

Private: Halton Zen Circle (ZCI) – Displacement ventilation unit (terminated)



Overview

Terminated as of 1st March 2023

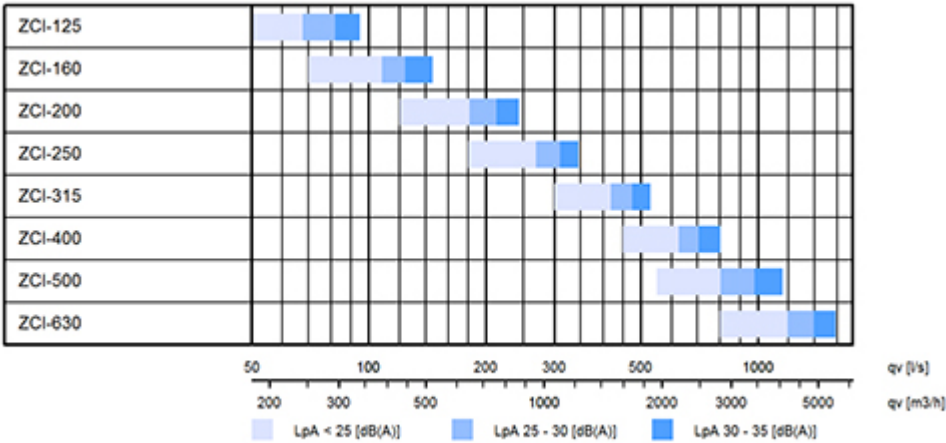
-> replaced by Halton Zen ZRE, Halton Zen ZRW, Halton Zen ZSC

- 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 diffused at the floor level, making the unit suitable for positioning in the centre of a space.
- The air flow is patterned for 360 degrees of diffusion, enabling large airflow rates with low residual velocities in the occupied zone.
- The detachable front plate enables cleaning of the unit and ductwork
- Circular duct connection with an integrated rubber gasket on the top/bottom.

Product models and accessories

- Model with stainless steel (AISI 316L) design
- Model with thick front panel (1.5 mm)
- Air flow equalization plate when ducted from bottom
- Duct cover
- Installation base (standard or high store model)

Quick selection



Dimensions and weight



| NS | ØW | H | ØD |
|-----|-----|------|-----|
| 125 | 320 | 600 | 124 |
| 160 | 360 | 600 | 159 |
| 200 | 360 | 1000 | 199 |
| 250 | 410 | 1200 | 249 |
| 315 | 475 | 1600 | 314 |
| 400 | 560 | 1600 | 399 |
| 500 | 660 | 2000 | 499 |
| 630 | 790 | 2000 | 629 |

- **AB/ZCI** installation base: height = 100 mm
- **SB/ZCI** installation base, high (store) model:
Height = 200 mm, W=W+120

