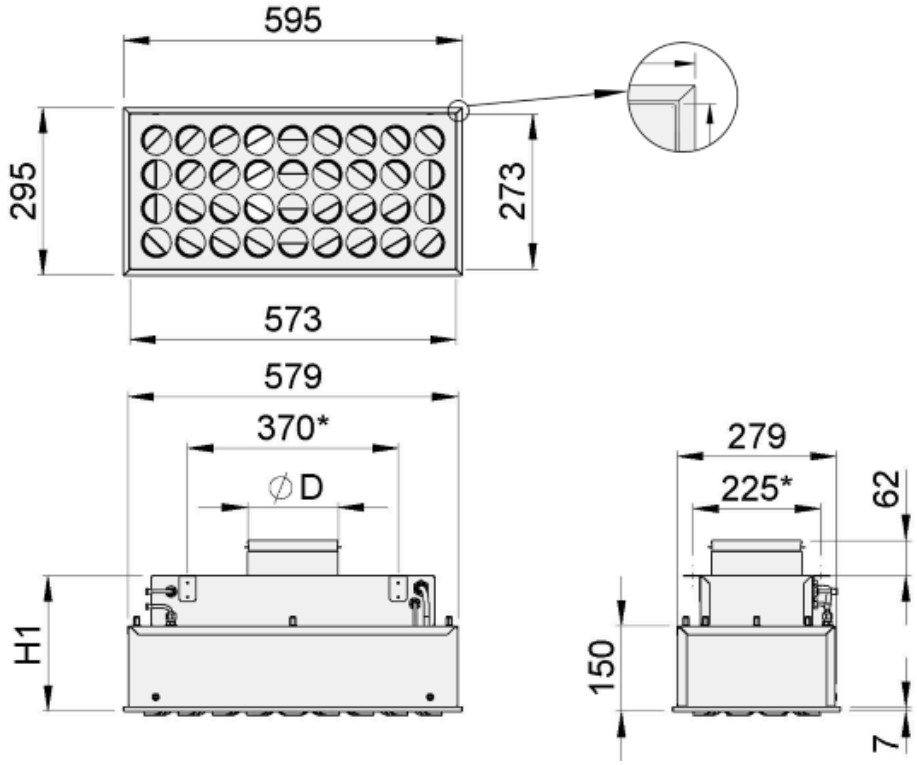



*Fig. 3. Halton Vita VHT with top circular duct connection*

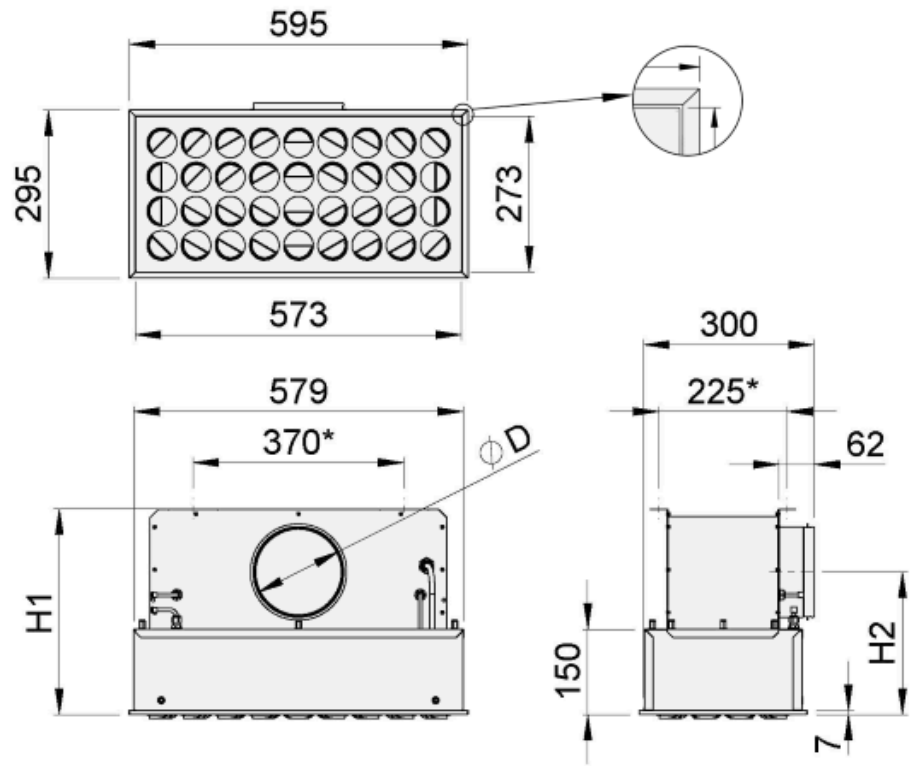



*Fig. 4. Halton Vita VHT with side circular duct connection*

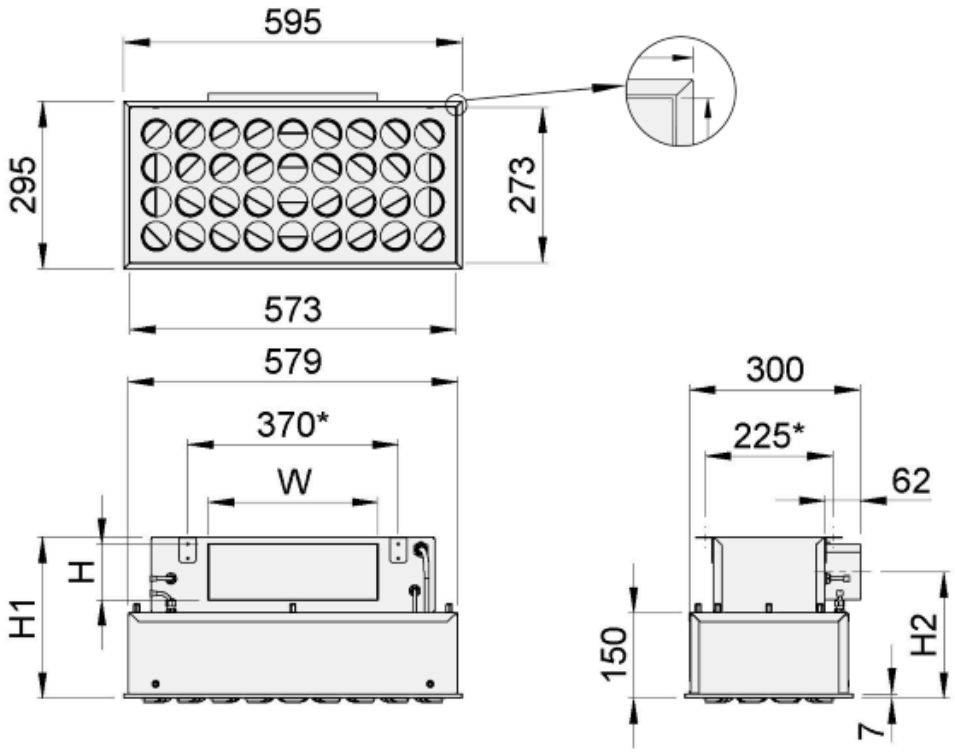



*Fig. 5. Halton Vita VHT with side rectangular duct connection*

| Duct connection location | ØD | W | H | H1 | H2 | Weight [kg] |
|---|---|---|---|---|---|---|
| Top | 159 | - | - | 238 | - | 5.3 |
| Side | 159 | - | - | 361 | 280 | 6.3 |
| Side | 199 | - | - | 401 | 270 | 6.6 |
| Side | - | 298 | 98 | 283 | 222 | 5.8 |

