

# Halton Zen Rectangular (ZRE) – Displacement ventilation unit



## Overview

- Capable of a large supply airflow range
- Uniform supply air distribution is achieved through small perforations, providing optimal conditions in the immediate proximity of the diffuser.
- Low velocity air is supplied horizontally at the floor level.
- The unit can also be installed flush with the wall.
- Ceiling installation available as tailored solution. Please contact sales..
- The detachable front panel and metallic internal structure enable cleaning of the unit and ductwork.
- Circular or rectangular duct connections available, with integrated rubber gasket at the top/ bottom, or circular connections on the side or back.

## Product models and accessories

- Optional duct connection locations
- Stainless steel (AISI 316L) design
- Model with thick front panel (1.5 mm)
- Duct cover
- Installation base
- Installation frame

# Selection

## Quick selection

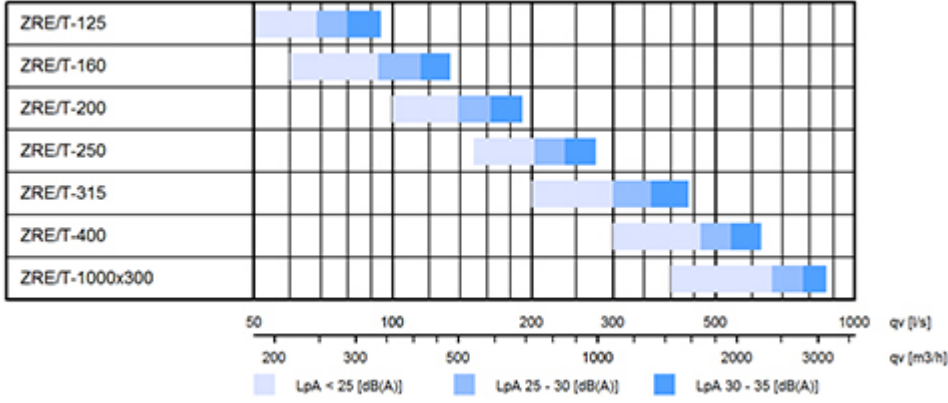


Fig.1. Halton Zen Rectangular, top connection

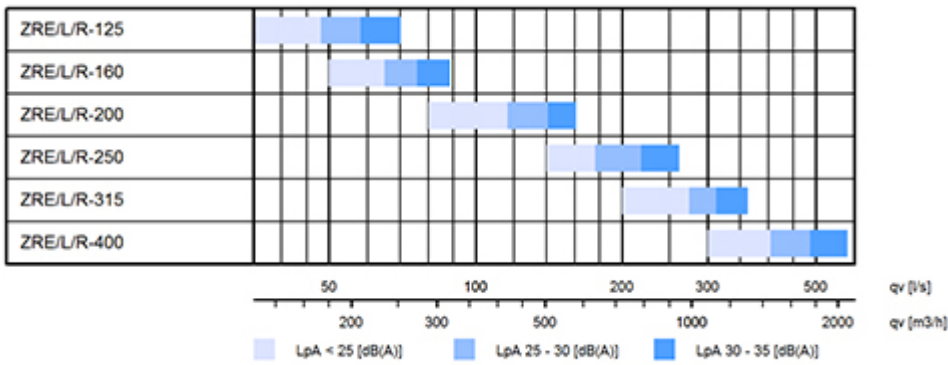


Fig.2. Halton Zen Rectangular, left and right connection

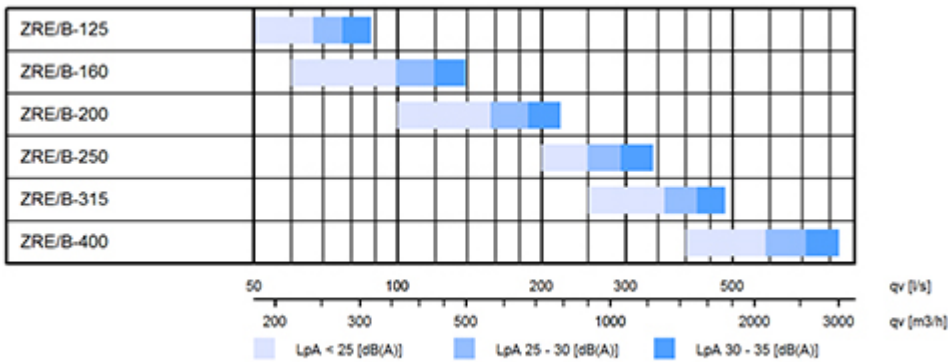
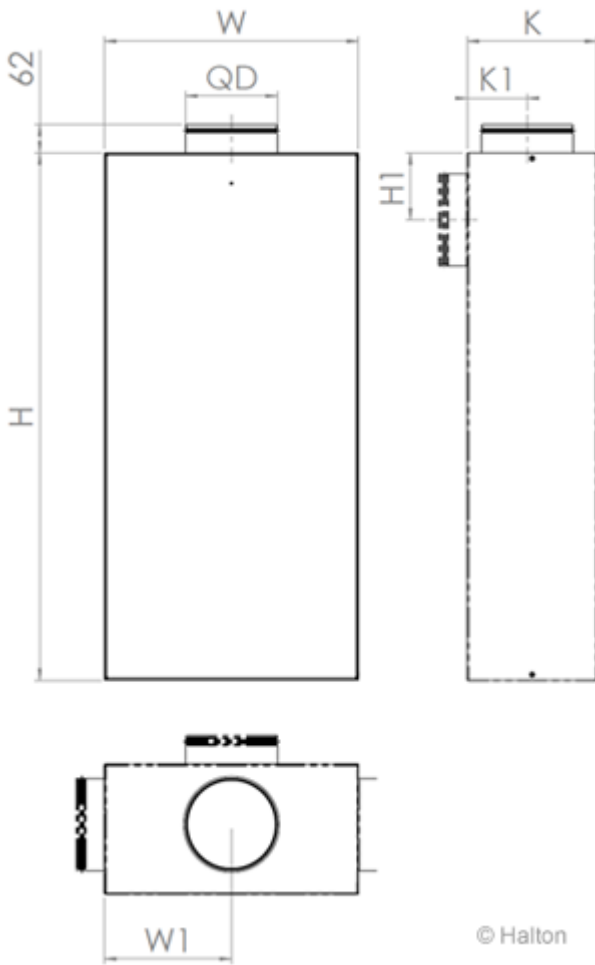


Fig.3. Halton Zen Rectangular, back connection

# Dimensions and weight



NS	W	H	W1	H1	K	K1	ØD
125	550	540	275	125	240	110	124
160	550	540	275	125	240	110	159
200	550	1140	275	145	280	130	199
250	660	1350	330	170	330	155	249
315	830	1600	415	200	400	188	314
400	950	2000	475	245	480	230	399
<sup>*)</sup> 1000×300	1150	2000	575	–	380	180	998×298

<sup>\*)</sup> Size 1000×300 available only with top connection

- **AB/ZRE** installation base:  
Height = 100 mm
- **SB/ZRE** installation base, high model:  
Height = 200 mm, W=W+120, K=K+60

