

ZCI - Halton Zen Circle

Displacement ventilation unit



- Capacity for wide 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 & accessories

- Model with lipstick, flat or round cap top cover
- Model with stainless steel (AISI 316) design
- Model with thick front panel (1.5 mm)
- Air flow equalization plate when ducted from bottom
- Duct cover

MATERIAL AND FINISHING

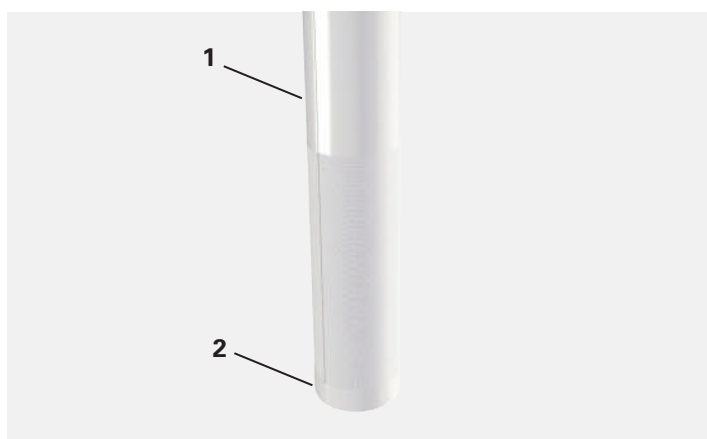
PART	MATERIAL	NOTE
Front panel	Perforated galvanised steel	Stainless steel AISI 316 as option
Casing	Galvanised steel	Stainless steel AISI 316 as option
Flow equalisation element	Plastic net	
Pressure measurement pipe	Plastic	
Spigot	Galvanised steel	
Gasket	Rubber compound	
Optional top cover	Plastic	
Installation base	Galvanised steel	
Finishing	Polyester-epoxy-painted White RAL 9010 (30% gloss)	Special colors available

ACCESSORIES AND OPTIONS

ACCESSORY	CODE	DESCRIPTION
Duct cover (1)	DC	Standard lengths 500 / 1000 / 1500 / 2000 mm
Installation base (2)	AB	Standard height 100 mm
Installation base, high (store) model	SB	Standard height 200 mm / Dimensions = unit size + 60 mm

Options

- Model with stainless steel (AISI 316)
- Duct cover (DC) made of perforated steel (same as ZCI unit)
- Thick front panel (1.5 mm)
- Air flow equalization plate when ducted from bottom
- Top cover model with lipstick (1), flat (2) or round cap (3)



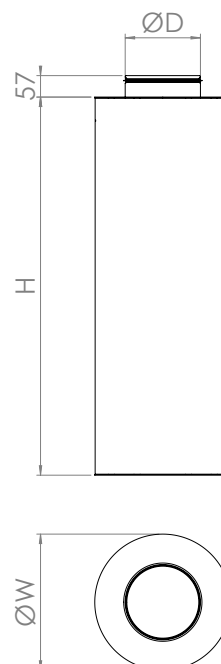
DIMENSIONS AND WEIGHT

Size	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 = 70 mm.
- SB/ZCI installation base, high (store) model: height = 200 mm, W = W+120.

Weight

Size	kg
125	11.36
160	13.25
200	18.15
250	25.42
315	38.00
400	45.90
500	66.36
630	82.67





FUNCTION

Air is supplied into the space uniformly through the front panel of Halton Zen Circle, 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.

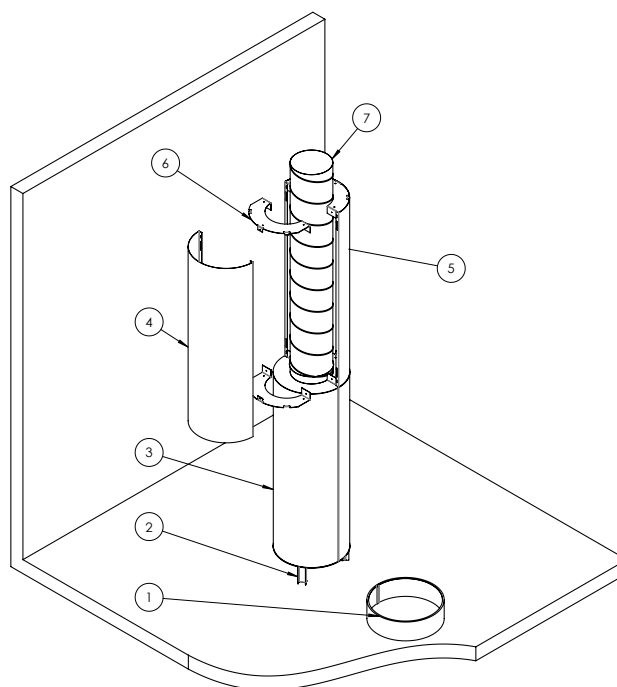
The non-clogging unit can be easily opened and cleaned.

Halton PRA or PTS/C can be used as an airflow adjustment damper in duct.

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 $3 \times D$), attenuator could be needed between the damper and the displacement unit.