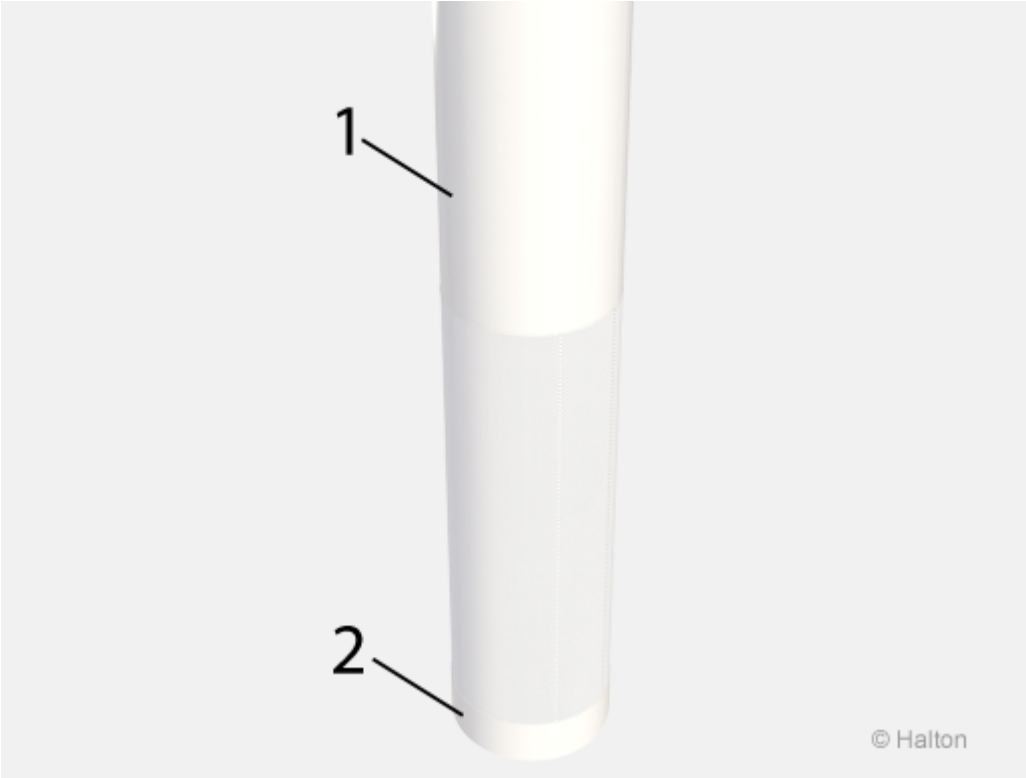
Weight

| NS | kg |
|-----|------|
| 125 | 11.3 |
| 160 | 13.3 |
| 200 | 18.2 |
| 250 | 25.4 |
| 315 | 38.0 |
| 400 | 45.9 |
| 500 | 66,4 |
| 630 | 82,7 |

Material

| Part | Material | Note |
|---------------------------|--|---------------------------------------|
| Front panel | Perforated galvanised steel | Stainless steel (AISI 316L) as option |
| Casing | Galvanised steel | Stainless steel (AISI 316L) as option |
| Flow equalisation element | Plastic net | – |
| Pressure measurement pipe | Plastic | – |
| Spigot | Galvanised steel | – |
| Gasket | Rubber compound | – |
| Optinonal top cover | Plastic | – |
| Installation base | Galvanised steel | – |
| Finishing | 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 |

Product models

- Model with stainless steel (AISI 316L)
- Duct cover (DC) made of perforated steel (same as ZCI-unit)
- Thick front panel (1.5 mm)
- Airflow equalization plate when ducted from bottom

Function



Air is supplied into the space uniformly through the front panel of the unit, 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 circular (360°). The low velocity flow pattern is directed forward.