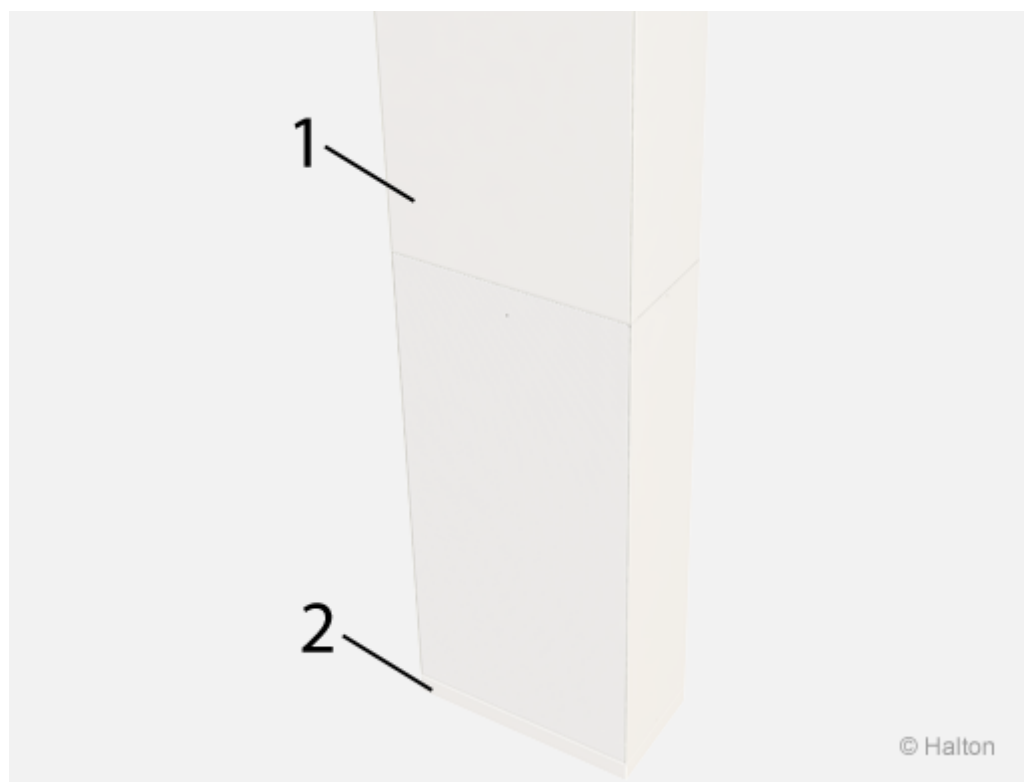
## Weight

NS	kg
125	10.7
160	10.7
200	20.0
250	28.3
315	41.0
400	58.0
1000×300	62.4

# Material

Part	Material	Note
Front panel	Perforated galvanised steel	Stainless steel (AISI 316L) as option
	Polyester-epoxy painted White (RAL 9003 / 30% gloss)	Special colours available
Casing	Galvanised steel	Stainless steel (AISI 316L) as option
Flow equalisation element	Galvanised steel	–
Pressure measurement pipe	Plastic	–
Spigot	Galvanised steel	–
Gasket	Rubber compound	–
Duct cover	Galvanised steel	–
	Polyester-epoxy painted White (RAL 9003 / 30% gloss)	Special colours available
Installation base	Galvanised steel	–
	Polyester-epoxy painted White (RAL 9003 / 30% gloss)	Special colours available
Cover list	Galvanised steel	–
	Polyester-epoxy painted White (RAL 9003 / 30% gloss)	Special colours available

# Accessories



Accessory	Code	Description	Note
Duct cover (1)	DC	Standard lengths 500 / 1000 / 1500 / 2000 mm	–
Installation base (2)	AB	Standard height 100 mm	–
Installation base	SB	Standard height 200 mm / Dimensions = unit size + 60 mm	High (store) model
Cover list	CL	Cover list for fixing into wall or ceiling	–

## Product Models

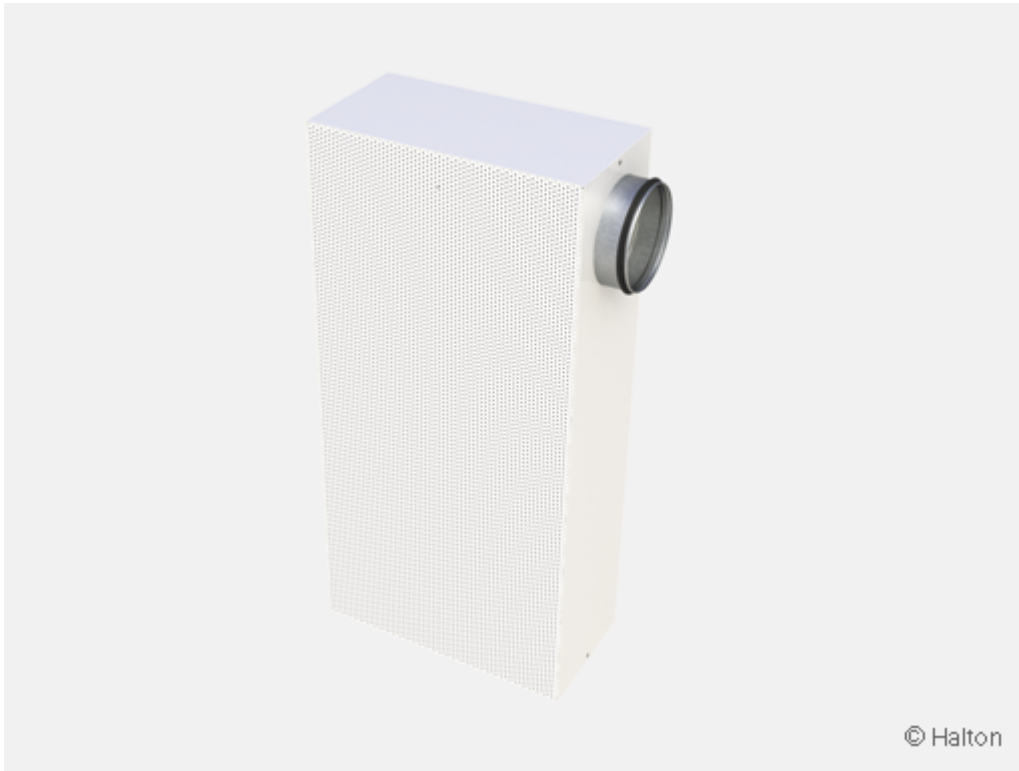
- Duct cover (DC) made of perforated steel (same material as ZRE unit)
  - Construction made of stainless steel (AISI 316L)
  - Thicker front panel (1.5 mm)
  - Optional duct connection sides (left, right or back – see images below)
- Note:** Size 1000×300 available only with top connection



