

Hotel chilled beam Silencia



Functions

- Cooling and / or heating
- 4 different airflow level
- Low noise level



Silencia unit is designed for use in hotel bedrooms, individual hospital wards and cellular offices. Silencia unit ensures good indoor air climate while the noise level is very low. It provides high cooling capacity through optimal utilisation of its cooling coil already while the air pressure and airflows are low. The required primary volume flow for fresh air is supplied through a duct into which nozzles are fitted. As a result secondary air is induced through a horizontal water coil for heating or cooling, or heating and cooling. At the same time, the installation height of the product is kept at an absolute minimum which enables maximum room height in e.g. the entrance to a hotel room.

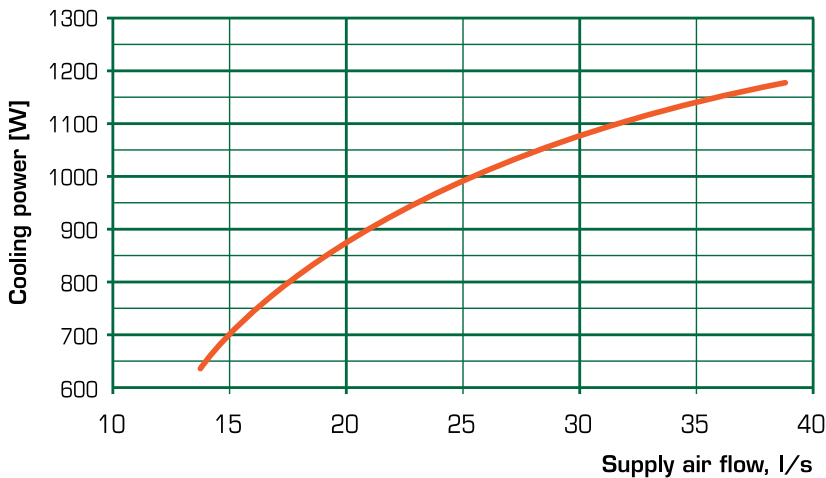
Product Facts

- Silencia unit for bulkhead installation
- 2 and 4 pipes water coil
- Right or left side connection for water
- Fixing by rods

Product code example

QVFH-100-01-05-1

Quick Selection



The diagram shows the total cooling power at a total pressure of 70 Pa, water flow 0,05 l/s, temperature difference room air and supply air $dT = 8\text{ }^{\circ}\text{C}$ and temperature difference between mean water temperature and room temperature $dT = 8\text{ }^{\circ}\text{C}$.

Technical data, construction and function

Cooling Power

The data is given at total pressure drop 70 Pa on the air side, water flow 0,05 l/s , Pressure drop $\Delta p_w = 10$ kPa , temperature difference room air and supply air $\Delta T = 8$ °C

Nozzle	Airflow [l/s]	P _{tot} , W			P _{coil} , W			L _{A10} dB(A)
		6	8	10	6	8	10	
3	13.4	510	637	764	381	508	635	
5	21.1	751	934	1117	548	731	914	
7	30.3	892	1092	1292	601	801	1001	
9	36.4	977	1186	1395	628	837	1046	

Heating Power

The data is given at total pressure drop 70 Pa on the air side, water flow 0,05 l/s , Pressure drop $\Delta p_w = 11$ kPa .

Nozzle	Airflow [l/s]	P _{coil} , W		L _{A10} dB(A)
		10	20	
3	13.4	414	621	828
5	21.1	559	838	1117
7	30.3	595	893	1191
9	36.4	613	919	1225

Conditions for cooling power tables

Total cooling effect of beam , P_{tot} = cooling effect of coil, P_{coil} + cooling effect of supply air, P_{air} . The assumed pressure drop on the air side is 70 Pa . The cooling effect of supply air is based on an under temperature of 8 °C , when compared to the room temperature. The effects for other water flows than 0,05 l/s can be found in the Fläkt Woods product selection tool, ExSelAir. Note! The tables here are based on tests done according to the EN 15116 standard. The purpose of this standard is to be able to compare different chilled beams on the same terms. The method requires a nonexistent temperature difference between the air entering the beam coil and the air at 1,1 m above floor surface. To achieve this, the walls in the test room are cooled. In actual conditions, the temperature difference is normally 1 °C . This is why the temperature ΔT should be increased by 1 °C to avoid over dimensioning of the beam. This means that the table value concerned can be increased by 10%.

Definitions

q ₁	Supply air flow, l/s
P _{tot}	Total cooling effect, W
P _{coil}	Cooling effect of the coil, W
P _{coil heat}	Heating effect of the coil, W
Δt	Difference between room air temperature and average water temperature, °C
Δp_w	Pressure drop water, kPa
Δt_w	Temperature change in the coil, °C . Calculated with the formula: $\Delta t_w = P_{coil} / 208 / >$
L _{A10}	Sound pressure level in a room with 10 m ² room absorption, dB(A)

Sound power level

Silencia	100	Correction K dB							
		Octave band, middle frequency, Hz							
		63	125	250	500	1000	2000	4000	8000
		4	3	4	3	0	-8	-17	-18
Tol	±	4	2	2	1	1	2	3	8

Sound attenuation

The average sound attenuation ΔL of Silencia from duct to room includes the end reflection of the connecting duct.