Halton Vita VHT 600 x 600

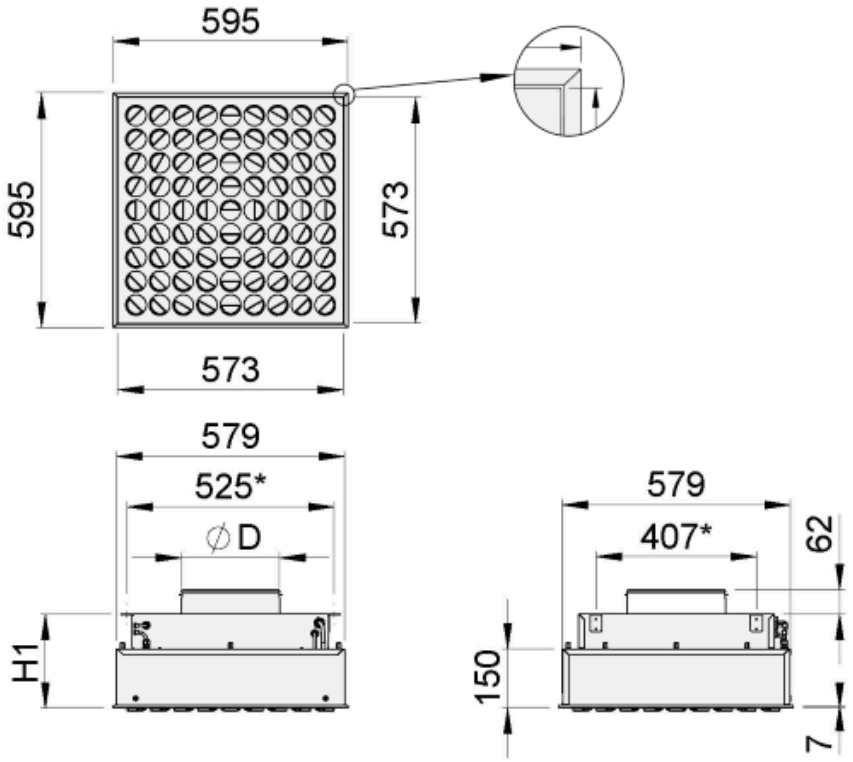



*Fig. 6. Halton Vita VHT with top circular duct connection*

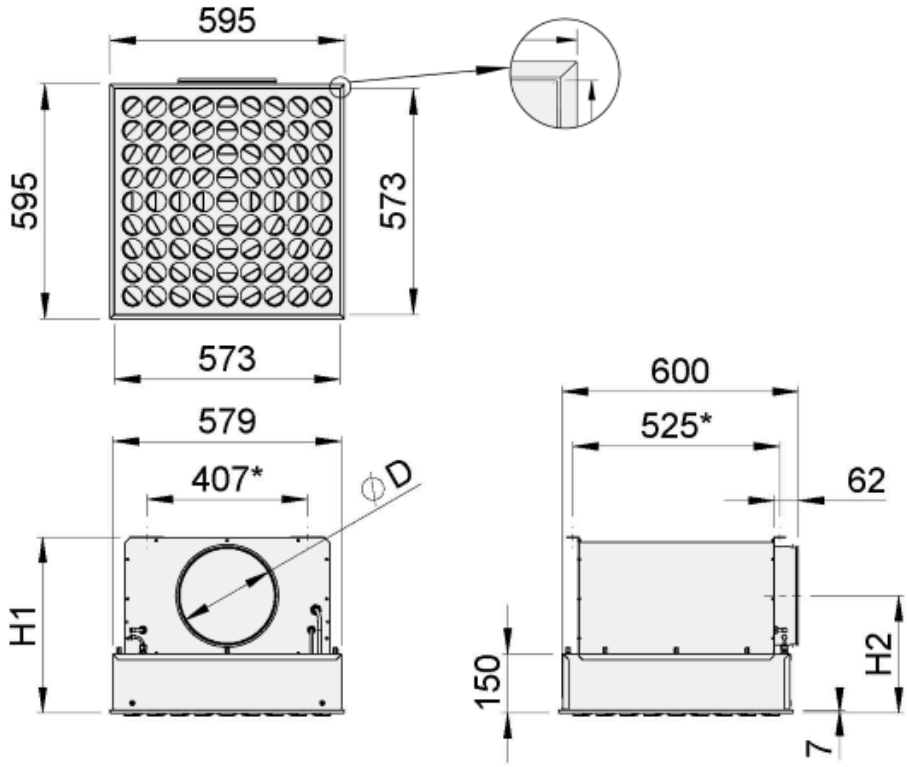



*Fig. 7. Halton Vita VHT with side circular duct connection*

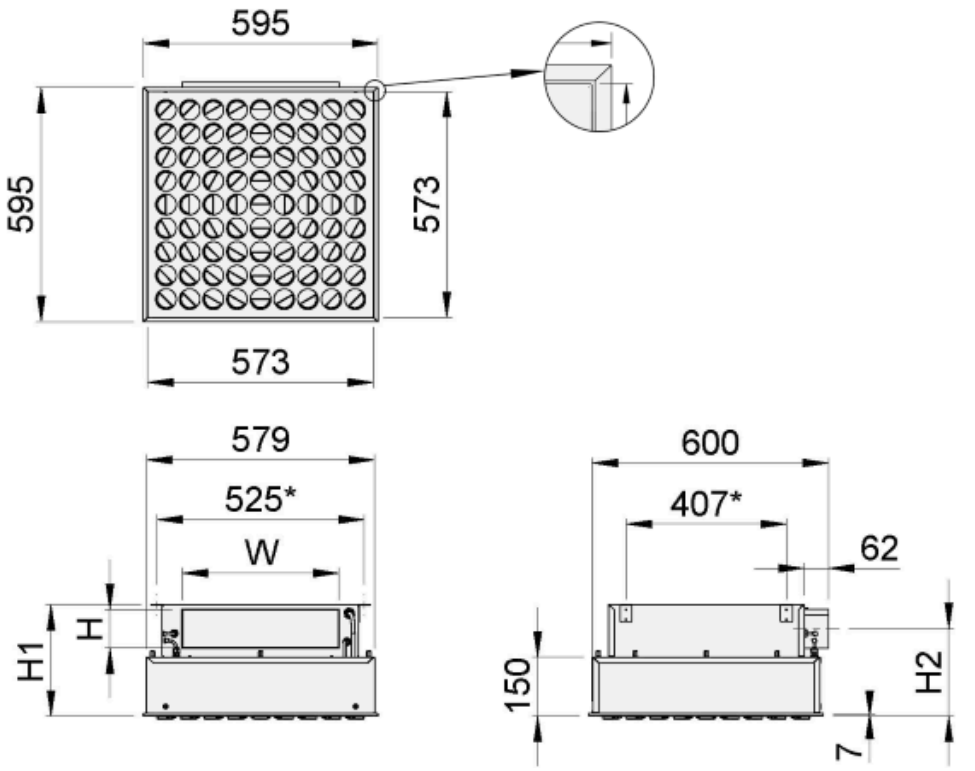



*Fig. 8. Halton Vita VHT with side rectangular duct connection*

| Duct connection location | ØD | W | H | H1 | H2 | Weight [kg] |
|---|---|---|---|---|---|---|
| Top | 249 | - | - | 238 | - | 8 |
| Top | 314 | - | - | 238 | - | 8 |
| Side | 249 | - | - | 446 | 297 | 10.5 |
| Side | 314 | - | - | 511 | 330 | 11.2 |
| Side | - | 398 | 98 | 283 | 222 | 8.9 |
| Side | - | 398 | 148 | 346 | 247 | 9.7 |

