

# WISE Colibri Ceiling

Active air diffuser for Swegon's WISE System for demand-controlled ventilation



## QUICK FACTS

- Variable or constant flow regulation
- Wireless communication via radio
- Integrated sensor
- Quick Access
- Variants:
  - Connection Ø160 or Ø250

AIR FLOW - SOUND LEVEL - COOLING EFFECT								
WISE Colibri C Size	Min.*		50 Pa/ 30 dB (A) P Δt=8K W			150 Pa/ 35 dB (A) P Δt=8K W		
	l/s	m³/h	l/s	m³/h	W	l/s	m³/h	W
160	5	18	72	260	694	75	270	722
250	10	36	105	378	1011	120	432	1156

\*The product can regulate below Min. but the measurement accuracy cannot be guaranteed, for tolerances see page 4. NOTE for a high pressure drop across the product, it may be difficult to reach the min. flow, see the sizing diagrams.

# Technical description

## General

- Designed for demand-controlled ventilation of premises with a varying load.
- Designed for comfort ventilation.
- Moist, cold and aggressive environments must be avoided.
- Designed for supply air systems.
- Pressure-independent, but does require a minimum pressure drop equivalent to that of an open damper.
- The minimum air flow must be considered during design.

## Design

- Integrated air flow sensor.
- Integrated duct temperature sensor.
- Integrated room temperature sensor.
- Integrated presence sensor.
- Integrated LED.
- Possibility to connect up to 2 valve actuators.
- Connection: Ø160 or Ø250.
- Always supplied with commissioning box and dust protection.
- The air diffuser has Quick Access.
- Aerodynamic designed nozzles.
- The air diffuser has the square dimensions 595x595 mm, which makes it easy to fit in cassette suspended ceilings with the modular measurements 600x600 mm.

## Functions

- Variable or constant flow regulation.
- Measurement of air flow, temperature and occupancy.
- Function indication via LEDs.
- Wireless communication via radio.
- Heating and cooling function with air.
- External control of heating or cooling.

## Materials and surface treatment

### Air diffuser

- The connection spigot is made of galvanized sheet steel (Z275).
- Other metal parts are power coated sheet steel.
- Air nozzles are made of PP plastic (polypropylene).

### Commissioning box

- All sheet-metal parts are galvanized sheet steel (Z275).
- Internal sound-absorbing material is made of PET (polyethylene terephthalate), fire rating: B-s1, d0.

### Accessories

- POWER Adapt, transformer for power supply.
- ACTUATOR, valve actuator for heating and cooling regulation with for example radiator or cooling coil.
- ADAPTER, for adaptation to various variants and makes of modular suspended ceiling systems.

## Project design / Typical room

See the separate documentation "WISE System Guide", which is available for download via [www.swegon.com](http://www.swegon.com).

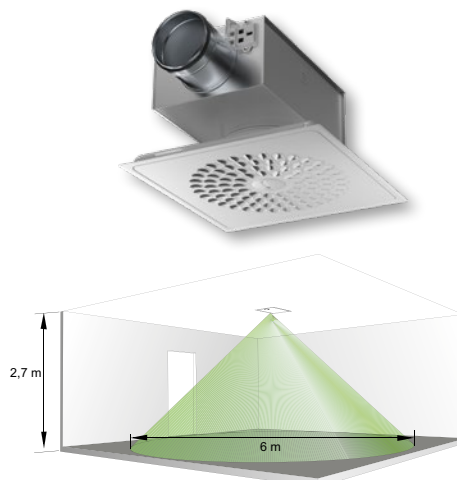


Figure 1. WISE Colibri C, detection range.

## Maintenance

The product does not require any maintenance/service, except for any cleaning when necessary. See the separate Instructions for Use, available on [www.swegon.com](http://www.swegon.com).

## Environment

The Building Materials Declaration is available from [www.swegon.com](http://www.swegon.com).

## Technical data

Output (ERP):	50 mW
Frequency band:	2.45 GHz, IMS band (2400--2483 MHz)
Temperature sensor:	0 - 50°C ± -0.5°C
Pressure sensor:	0 - 300 Pa
Detection range:	See figure 1
IP class:	IP20
Corrosivity class:	C3
Air tightness class, casing:	C
Running time open/close:	110 s
Ambient temperature	
Operation:	0 – 50°C
Storage:	-20 – +50°C
RH:	10 - 95% (non condensing)
CE marking:	2016/42/EC (MD) 2014/53/EU (RED) 2011/65/EU (RoHS2)

## Electrical data

Power supply:	24V AC ±15% 50 - 60Hz
Connections pipe dim.	
Power:	Screw terminal max. 2.5mm <sup>2</sup>
Valve actuator:	Push-in spring force connections, max. 1.5 mm <sup>2</sup>
Max. power consumption:	See table below

Variant	VA		
	Default	+1 valve actuator	+2 valve actuator
Ø160, Ø250	8	15	22

# Sizing

- To calculate the air stream diffusion, air velocities in the occupied zone or sound levels in rooms with other dimensions, please refer to our calculation software, which is available at [www.swegon.com](http://www.swegon.com).

