

DUALJET

NEW FAN COIL UNIT WITH
CONTROLLED OUTLET



Floor installation
Environmental comfort and dynamic terminals.



Environmental comfort and dynamic terminals.

The term environmental comfort means the particular condition of well-being determined by temperature, humidity of air, sound and lighting levels found within an environment in relation to the subjective perception of each person.

Studies of environmental comfort show that optimal well-being is achieved depending on the relationship established between the **subjective variables** and the **environmental variables**.

Subjective variables

Relative to the individual it is the activity undertaken within the environment.

Environmental variables

- Air temperature
- Relative humidity of the air
- Mean radiant temperature
- Air velocity

An effective air-conditioning system **must guarantee** to reach these conditions of comfort through a **rigorous control of the environmental variables**, ensuring that each of these stay constant and are uniformly distributed within the environment occupied by the person: a sudden variation of the environmental variables is negatively perceived by the human body.

The problem.

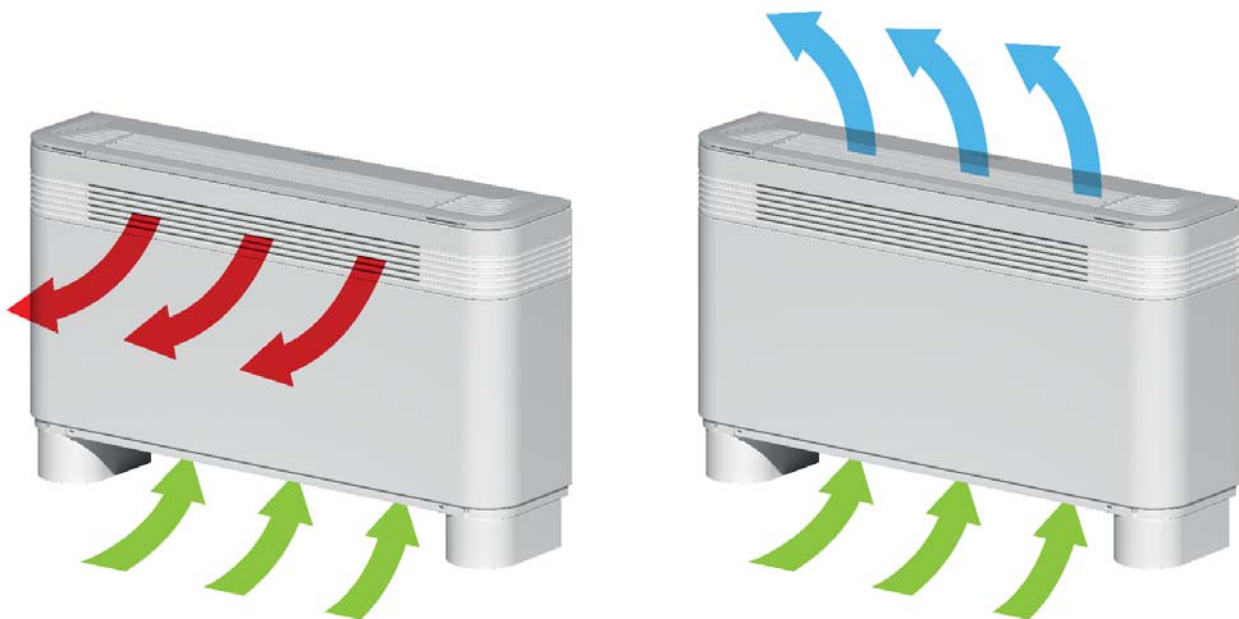
One of the main **causes of discomfort** is the perception of a non-homogenous vertical distribution of temperature in the space. This is the situation that can happen in heating, during the winter season. The vertical intake of warm air **can lead to effects of stratification**: the warm air, being less dense, tends to occupy the higher part of the room leaving the lower part to the colder air with a **consequent reduction of perceived comfort**.

In recent years there is the widespread belief that the best way to overcome this stratification of air is obtained by using **under floor radiant installations** forgetting about the **disadvantages** that this system carries which are:

- **long system start-up time**
- **high water content**
- **difficulty or lack of precision in setting up or in control**
- **need for a further system for summer conditioning and/or for environmental humidity control**

Solution

In depth analysis carried out in our laboratories has instead shown that with the use of **fan coil units capable of directing the warm air towards the floor** significantly reduces the vertical difference in temperature, achieving a **solution as effective as under floor radiant heating** and offering many advantages at the same time.