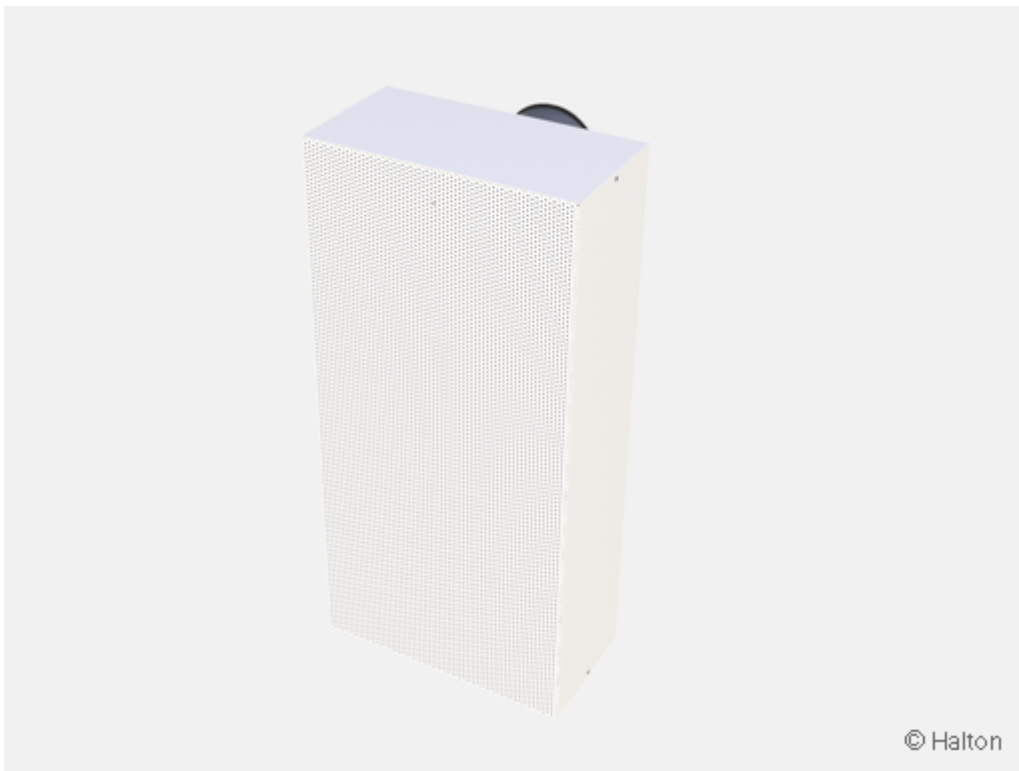
**Fig.1.** Connection from top (ZRE/T)



