

Difusser VFK

Description

A chilled beam is an induction unit that incorporates air diffusers. This terminal unit incorporates the following elements:

- Primary air plenum, with single or multiple spigots for connection of primary air to a series of nozzles.
- Cold water battery (installation with two pipes) or cold and hot water batteries (installation with four pipes).
- Linear diffusers, one on each side of the battery, for discharge and distribution of the mix of primary air and induced air.

As it passes through the nozzles, primary air induces the adjacent air, known as secondary air, which passes through the battery cooling, or warming and cooling, as appropriate, which mixes with the primary air before being distributed by the diffusers.

As with all water-based air conditioning systems, chilled beams have the advantage of using water as a vehicle for the transport of cooling or heating energy to different areas, thus saving energy and space compared to fully air-based systems. (As water can carry the heating or cooling load more efficiently than air.)

Also, with VFK chilled beams the temperature of each room or area can be controlled independently, incorporating a 2 or 3 port valve in the secondary battery controlled by a corresponding thermostat.

Range

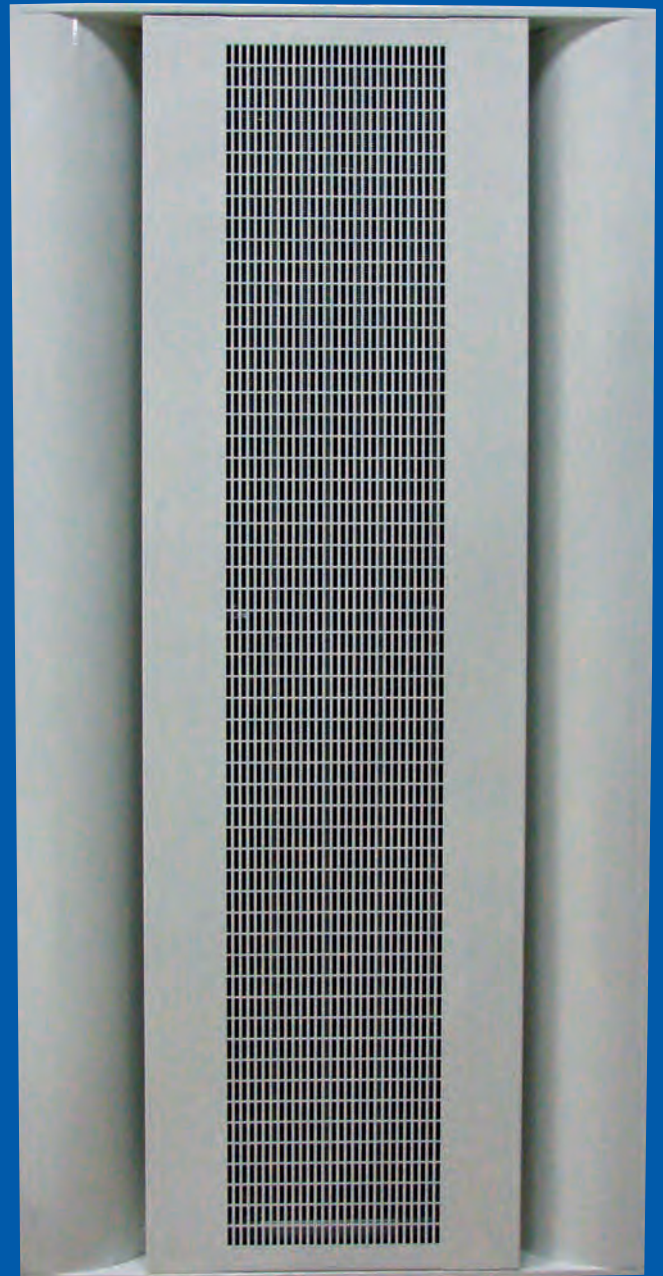
Koolair manufactures chilled beams in a range of width's and length's which can be adapted to match existing false ceilings.

The range includes VFK-300, VFK-600 and VFK-675 models for 300, 600 and 675 mm wide plates for false ceilings.

Each of these three models are manufactured in lengths of 900, 1200, 1500, 1800, 2100, 2400, 2700 and 3000 mm. All models are 200 mm high.

Technical Features

The range indicated enables the selection of units for primary air flow from 5 to 100 l/s with maximum sound pressure levels of 40 dB (A) and secondary battery power of up to 1800 W.