INSTALLATION

Perform the installation of Halton Zen Circle in the following order:

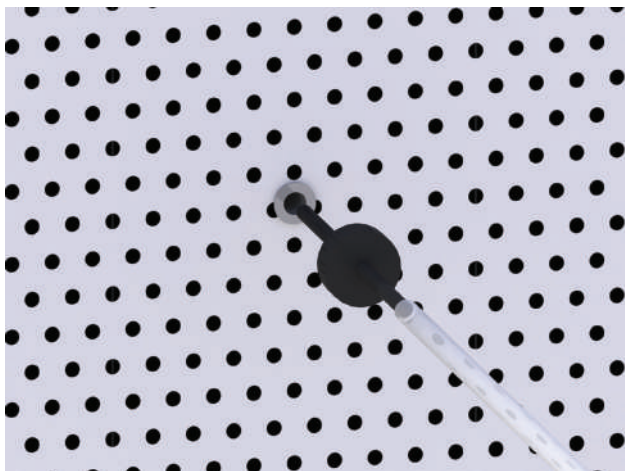
A) Without AB/SB base, open diffuser and fix onto floor with screws (not included in delivery)

With AB/SB 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 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 for Halton Zen Circle 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:

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

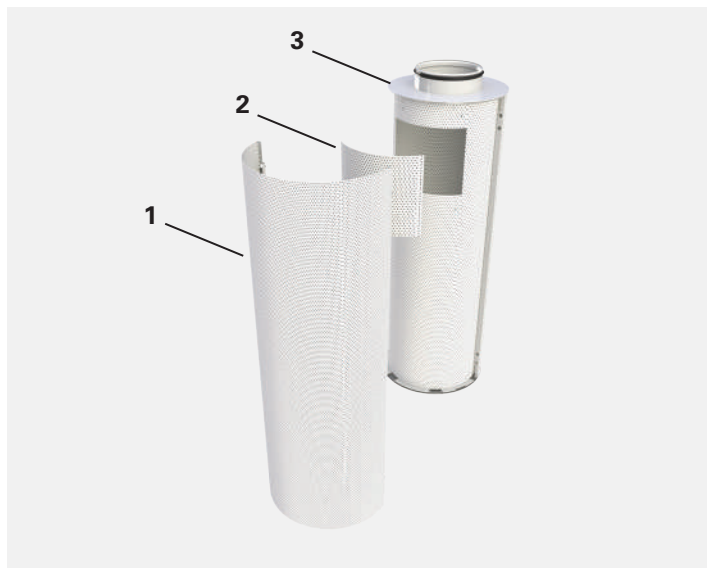
q_v : airflow rate, l/s

k : k factor

Δp_m : differential pressure of the measurement probe [Pa]

K factor for formula (D = duct diameter):

D	K
125	
160	21.1
200	31.9
250	51.3
315	78.9
400	119.7
500	182.6
630	57.8



SERVICING

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.

SOUND DATA

Size	Duct velocity		Airflow		ΔP [Pa]	LpA (1) [dB(A)]
	[m/s]	[l/s]	[m ³ /h]	[m ³ /h]		
ZCI-125	3,5	43	155		3	<20
	4	49	177		4	<20
	5	61	221		6	<20
	6	74	265		9	23
ZCI-160	3,5	70	253		3	<20
	4	80	289		4	<20
	5	101	362		5	<20
	6	121	434		9	25
ZCI-200	3,5	110	396		2	<20
	4	126	452		3	<20
	5	157	565		4	<20
	6	188	678		6	22
ZCI-250	3,5	172	619		3	<20
	4	196	707		4	<20
	5	246	884		6	<20
	6	294	1060		9	24
ZCI-315	3	234	842		3	<20
	4	312	1122		4	<20
	5	390	1403		6	<20
ZCI-400	3	377	1357		4	<20
	4	503	1809		6	<20
	5	628	2262		9	<20
ZCI-500	3	589	2121		5	<20
	4	785	2827		10	21
	5	982	3534		12	26
ZCI-630	3	935	3367		8	<20
	4	1247	4489		13	23
	5	1559	5611		20	30

(1) LpA values presented with room attenuation 8 dB (red 10m² - sab). When using room attenuation 4 dB (red 10m² - sab): LpA + 4dB.

SPECIFICATION

The displacement ventilation supply unit is made of galvanised steel, polyester-epoxy-painted with a white (RAL 9010 / 30%) 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.

The top cover of the unit can be replaced by plastic lipstick, flat, or round cap part with white colour and gloss same as standard metal parts. 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.

PRODUCT CODE

ZCI-D

D = Diameter of duct connection
125, 160, 200, 250, 315, 400, 500, 630

Specifics and accessories

MA = Material
CS: Steel
AS: Stainless steel, AISI 316

TP = Front panel, thickness 1,5 mm
N: No
Y: Yes

CO = Color
W: White
X: Special color

TM = Top cover (in the opposite end of duct connection)
F: Flat (standard)
L: Lipstick cap
C: Flat cap
R: Round cap

BM = Installation
T: Ducting from top
B: Ducting from bottom

Accessories

DC: Duct cover
AB: Standard base
SB: High store base

Code example

ZCI-200, MA=CS, TP=N, CO=W, TM=F, BM=T