Halton Vita VHT 1200 x 600

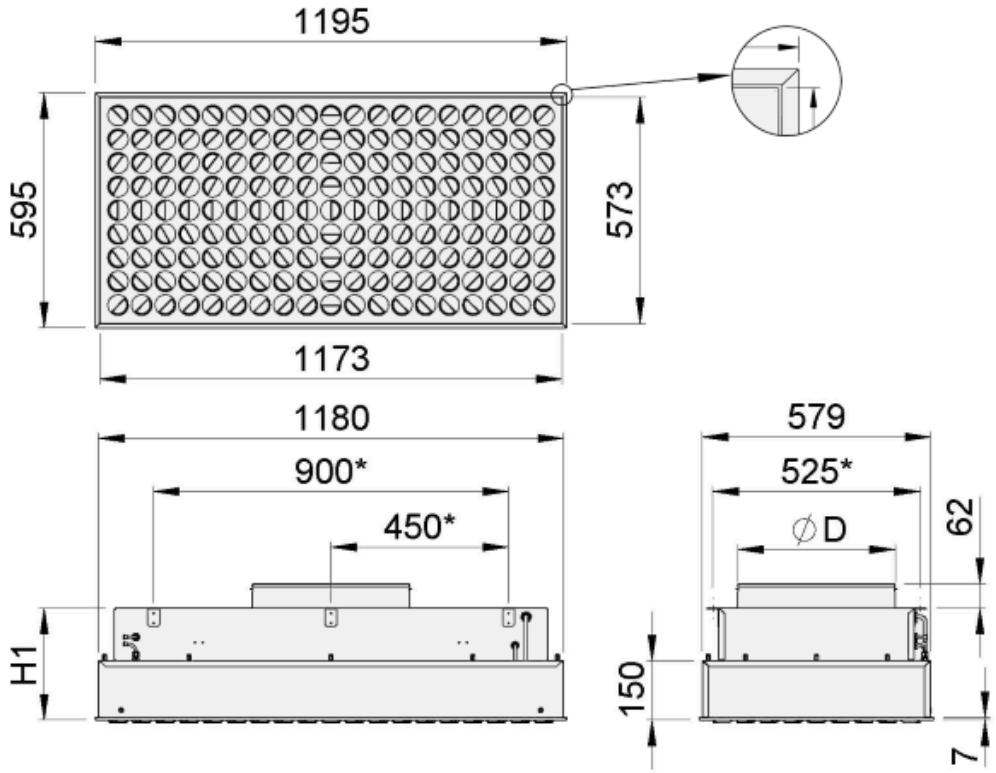



*Fig. 9. Halton Vita VHT with top circular duct connection*

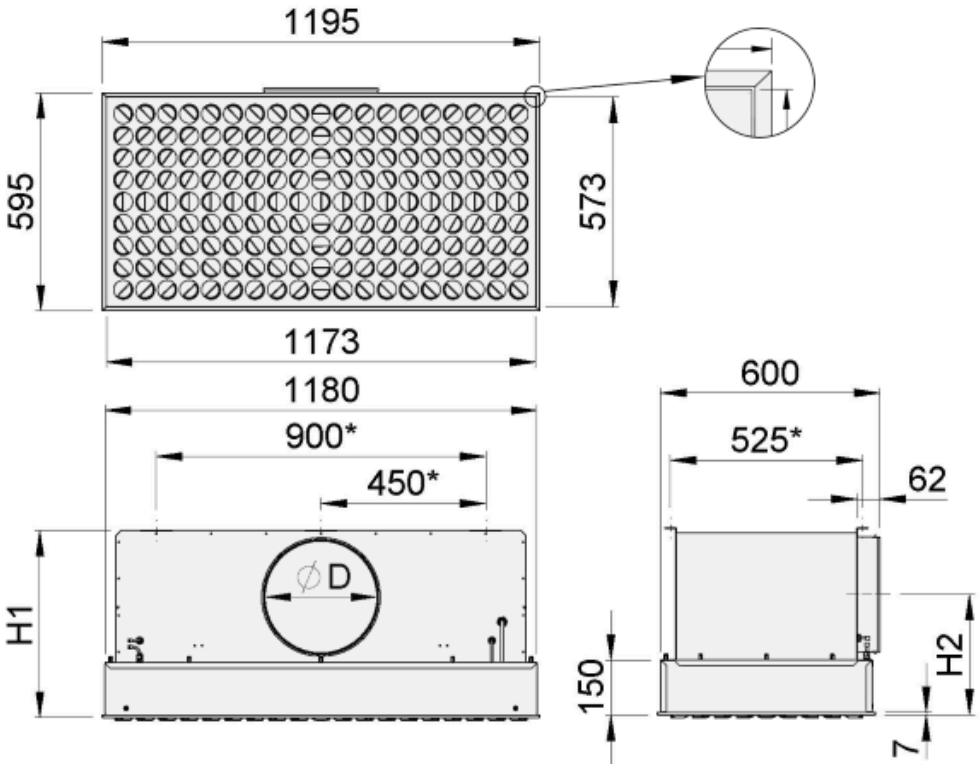



*Fig. 10. Halton Vita VHT with side circular duct connection*

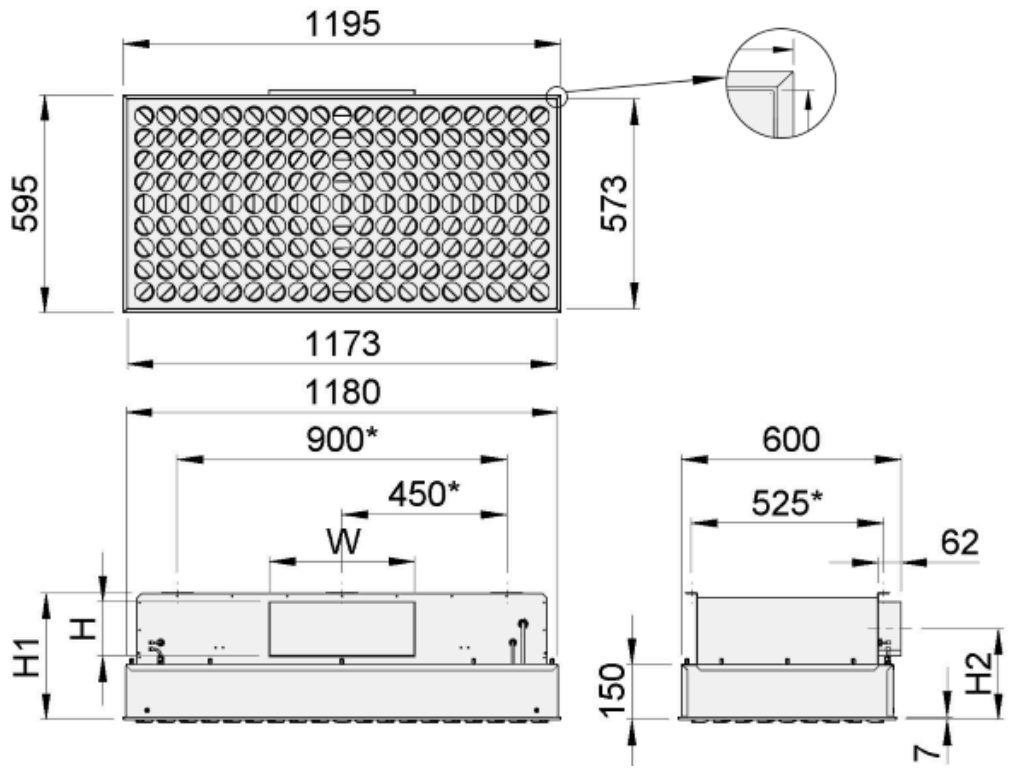



*Fig. 11. Halton Vita VHT with side rectangular duct connection*

| Duct connection location | ØD | W | H | H1 | H2 | Weight [kg] |
|---|---|---|---|---|---|---|
| Top | 314 | - | - | 283 | - | 17.8 |
| Top | 399 | - | - | 283 | - | 17.6 |
| Side | 314 | - | - | 511 | 330 | 22.2 |
| Side | 399 | - | - | 596 | 372 | 23.7 |
| Side | - | 398 | 148 | 346 | 247 | 19.5 |
| Side | - | 598 | 198 | 396 | 272 | 20.4 |