**Fig.2.** Connection from left (ZRE/L)



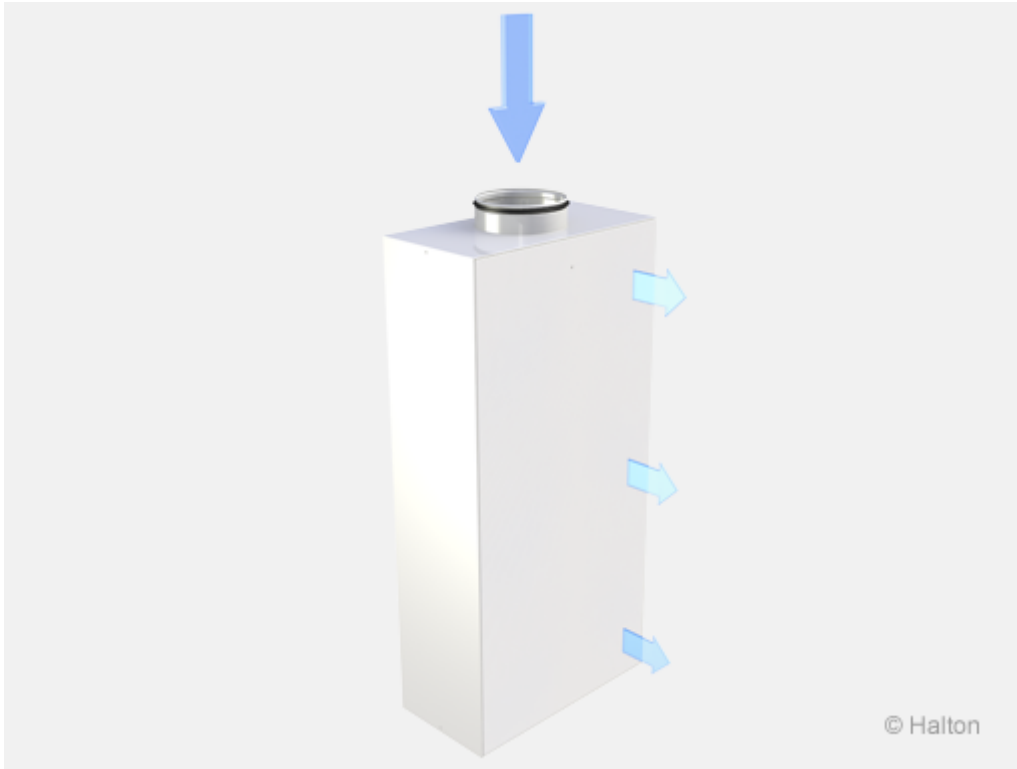
**Fig.3.** Connection from right (ZRE/R)



**Fig.4.** Connection from back (ZRE/B)



# Function



Air is supplied into the space uniformly through the front panel of Halton Zen Rectangular, generally at a slightly lower temperature than the room air. The supply air flows down to the floor level, before gradually pervading the occupied zone at a low velocity. Finally the convection of warm surfaces causes the air to rise out of the occupied zone. The low velocity flow pattern is directed forwards.

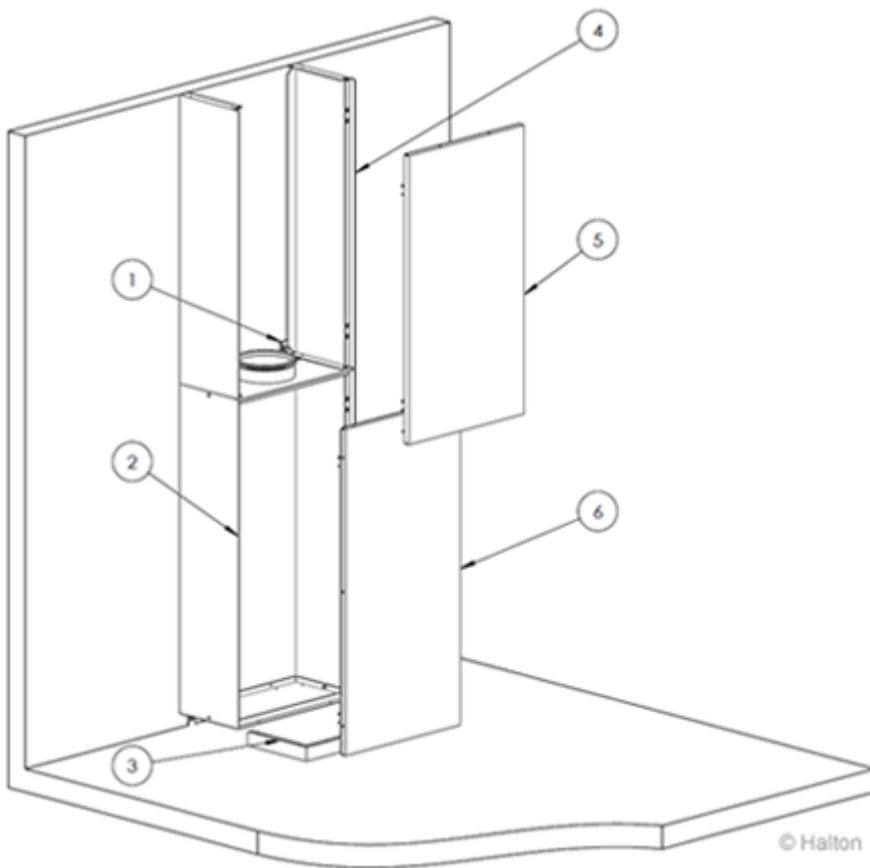
The non-clogging unit can be easily opened and cleaned.