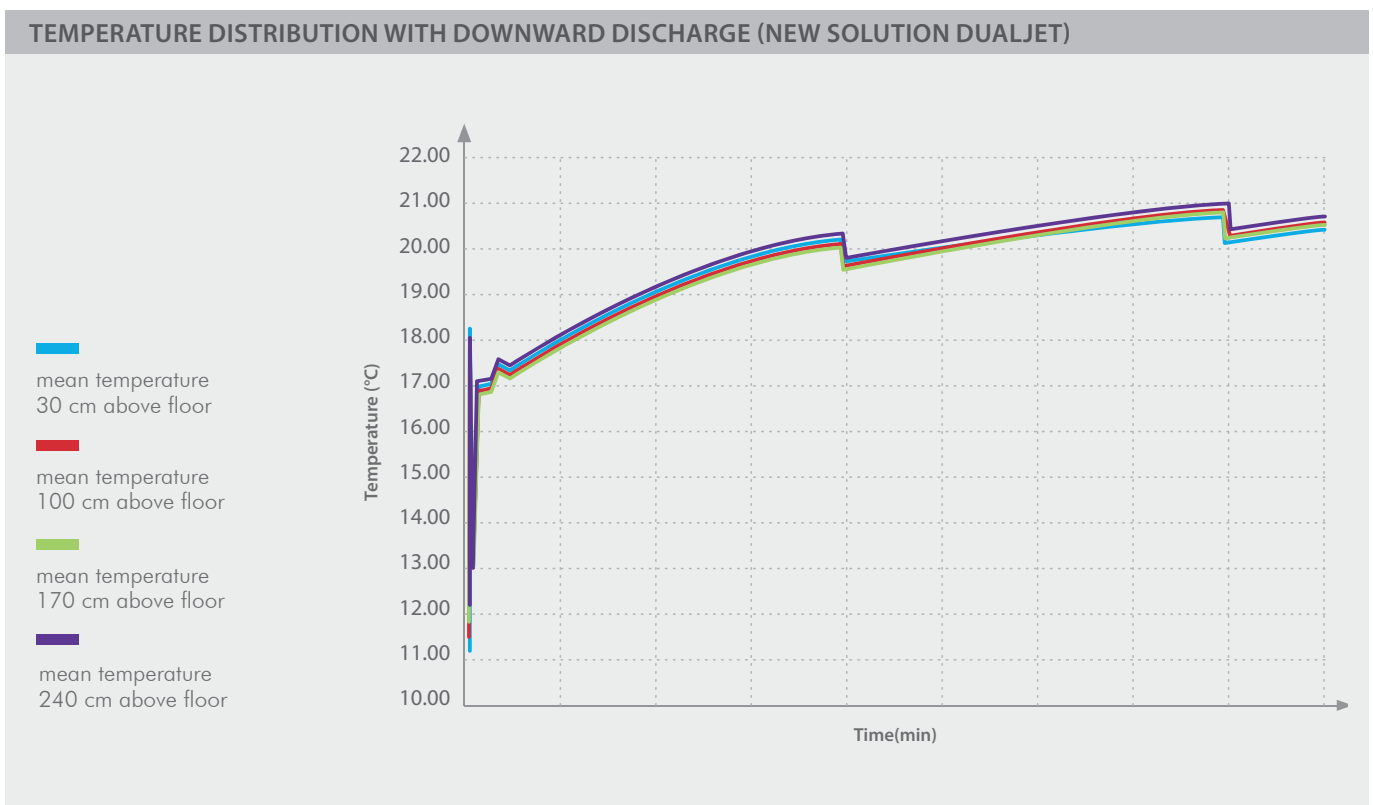
New fan coil unit DUALJET. with downward discharge for warm air and upwards for cold air.

Description of the tests.

Aermec has subjected the **new DUALJET fan coil unit** to rigorous tests, both inside a Real Room, to verify the distribution of heat, as well as inside a special anechoic chamber, to verify the acoustical performance. The expected results were amply confirmed by the tests undertaken.

Results

With the **new DUALJET fan coil unit** (with downward warm air discharge) the thermal gradient is highly contained in the whole heating period and it can be noted how a steady state condition is achieved in a gradual manner with the **complete absence of annoying temperature fluctuations**. Therefore with this innovative DUALJET fan coil unit homogenous temperature conditions are reached in the occupied space, comparable to those of the best static heating systems. In addition the tests in the anechoic chamber highlight that the downward discharge of warm air does not compromise the acoustical performance in any way. To combine innovation with simplicity, to choose the correct method of air discharge, requires a simple action: moving the special opening and closing slider of the adjustable blade mounted on the outlet.