## Air flow

- Important! Increased air flow gives increased duct velocity and increased sound level.

## Acoustic data

### Sound power level

- The diagrams show the a-weighted sound level ( $L_{PA}$ -dB), as a function of the air flow and total pressure drop across the air diffuser product.
- Correct  $L_{PA}$  with correction factor  $K_{ok}$  from the tables below to obtain the sound power levels for each octave band ( $L_W = L_{PA} + K_{ok}$ ).

Correction factors for conversion to sound power in octave bands:

$L_{PA}$  = A-weighted sound level in the sizing diagram for air diffuser product.

$K_{ok}$  = Correction factor in octave bands.

### Sound power level in octave bands

$$L_W = L_{PA} - K_{ok}$$

### Correction factor, $K_{ok}$

Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
160	-2	2	-3	-7	-9	-11	-12	-5
250	0	4	-1	-4	-4	-7	-10	-5
Tol. ±	2	2	2	2	2	2	2	2

### Sound attenuation $\Delta L$

Table  $\Delta L$

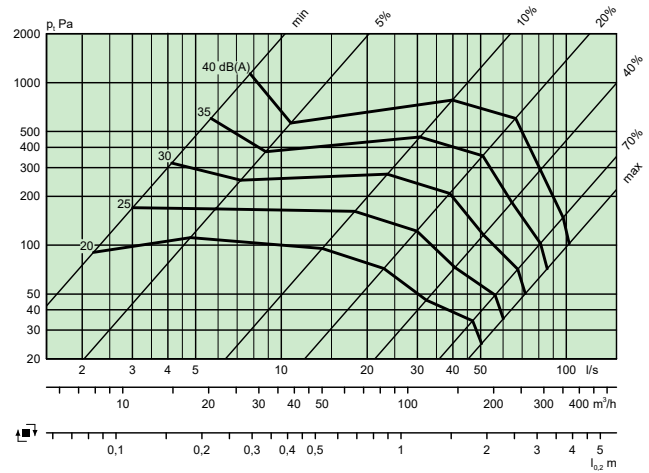
Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
160	15	9	9	20	19	15	16	14
250	13	8	10	19	16	13	16	16
Tol. ±	2	2	2	2	2	2	2	2

## Sizing diagram

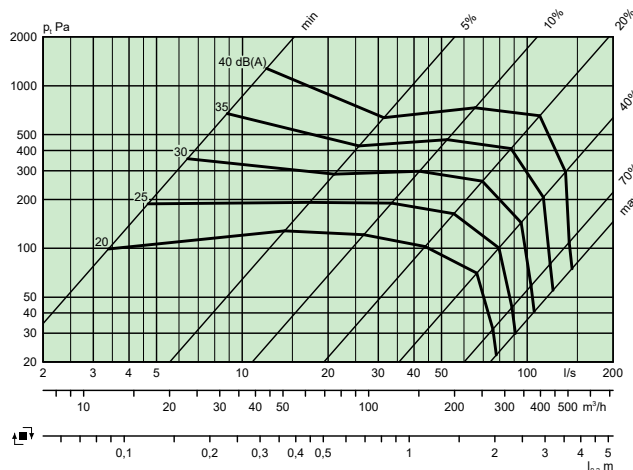
### Air flow - Pressure drop - Sound level – Throw length

- Specified sound levels,  $L_{PA}$ : 20, 25, 30, 35, 40.
- Sound level dB(A) is applicable to rooms with an equivalent sound absorption area of 10 m<sup>2</sup> (4 dB room attenuation).
- The throw length  $L_{0,2}$  is measured under isothermal discharge conditions.
- Throw length for rotation installation.
- The recommended max. permissible temperature below room temperature is 12 K.
- 100% corresponds to the damper being fully open.
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.

### WISE Colibri C 160



### WISE Colibri C 250



# Installation dimensions and weights

Size	Dimensions (mm)				
	A	B	C	ØD	Ød
160	595	504	332	159	250
250	595	622	388	249	315

Size	Dimensions (mm)					Weight (kg)	Tolerance Q* ±5% with at least ±x l/s
	E	F	G	H	K		
160	314	201	214	450	100	8.5	2
250	395	300	247	575	140	11.3	2

CL = Centreline

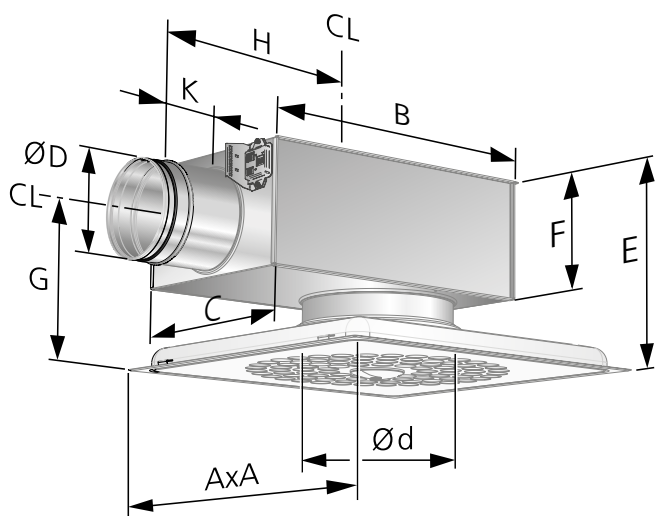


Figure 2. WISE Colibri C, dimensions.