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

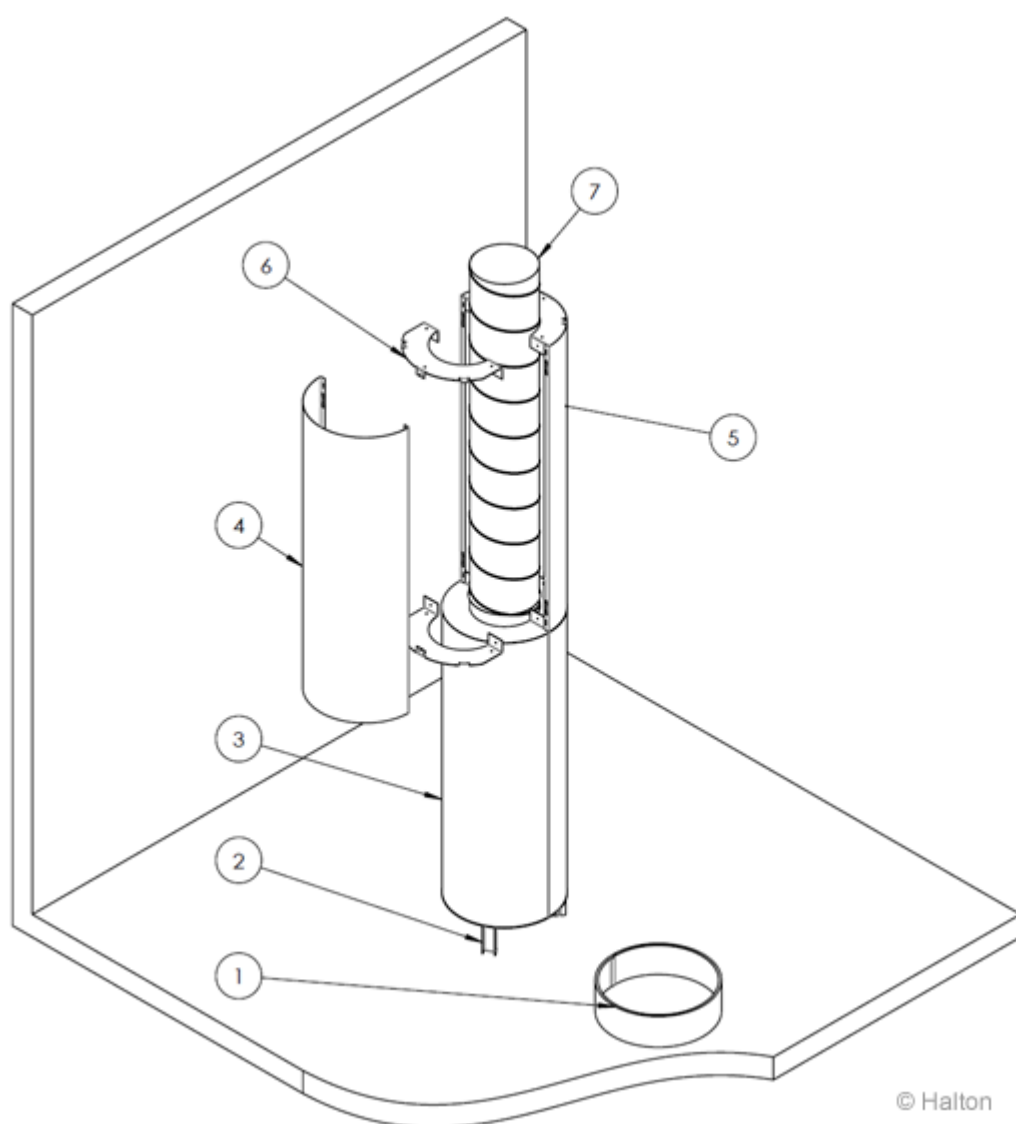
Halton PRA or Halton PTS/C can be used as an airflow adjustment damper in duct. The safety distance for reliable airflow measurement from the displacement unit is 5 duct dimensions between displacement unit and airflow adjustment damper.

If airflow 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 airflow adjustment damper close to the displacement unit (minimum $3 \times D$), attenuator could be needed between the damper and the displacement unit.

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

Installation



Perform the installation in the following order:

A) Without AS/AB base:

Open diffuser and fix onto floor with screws (not included in delivery)

With AS/AB base:

Fix 3 mounting brackets (2) on to floor and then fix AC/AB base cover (1) onto these.

B) After installation of ductwork (7) position the DC duct cover as follows:

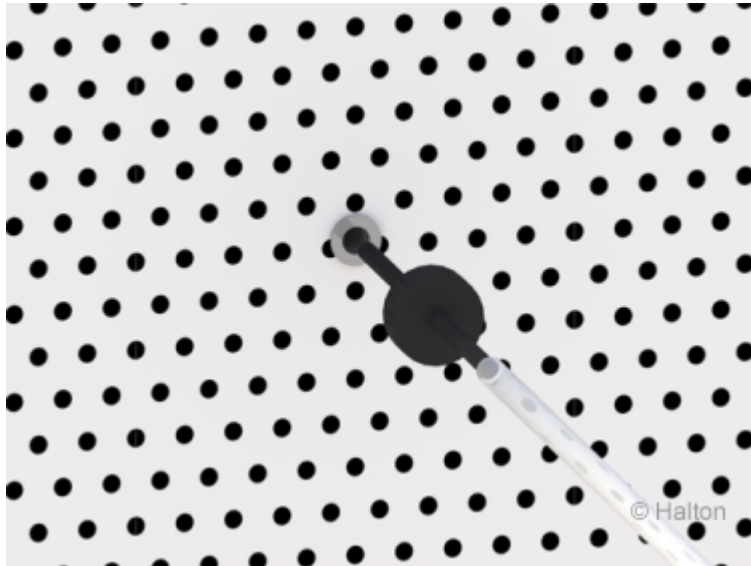
Position the fixed half of the DC (5) so that joint of the unit and DC

are in same position. Install brackets (6) into DC

Position and fix the other opening half of the duct cover (4)