Silencia	100	Sound attenuation in supply air duct of the beam ΔL , dB							
		Octave band, middle frequency, Hz							
		63	125	250	500	1000	2000	4000	8000
		26	17	16	20	19	19	24	20

Construction and function

Silencia is available in one size and is made for a bulkhead installation. The unit without induction grill and outlet grill is first installed in the ceiling with threaded rods. Afterwards you easily install the both grills with the telescopic solution to get a good finish against the ceiling and wall for the induction grill and outlet grill.

In order to handle different airflow levels the unit can be equipped with 3,5,7 or 9 nozzles.

The unit can be equipped with two plenums and 2 connections. By using this solution you can connect a damper with actuator to one of the plenums and it gives you the opportunity to shut off one of the plenums and run it in an energy saving mode with lower airflow. In normal conditions when the room is occupied, both plenums are used, with an open damper. And when the room is unoccupied with lower need for cooling and fresh air, the damper is closed and only one plenum is used.

It can be delivered with or without an outlet grille if you want to use a different grille.

Material and surface finish

The casing is mainly made of galvanized steel sheet. The coil is made of copper tubes and aluminium fins, connection size is 15 mm \varnothing_{out} (thickness 1 mm). Maximum working pressure 1,5 Mpa .

Instructions, adjustment and maintenance

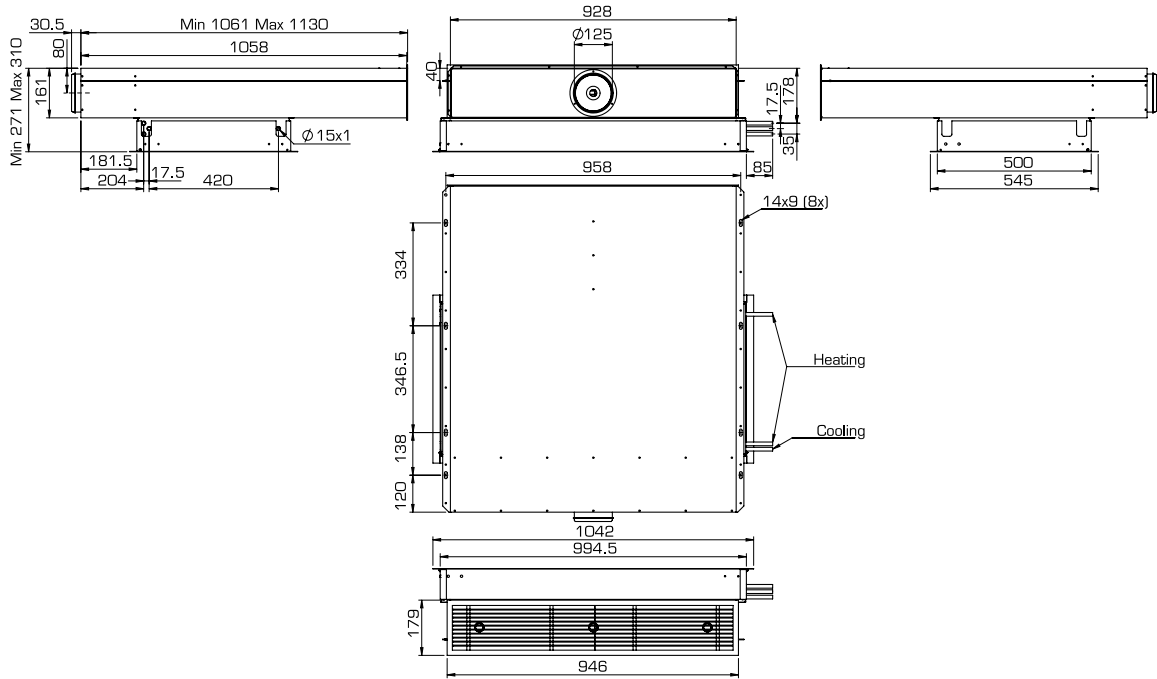
Instructions for installation, adjustment and maintenance are supplied with each product. The instructions are also available on our web pages at www.flaktwoods.com.

Technical data and dimensioning

The full scale dimensioning is done with the Fläkt Woods product selection program that is available on our web pages at www.flaktwoods.com.

Dimensions, product code

Dimensions



Product code

Main code

Silencia

Coil (bb)

- 01 = Cooling
- 02 = Cooling and heating

Nozzle configuration (cc)

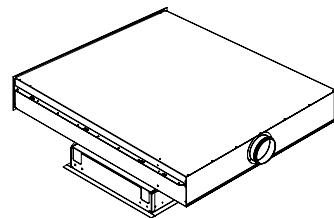
- 01 = 3 nozzles
- 02 = 5 nozzles
- 03 = 7 nozzles
- 04 = 9 nozzles

Connection (d)

- 1 = Right side connection without outlet grill, Ø125
- 2 = Right side connection with outlet grill, Ø125
- 3 = Right side connection without outlet grill, 2 plenums Ø125
- 4 = Right side connection with outlet grill, 2 plenums Ø125
- 5 = Left side connection without outlet grill, Ø125
- 6 = Left side connection with outlet grill, Ø125
- 7 = Left side connection without outlet grill, 2 plenums Ø125
- 8 = Left side connection with outlet grill, 2 plenums Ø125

QVFH-100-bb-cc-d

d = 1, 2, 5, 6



d = 3, 4, 7, 8