## Installation

- WISE Colibri C air flow measurement requires a straight section before the product (in the air direction) according to the installation figures.
- Avoid installing the product above/near a heat source, for example, luminaires.
- Instructions for Use are supplied with the product on delivery, but can also be downloaded from [www.swegon.com](http://www.swegon.com).

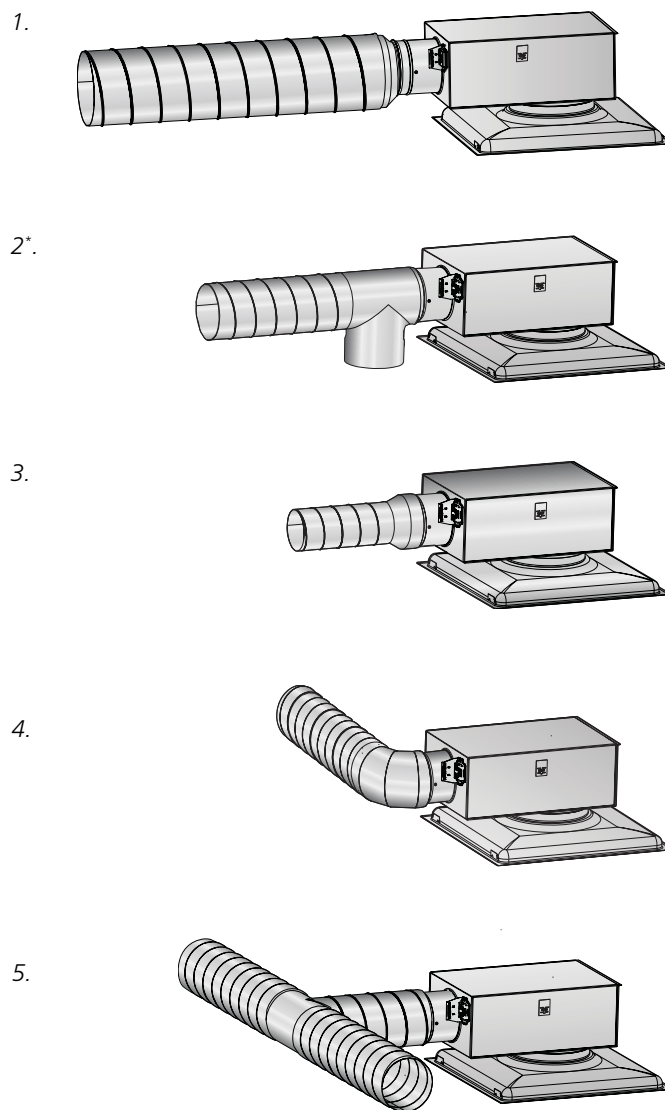


Figure 3. Straight section requirements, circular ducts.  
 1-3: Quantity Ø before the product: 0 x Ø.  
 4: Quantity Ø before the product: 1 x Ø.  
 5: Quantity Ø before the product: 2 x Ø.  
 \*Cleaning hatch

# Specification

## Product

Rectangular active air diffuser for ceilings WISE Colibri C a xxx  
 Version:  
 Connection dimensions Ø: 160, 250

## Accessories

1-Phase protective transformer POWER A a xxx  
 Version:  
 Size (VA): 20\*, 60 \*\*, 150\*\*  
 \*Plug contact  
 \*\*Permanent installation

Valve actuator ACTUATOR b xxx yy  
 Version:  
 Alternatives are: 24V, 0-10V  
 Type: NC, NO\*  
 \*Only applies to 24 V

Adapter for cassette suspended ceiling ADAPTER  
 See specification in separate catalogue

# Specification text

Example of a specification text according to VVS AMA.

**QMC** Supply air diffuser for ceiling mounting  
 Nozzle diffuser interconnected with the commissioning box  
 Swegon's ceiling diffuser of the type WISE Colibri C with the following functions:

- Pressure independent VAV unit for demand-controlled ventilation.
- Must be installed with a minimum straight duct section on the inlet side as stated in relevant catalogue data, designed for temperatures between 0–50°C.
- Built-in sensors for duct temperature and, room measurement, flow measurement and occupancy control.
- Built-in communication unit for communication in Swegon WISE radio network.
- Integrated regulator, flow regulated function.

Size: Ø 160  
 Ø 250

Specification:

- Air tightness class, casing: C
- Corrosivity class: C3
- Tolerance flow measurement: ±5%, however at least ±2 l/s

Type: WISE Colibri C a xxx xx items

Accessories:

Transformer for power supply	POWER A a xxx	xx items
Valve actuator for heating regulation	ACTUATOR b xxx yy	xx items
Adjustment frame for suspended ceilings	ADAPTER a -b-ccc	xx items