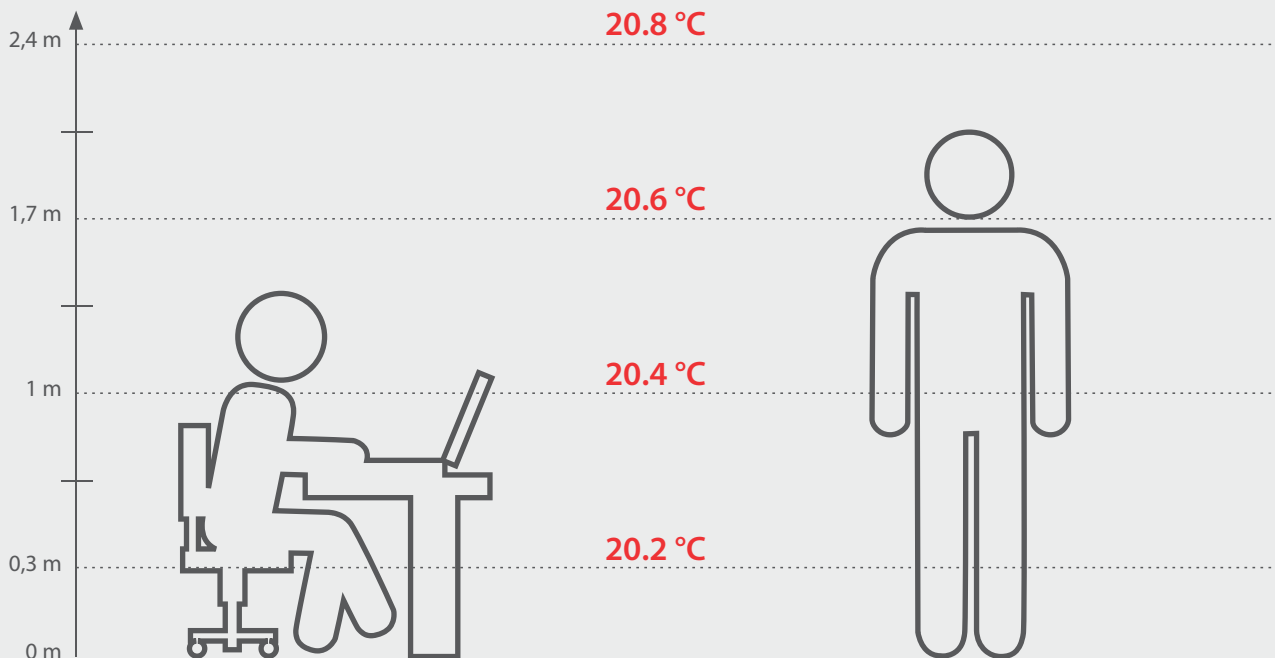
The advantages of DUALJET.

The substantial **absence of the stratification phenomenon** reflects on the level of **comfort perceived in the space** in normal conditions and avoids even the unpleasant sensation, in the presence of strong thermal gradients, when getting up from seated as there is a significant **homogeneity of space temperature**.

Besides this the new system maintains, with respect to under floor radiant systems, all the undoubted advantages of the fan coil unit:

- **short system start-up time**
- **precision in setting up and in control**
- **single system for summer conditioning and for environmental humidity control**

TEMPERATURE STRATIFICATION WITH NEW DUALJET SYSTEM



Technical data

FCZ D-FCZI D			200			300			400			500		
Fan speed			H	M	L	H	M	L	H	M	L	H	M	L
Heating Performance														
2 pipe systems														
Heating capacity (70°C)	(1)	kW	3,70	2,95	2,02	5,50	4,46	3,47	7,15	5,74	4,32	8,50	7,31	5,27
Water flow rate	(1)	l/h	324	258	177	482	391	304	627	503	379	745	641	462
Pressure drop	(1)	kPa	18	12	6	18	12	7	24	16	9	28	21	12
Heating capacity (45°C)	(2)	kW	1,84	1,46	1,00	2,73	2,21	1,72	3,55	2,85	2,14	4,22	3,63	2,62
Water flow rate	(2)	l/h	319	254	174	475	385	299	617	495	373	734	631	455
Pressure drop	(2)	kPa	17	12	6	17	12	8	23	16	9	28	21	12
Cooling Performance														
Total cooling capacity	(3)	kW	1,60	1,28	0,89	2,65	2,17	1,68	3,60	2,92	2,21	4,25	3,69	2,68
Sensible cooling capacity	(3)	kW	1,33	1,05	0,71	2,04	1,65	1,26	2,67	2,14	1,59	3,18	2,73	1,94
Water flow rate	(3)	l/h	275	221	153	456	374	288	619	503	379	731	634	460
Pressure drop	(3)	kPa	18	12	6	18	12	8	24	16	10	29	22	13
Fans														
Centrifugal Fans	n°		1			2			2			2		
Air flow rate	m³/h		290	220	140	450	350	260	600	460	330	720	600	400
Sound level														
Sound power level	(4)	dB(A)	50	43	31	48	41	34	51	44	37	56	51	42
Sound pressure level		dB(A)	42	35	23	40	33	26	43	36	29	48	43	34
Hydraulic connections														
Main coil														
Standard	Ø		1/2"			3/4"			3/4"			3/4"		
Oversized	Ø		/			/			/			/		
Electrical data														
Absorbed power	FCZ	W	35	25	13	44	33	25	57	43	30	76	52	38
Connected for speeds			V3	V2	V1	V3	V2	V1	V3	V2	V1	V3	V2	V1
Power supply	FCZI	W	12	8	5	13	7	4	17	9	6	37	20	8
Signal 0 -10V		%	90	68	44	90	70	52	90	68	49	90	64	50
Power supply			230V~50Hz											



