

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

WISE Colibri C Size	AIR FLOW - SOUND LEVEL - COOLING EFFECT							
	Min.*		50 Pa/ 30 dB (A)			150 Pa/ 35 dB (A)		
	l/s	m ³ /h	l/s	m ³ /h	P Δt=8K W	l/s	m ³ /h	P Δt=8K 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 3 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.
- Status indication via LEDs.
- Wireless communication via radio.
- Heating and cooling function with air.
- External control of heating.

Materials and surface treatment

Air diffuser

- The connection spigot is made of galvanized sheet steel (Z275).
- Other metal parts are power coated sheet steel.
- Standard finish white RAL 9003, gloss 30.
- 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 regulation with e.g. radiator.
- 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.

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.

Environment

The Building Materials Declaration is available from 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
 Flow tolerance: Q±5%, however at least ±2 l/s
 Pressure sensor: 0 - 300 Pa
 Detection range: See figure 1
 IP class: IP20
 Corrosivity class: C3
 Air tightness class, casing, according to SS-EN 1751: 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. 2.5mm²
 Valve actuator: Push-in spring force connections, max. 1.5 mm²
 Max. power consumption: See table below

Variant	VA			
	Default	+1 valve actuator	+2 valve actuator	+3 valve actuator
Ø160, Ø250	8	15	22	29*

*Applies to products with CU ver. 2, delivered from 01/10/2019.

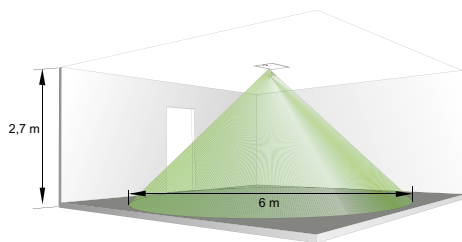


Figure 1. WISE Colibri C, detection range.

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.

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 pressure level (L_{p10A} -dB), as a function of the air flow and total pressure drop across the air diffuser product.
- Sound attenuation (ΔL) below is shown in the octave band. Orifice attenuation is included in the values.
- Correct L_{p10A} 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_W = Sound power level

L_{p10A} = Sound pressure level dB (A)

K_{ok} = Correction for producing the L_W value in the octave band

Sound power level in octave bands

$$L_W = L_{p10A} - K_{ok}$$

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 ΔL

Table ΔL

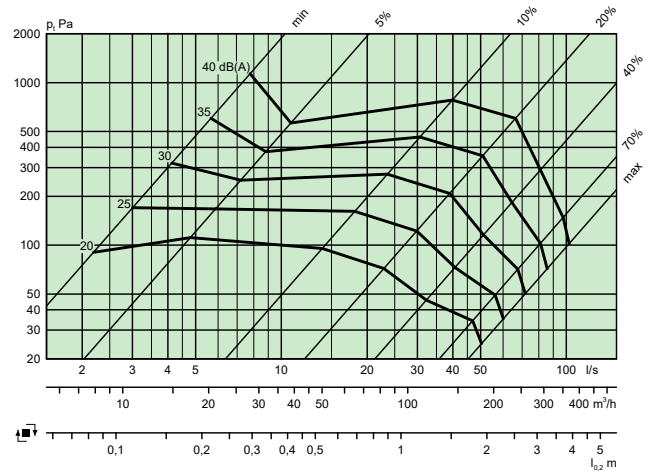
Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
160	15	9	9	20	19	15	16	14
250	13	8	10	19	16	13	16	16
Tol. ±	2	2	2	2	2	2	2	2

Sizing diagram

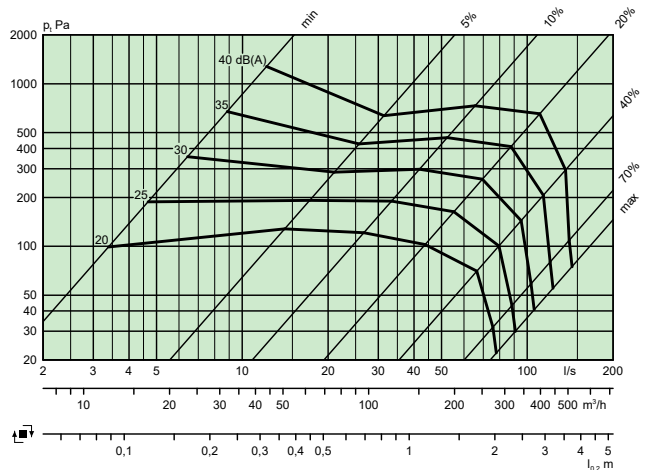
Air flow - Pressure drop - Sound level – Throw length