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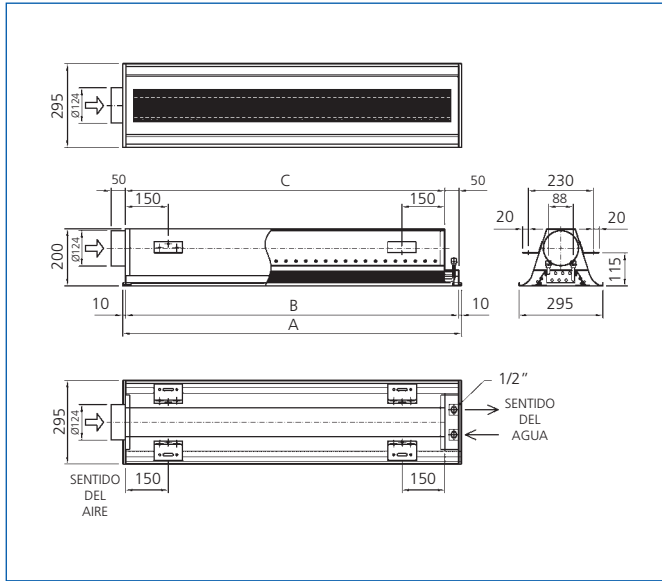
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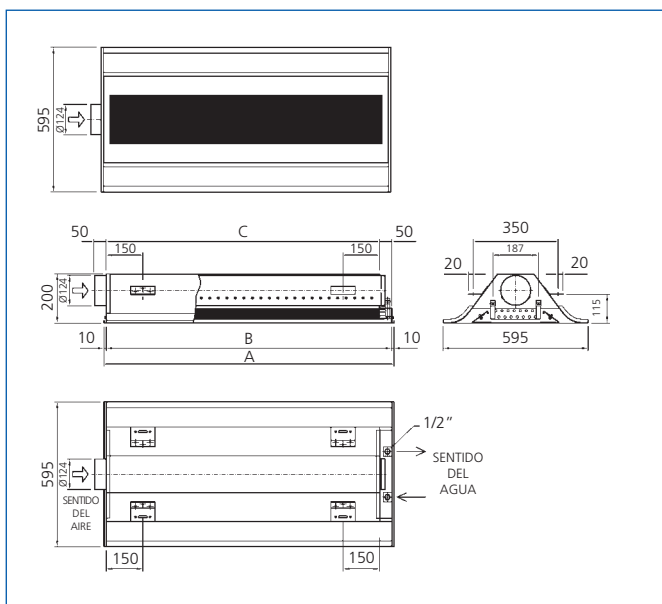
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Difusor VFK



KOOLAIR R+D laboratory test



DIMENSIONS

Model	A	B	C
900	892	872	822
1200	1192	1172	1122
1500	1492	1472	1422
1800	1792	1772	1722
2100	2092	2072	2022
2400	2392	2372	2322
2700	2692	2672	2622
3000	2992	2972	2922

QUICK SELECTION TABLE

Reference data. Design conditions

$$Q_w \text{ (l/h)} = 250$$

$$\Delta T_{Pr} \text{ (}^\circ\text{C)} = 10$$

$$\Delta T_{RWIN} \text{ (}^\circ\text{C)} = TR - T_{WIN} = 10$$

LN	Q_{Pr} (m ³ /h)	P_{total} (W)	ΔT_{RWIN} ($^\circ\text{C}$)	ΔT_{Pr} ($^\circ\text{C}$)	L_{WA} [dB(A)]	ΔP_{Pr} (Pa)	ΔP_w (kPa)
VFK600 m/l	68	797	10	10	25	94	4,5
	83	927	10	10	30	140	4,5
	101	1.070	10	10	35	207	4,5
	122	1.220	10	10	40	302	4,5

Nomenclature

ΔT_{Pr} ($^\circ\text{C}$): Temperature difference between room air T_R and primary air T_{Pr}

ΔT_{RWIN} ($^\circ\text{C}$): Temperature difference between room air T_R and water flow T_{WIN}

$\Delta P_{Pr \text{ air}}$ (Pa): Primary air pressure drop

$\Delta P_{w \text{ water}}$ (kPa): Water pressure drop

P_{total} (W): Total cooling capacity $P_{Pr \text{ air}} + P_{w \text{ water}}$

Q_w (l/h): Water volume flow rate

Q_{Pr} (m³/h): Primary air volume flow rate