## 2.7 Filters


The HEPA (High Efficiency Particulate Air) and efficient particulate air (EPA) filters are designed for high-performance air purification applications that require the removal of fine particulate contaminants. The filter features a rigid aluminium housing and high-quality glass-fibre filter media, suitable for cleanrooms, laboratories, and healthcare environments.

| Standard | Classification | Efficiency |
|---|---|---|
| EN 1822:2019 | H14 | ≥ 99.995% at MPPS |
| ISO 29463 | ISO 45 H | 99.995% at MPPS |

| Dimensions W x H x D [mm] | Filter class | Weight (kg) | Order code |
|---|---|---|---|
| 225 x 525 x 68 | H14, H13, E10 | 2.5 | AF-H14/H13/E10-AL-225*525*68-PUR |
| 225 x 525 x 90 | H14, H13, E10 | 2.8 | AF-H14/H13/E10-AL-225*525*90-PUR |
| 225 x 525 x 102 | H14 | 2.8 | AF-H14-AL-225*525*102-GEL |
| 225 x 525 x 110 | H14 | 2.9 | AF-H14-AL-225*525*110-PUR |
| 525 x 525 x 68 | H14, H13, E10 | 3.1 | AF-H14/H13/E10-AL-525*525*68-PUR |
| 525 x 525 x 90 | H14, H13, E10 | 3.2 | AF-H14/H13/E10-AL-525*525*90-PUR |
| 525 x 525 x 102 | H14 | 3.3 | AF-H14-AL-525*525*102-GEL |
| 525 x 525 x 110 | H14 | 3.3 | AF-H14-AL-525*525*110-PUR |
| 1125 x 525 x 68 | H14, H13, E10 | 9.5 | AF-H14/H13/E10-AL-1125*525*68-PUR |

| Dimensions W x H x D [mm] | Filter class | Weight (kg) | Order code |
|---|---|---|---|
| 1125 x 525 x 90 | H14, H13, E10 | 9.7 | AF-H14/H13/E10-AL-1125*525*90-PUR |
| 1125 x 525 x 102 | H14 | 9.7 | AF-H14-AL-1125*525*102-GEL |
| 1125 x 525 x 110 | H14 | 9.9 | AF-H14-AL-1125*525*110-PUR |

All filters have a frothed polyurethane gasket (PUR), with a polyurethane gel gasket (GEL) as an alternative.

Operating range:

- Maximum temperature: 70 °C
- Maximum humidity: 90 %
- Final pressure drop: 500 Pa

**Note:** To obtain the correct performance data (dpt and Lp(A)), along with diagrams and CAD export files, for the diffuser with a specific filter, select the desired duct connection location and size, filter class and filter depth under the “Accessories” tab in HIT.

| Filter class / Filter depth | Filter selection code |
|---|---|
| H14 / 68 mm | A1 |
| H14 / 90 mm | A2 |
| H14 / 102 mm | A4 |
| H14 / 110 mm | A3 |
| H13 / 68 mm | B1 |
| H13 / 90 mm | B2 |
| E10 / 68 mm | C1 |
| E10 / 90 mm | C2 |

## 2.8 Specification

Diffuser with HEPA filter for cleanroom application. Creates radial, swirl or low turbulent airflow pattern. Suitable for supply and exhaust ventilation. Possible to install flush to the ceiling.

### Construction

- Air supply through adjustable nozzles or perforated front panel
- Lockable nozzles that ensure that nozzles setting is not changed during cleaning
- A smooth internal surface that enables easy cleaning
- Easy filter change through the front panel
- Test probe for measuring the filter pressure loss and particle concentration before the filter

### Material

- Steel casing and front panel

- Normal or antimicrobial epoxy-polyester powder paint finishing to prevent microbial growth

Accessories

- A HEPA filter with aluminium frame and frothed polyurethane gasket (PUR) or polyurethane gel gasket (GEL) according to EN 1822 with individual test certificate
- Pressure difference transmitter to inform the user when to change the filter (optional).