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 using the formula below:

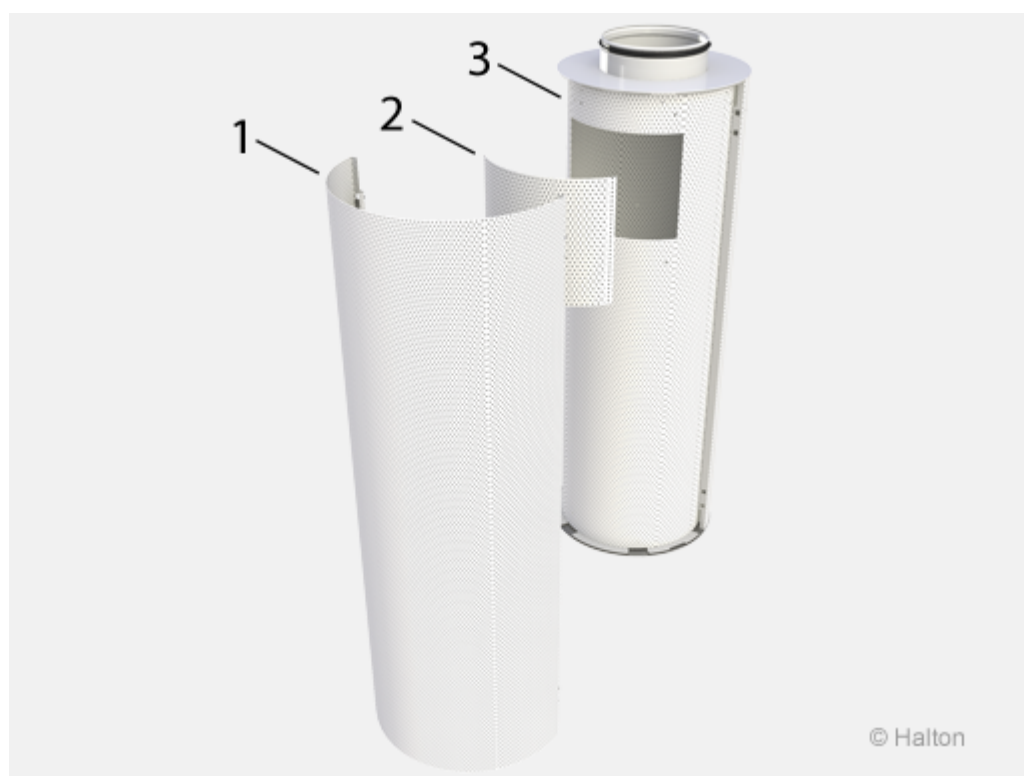
$$q_v = k * \sqrt{\Delta p_m}$$

The values for k factor for formula

(D = duct diameter)

| D | k |
|-----|-------|
| 125 | 12.0 |
| 160 | 21.1 |
| 200 | 31.9 |
| 250 | 51.3 |
| 315 | 78.9 |
| 400 | 119.7 |
| 500 | 182.6 |
| 630 | 257.8 |

Servicing



Code description

1. Front panel
2. Detachable service plate
3. Casing

Open the front panel (1) by carefully pulling the spring connections out. Unscrew the service plate (2) screws and remove the plate. If required, the flow equalization nets 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 Circle 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, removable service plate, a plastic internal fixed flow equalisation element, and casing.

The unit has a circular duct connection at the top or bottom depending on the location of the unit.

Mounting brackets are included in the delivery, screws not.

Options

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

Additionally, different colours and surface patterns are available on separate request.

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

Order code

ZCI-D; MA-TP-CO-TM-BM-ZT

D = Diameter of duct connection (mm)

125, 160, 200, 250, 315, 400, 500, 630

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 (metallic parts)

SW Signal white (RAL 9003)

X Special colour

TM = Top cover (in the opposite end of duct connection)

F Flat (standard)

BM = Installation

T Ducting from top

B Ducting from bottom

ZT = Tailored product

N No

Y Yes (ETO)

Sub products

DC Duct cover

AB Standard base

SB High store base

Code example

ZCI-200, MA=CS, TP=N, CO=SW, TM=F, BM=0, ZT=N