Aermec

participate in the EUROVENT program: FCH
the products are present on the site
www.eurovent-certification.com

H max. speed; M med. speed; L min. speed

(1) Room air temperature 20°C d.b.; Water (in/out) 70°C/60°C;

(2) Room air temperature 20°C d.b.; Water (in/out) 45°C/40°C (EUROVENT)

(3) Room air temperature 27°C d.b./19°C w.b.; Water (in/out) 7°C/12°C (EUROVENT)

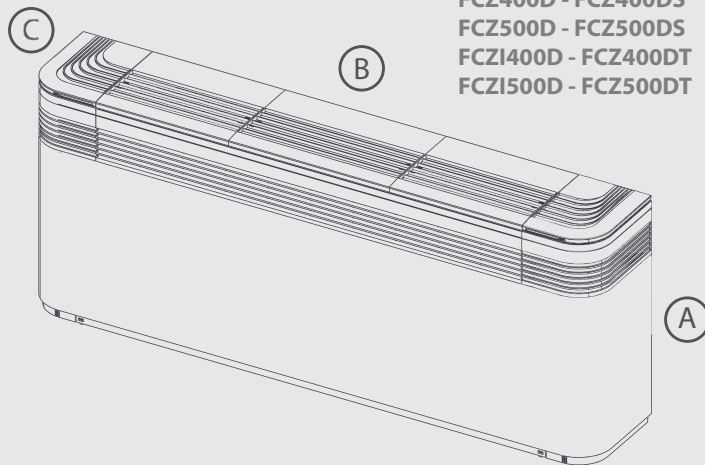
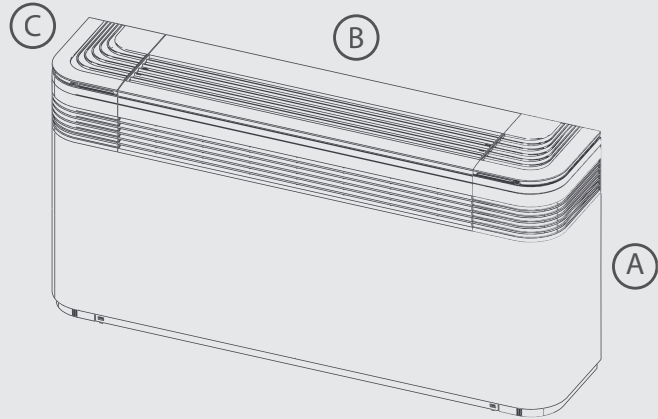
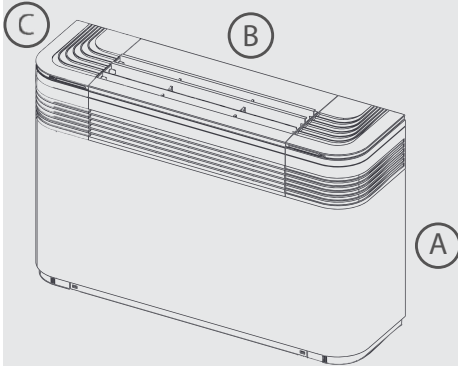
(4) Sound power level: based on measurement in compliance with Eurovent 8/2

Sound pressure level (A-weighted) measured indoors with volume V=85m³, reverberation time t = 0.5 s; Direction factor Q = 2; Distance r = 2.5m