- Specified sound pressure levels, L_{p10A} : 20, 25, 30, 35, 40.
- Sound pressure level dB(A) is applicable to rooms with an equivalent sound absorption area of 10 m^2 (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)
	E	F	G	H	K	
160	314	201	214	450	100	8.5
250	395	300	247	575	140	11.3

CL = Centreline

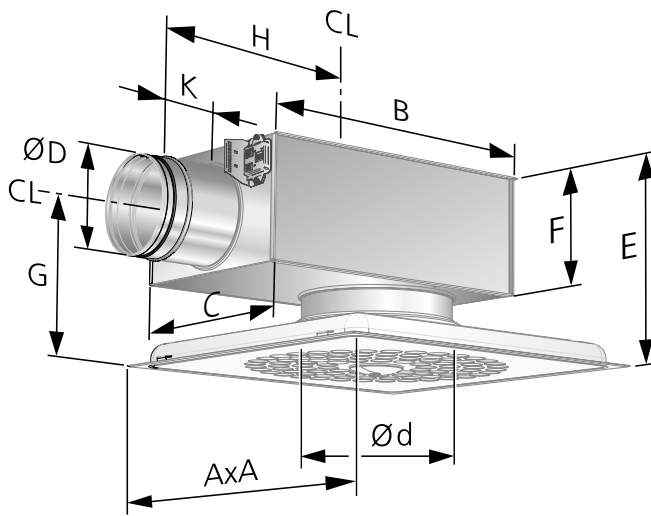


Figure 2. WISE Colibri C, dimensions.

Installation

- WISE Colibri C air flow measurement requires a straight section before the product 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.

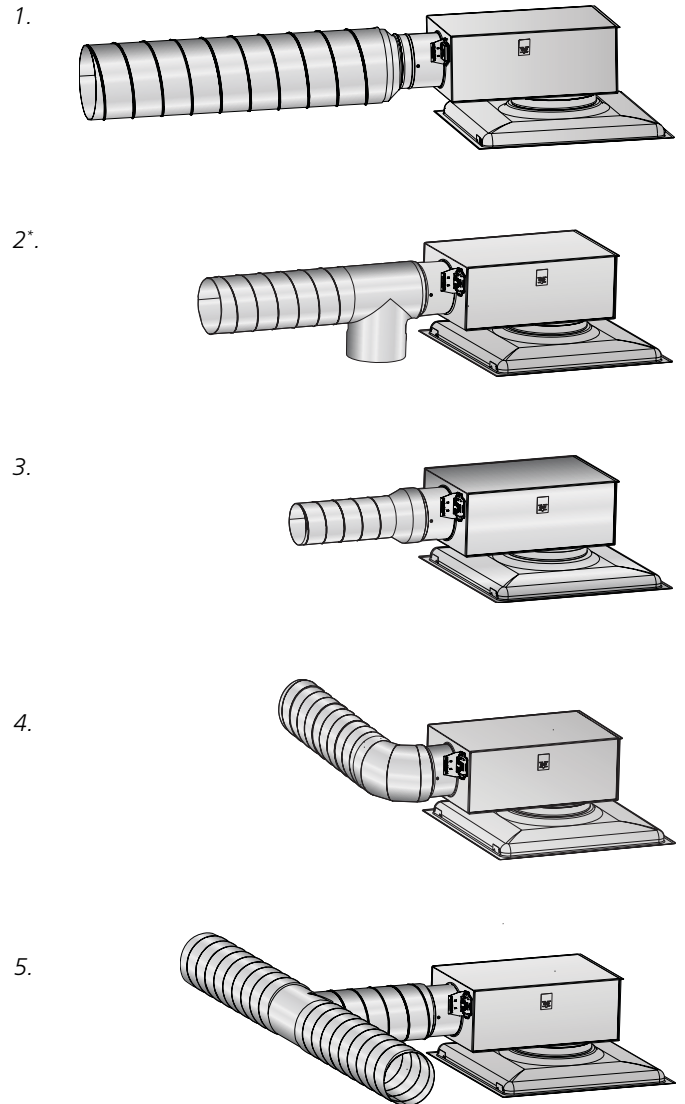


Figure 3. Straight section requirements, circular ducts.

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