Halton PRA or Halton PTS/C can be used as an airflow adjustment damper in round duct sections. The safety distance for reliable air flow measurement from the displacement unit is 5 duct dimensions between displacement unit and air flow adjustment damper.

If air flow adjustment damper is installed closer to the displacement unit (minimum distance about 3 duct dimensions), supply air throw pattern is correct, but air flow measurement result will not be accurate. When installing air flow adjustment damper close to the displacement unit (minimum  $3xD$ ), attenuator could be needed between the damper and the displacement unit.

**Note:** The flow pattern data has been defined for a floor level installation.

# Installation



## Perform the installation for Halton Zen Rectangular in the following order:

A) Installation without base:

Fix mounting brackets (4 places) to the unit (1).

Position the unit (2) against the wall and secure with mounting brackets (included in delivery).

Installation with base:

Fix the base (6) onto the floor and fix the unit (2) onto that.

Secure with mounting brackets on top (1) (2 places)

B) Fix duct cover sides (4) onto the wall between the unit and ceiling with screws (not included in delivery) through cover.

C) After installation of the ductwork, install the front plate of the duct cover (5).

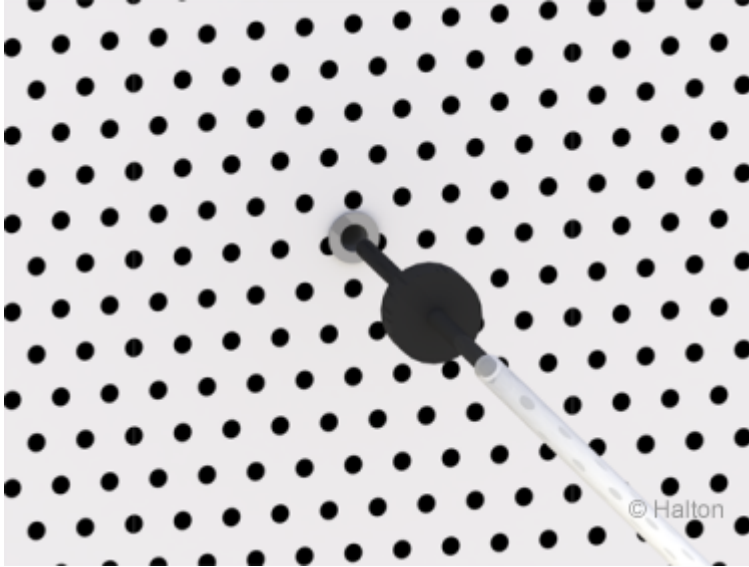
D) When multiple sections of duct covers are used, secure them with screws (not included in delivery).

E) Install front plate of the low velocity unit (6).

Ceiling installation available as tailored solution. Please contact sales.

# Adjustment

The supply flow rate is determined by measuring the differential pressure from the measurement nipple with a manometer. Use a measurement probe thin enough fit into the nipple. Then use tape or another gasket to create a seal in the nipple in order to get an accurate reading .