**Note:** Filter brackets to be ordered separately according to selected filter height.

## 2.9 Order code

VHT-M-A-FP; C-D-MA-CO-IO-DF-FA-FG-FT-PT-ZT

| Main options | |
|---|---|
| M = Model | |
| S | Supply |
| E | Exhaust |
| A = Diffuser size [mm] | |
| 300 | 600 x 300 |
| 600 | 600 x 600 |
| 1200 | 1200 x 600 |
| FP = Front panel | |
| NO | Nozzle |
| PE | Perforated |

| Other options and accessories | |
|---|---|
| C = Location of duct connection | |
| S | Side |
| T | Top |
| D = Duct connection size [mm] | |
| Circular | |
| A | 160 |
| B | 200 |
| C | 250 |
| D | 315 |
| E | 400 |
| Rectangular | |

| Other options and accessories | |
|---|---|
| F | 300 x 100 |
| G | 400 x 100 |
| H | 400 x 150 |
| I | 600 x 200 |
| MA = Material | |
| ST | Steel |
| IO = Installation options for ceiling types | |
| NA | Not assigned |
| DF = Diffuser delivered with front panel | |
| Y | Yes |
| N | No |
| FA = Front panel attached to the unit | |
| Y | Yes |
| N | No |
| FG = Filter gasket type | |
| F | Foam |
| G | Gel |
| FT = Filtering type / bracket height | (filter to be ordered separately) |
| A1 | H14 / 68 mm |
| A2 | H14 / 90 mm |
| A3 | H14 / 110 mm |
| B1 | H13 / 68 mm |
| B2 | H13 / 90 mm |
| C1 | E10 / 68 mm |
| C2 | E10 / 90 mm |
| PT = Differential pressure transmitter | |
| NA | Not assigned |
| P1 | HDP-PE |
| CO = Colour | |
| SA | Signal white (antibacterial, RAL 9003) |
| SW | Signal white (RAL 9003) |

| Other options and accessories | |
|---|---|
| X | Galvannealed steelSpecial colour (RAL xxxx) |
| ZT = Tailored | |
| N | No |
| Y | Yes (ETO) |

**Order code example**

VHT-S-600-NO; C=S, D=G, MA=GE, CO=SW, IO=NA, DF=Y, FA=Y, FG=F, FT=A2, PT=NA, ZT=N

# 3 Design information

## 3.1 Installation

The installation of Halton Vita HEPA diffuser is performed by the ventilation contractor.

The diffuser is connected to the duct by screwing or by riveting. The duct connection spigot is equipped with a seal gasket. The diffuser can be installed flush with the ceiling (hung from the ceiling with M6 drop rods using fixing brackets).

Do not drill any holes into the casing. If the casing has been damaged, unfiltered air may leak.

**Note:** Step-by-step instructions on how to install the diffuser can be found in the Halton Vita HEPA diffuser Installation, commissioning and maintenance guide. To download the guide go to the "Downloads" section.

## 3.2 Commissioning

The nozzles are pre-set in the factory to four directions.

To create the desired airflow pattern adjust the nozzles manually on site. Nozzles can be adjusted in 15 degrees intervals.

**Note:** Step-by-step instructions on how to install the diffuser can be found in the Halton Vita HEPA diffuser Installation, commissioning and maintenance guide. To download the guide go to the "Downloads" section.

## 3.3 Maintenance

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

To ensure that air quality meets the requirements check the HEPA filter in short 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 pre-defined final differential pressure has been reached.
- The filter is damaged.
- Micro-organisms, fungal spores, or odours are present in the filter

Clean the diffuser with disinfectants. The front panel can be detached and cleaned in a washing machine (<95°C). The Patented Lockable nozzle design ensures that the nozzles maintain the set orientation even during machine washing.

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

**Note:** Step-by-step instructions on how to perform servicing can be found in the Halton Vita HEPA diffuser Installation, commissioning and maintenance guide. To download the guide go to the "Downloads" section.