Dimensions

FCZ200D - FCZ200DS
FCZI200D - FCZI200DT

FCZ300D - FCZ300DS
FCZI300D - FCZI300DT



FCZ400D - FCZ400DS
FCZ500D - FCZ500DS
FCZI400D - FCZI400DT
FCZI500D - FCZI500DT

Dimensions in mm

FCZ_D - FCZI_D

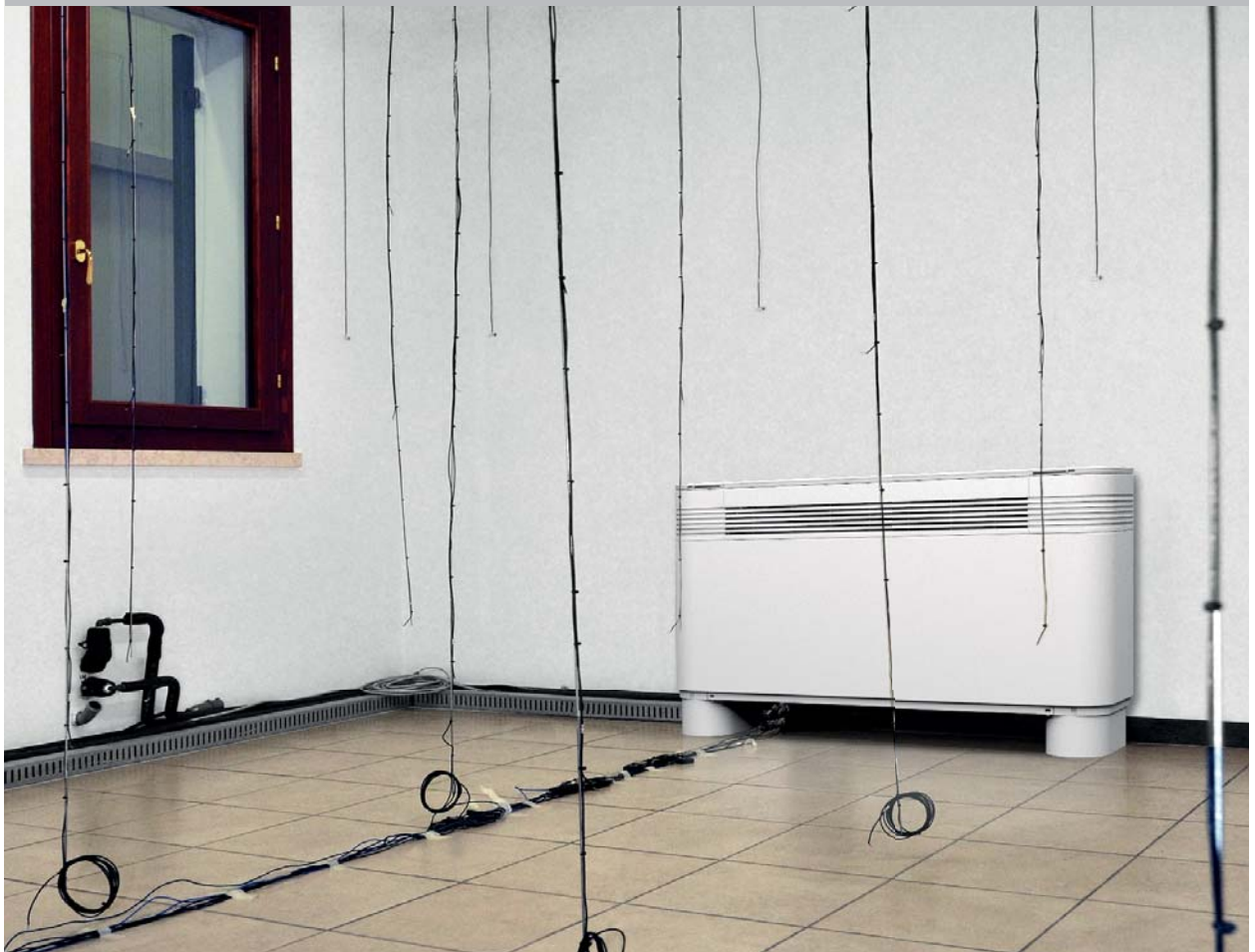
		200	300	400	500
Dimensioni per tutte le configurazioni					
Height (A)	mm	486	486	486	486
Height (A+D with feet)	mm	576	576	576	576
Length (B)	mm	750	980	1200	1200
Depth (C)	mm	220	220	220	220
Weight (without feet)	kg	15	17	23	22

For more information, please refer to the program selection and the technical documentation available on the website www.aermec.com

**Total comfort.
Maximum efficiency.
Minimum consumption**

***This is Aermec.
Italian technology
in the service of your comfort.***

REAL ROOM - VERIFICATION TEST OF HEAT DISTRIBUTION



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