The flow rate is calculated by using the formula below:

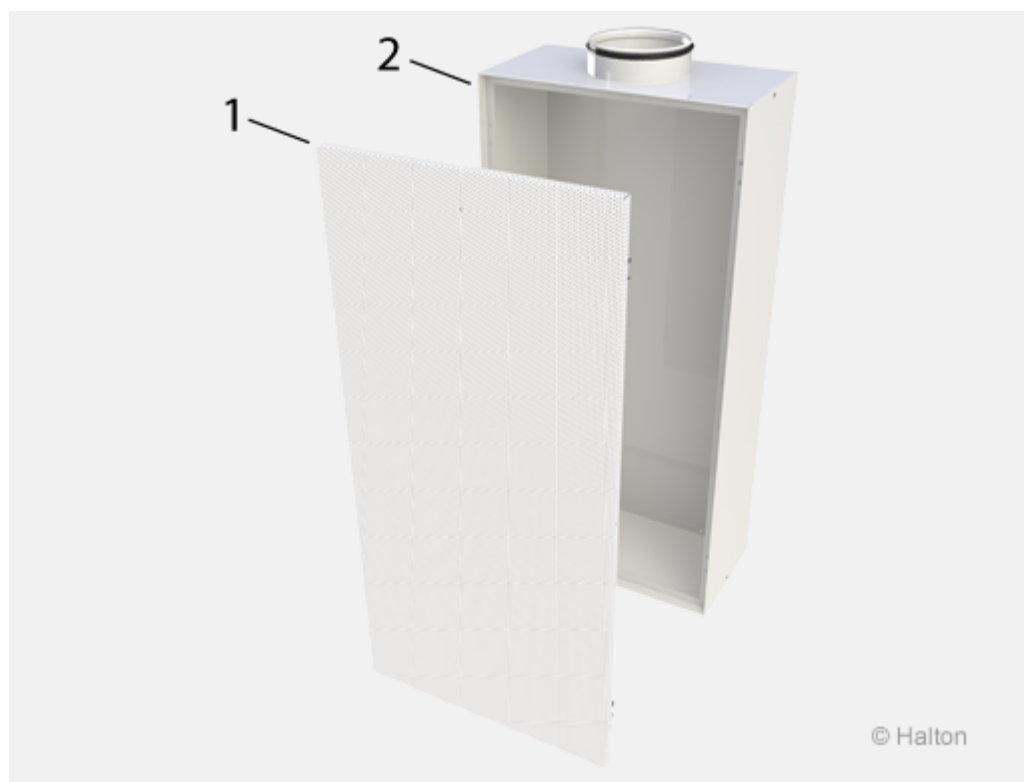
$$q_v = k * \sqrt{\Delta p_m}$$

## The values of k factor for formula

(D = duct diameter; L/R, T, B = location of duct connection)

D	k – L/R	k – T	k – B
125	10.9	11.1	12.1
160	15.6	16.2	17.1
200	27.3	26.9	29.1
250	44.3	42.9	47.6
315	67.9	66.1	74.2
400	105.7	100.7	118.1
1000X300	–	166.3	–

# Servicing



## Code description

1. Front panel
2. Casing

Open the front panel (1) by carefully pulling the spring connections out.

If required, the flow equalization plate can be detached.

Wipe the parts with a damp cloth. Do not immerse in water.

Reassemble after cleaning in reverse order.

## Specification

The Halton Zen Rectangular displacement ventilation supply unit is made of galvanised steel, polyester-epoxy-painted with a white (RAL 9003) colour.

The unit has a robust maintenance-free, non-clogging design.

The unit is comprised of a detachable, perforated front panel, an internal flow equalization plate, and casing.

The unit has a circular or rectangular duct connection on at the top, or a circular connection on the left/right side or back depending on where the unit is located.

Mounting brackets are included in the delivery, screws not.

## Options

The unit is equipped with a duct cover and/or installation base, where required.

The front panel of the unit is available of 1.5mm thick galvanised steel for demanding spaces.

## Order Code

### ZRE/S-D; MA-TP-CO-ZT

#### **S = Location of duct connection**

T Top  
L Left  
R Right  
B Back

#### **D = Size of duct connection (mm)**

125, 160, 200, 250, 315, 400  
1000 x 300 (only top connection)

## Other options and accessories

#### **MA = Material**

CS Steel  
AS Stainless steel (AISI 316L)

#### **TP = Front panel thickness 1.5 mm**

N No  
Y Yes

#### **CO = Colour**

SW Signal white (RAL 9003)  
X Special colour (RAL xxxx)

#### **ZT = Tailored product**

N No  
Y Yes (ETO)

## Sub products

DC Duct cover  
AB Installation base (standard)  
SB Installation base (high, store)  
CL Cover list

# Code example

ZRE/T-160, MA=CS, TP=N, CO=SW, ZT=N