

VDCB_D

Fan coil unit for ducted installations



- For district cooling applications
- Horizontal and vertical installation
- Built-in sanitization system
- Large range of available static pressure



DESCRIPTION

The ducted range VDCB has been designed for air conditioning in environments where the installation of high-performance units with a wide range of useful head and compact dimensions is required. Thanks to the availability of various versions and configurations, it's easy to choose the optimal solution for any requirement.

FEATURES

Ventilation group

Centrifugal fans in anti-static plastic material with aerofoil profile designed to achieve high airflows and pressures whilst at the same time producing low noise.

Their characteristics permit energy savings compared to conventional fans. They are statically and dynamically balanced and directly coupled to the motor shaft.

The Brushless electric motor with 0-100% continuous speed variation, which allows precise adaptation to the real demands of the internal environment without temperature fluctuations.

The air flow can be continuously changed through a 1-10 V signal, coming from adjustment and control commands Aermec or from independent adjustment systems.

This lowers noise and generates a better response to heat loads and a higher stability in the desired temperature inside the room.

The high efficiency even with low speed, makes it possible to reduce power consumption (more than 50% less than fan coils with traditional motors).

The plastic augers are extractable for easy and efficient cleaning.

Finned pack heat exchanger

The high-efficiency heat exchanger is designed to operate with a high temperature difference, typical of District Cooling solutions.

With copper pipes and aluminum fins, the main heat exchanger has female gas hydraulic connections and is equipped with air vents.

The hydraulic connections can be inverted during installation.

Air filter

All fan coils come equipped with an easily removable and cleanable air filter. Various types of air filters are available through the configurator to meet different needs.

Controls and Accessoires

The unit's electrical box is reversible, with the option of mounting it also on the same side of the water connections.

The standard equipment includes a single 10-pin control board as an interface for the electrical connections, the preparation for the VMF series thermostat fastener and the included supply of a DIN guide for the installation of a third-party control.

To facilitate and streamline installation operations on-site, we have made it possible through the configurator, and therefore at the ordering stage, to receive the unit with certain accessories already pre-installed in the factory. We redirect your attention to the configurator available on this datasheet or to the unit selection software.

GUIDE TO SELECTING THE POSSIBLE CONFIGURATIONS

Field	Description
1,2,3,4	VDCB
5	Size 1, 2, 3, 5, 7
6	main heat exchanger
0	Standard
7	Secondary heat exchanger
0	No present
1	Present
8	Configuration
D	Low head
P	High head
9	Installation
U	Universal
V	Only vertical
10	Position of connections
D	Water connections and electrical panel on the right
G	Water connections and electrical panel on the left
L	Hydraulic connections on the left and electric connections on the opposite side
R	Hydraulic connections on the right and electric connections on the opposite side
11	Use
V	With VMF system
W	Without control board
12	Device / accessoires
H	Electric heater
I	Ioniser
P	Photocatalytic lamp
W	Without devices
13	Filter
M	With increased filter
P	Special for units with photocatalytic device
S	With basic filter
V	With washable mesh filter

ACCESSORIES

Control panels

AER503IR: Flush-mounting thermostat with backlit display, capacitive keypad and infrared receiver, for controlling both brushless fan coils and those with an asynchronous motor. In 2-pipe systems, the thermostat can control standard fan coils or those equipped with an electric heater, with air purifying devices (Cold Plasma and germicidal lamp), with radiant plate or with FCZ-D twin delivery (Dualjet). In addition, it can control systems with radiant panels or mixed (fan coil and radiant floor) systems. Being equipped with an infrared receiver, it can, in turn, be controlled by the VMF-IR remote control.

F3VU: interface board to receive 3 separate voltage commands (corresponding to 3 speeds) and converting them into three analog voltages in the range of 0-10V.

PRO503: Wall box for AER503IR and VMF-E4 thermostats.

SA5: air probe kit (L = 15 m) with probe-locking cable grommet.

SA503: Wall-mountable ambient sensor, compatible with AER503IR.

SW5: water probe kit (L = 15m) with probe-holder connection point, fixing clip and probe-holder from heat exchanger.

TX: Wall-mounting thermostat for controlling either brushless fan coils or those with asynchronous motors for 2/4 pipe. In 2-pipe systems, the thermostat can control standard fan coils or those equipped with an electric heater, with air purifying devices, radiant plate or FCZ-D twin delivery (Dualjet).

VMF-RIC: Thermostat interface for fan coil units

VMF Components

DI24: Flush-mounted interface (503 box) with 2.4" touch screen display to be combined with VMF-E19, VMF-E19I accessories. It allows you to regulate and monitor the temperature inside rooms precisely and on time; in addition to accessing and interacting with your system's operating information, parameters and alarms, it allows you to set time slots. Thanks to its Wi-Fi connection, DI24 in combination with the AerSuite APP (available for Android and iOS) can also be remotely controlled. All programming and most functions are done in a simple and intuitive way using the APP. It is supplied with a graphite grey plate; however, to allow the interface to be customised so that it fits in perfectly with the style of any home, DI24 is compatible with plates of the major brands available on the market, for more information please refer to our documentation.

VMF-E19I: Thermostat for inverter unit to be fixed on the side of the fan coil, fitted as standard with an air and water probe.

VMF-E3: Wall mounted user interface, to be combined with accessories VMF-E19, VMF-E19I, with grids GLF_N/M and GLL_N, can be controlled with VMF-IR control.

VMF-E4DX: Wall-mounted user interface. Grey front panel PANTONE 425C (METAL).

VMF-E4X: Wall-mounted user interface. Light grey front panel PANTONE COOL GRAY 1C.

VMF-IO: Manage the unit exclusively from a centralized VMF control panel without area control panel.

VMF-IR: User interface compatible with the AER503IR, VMF-E3 thermostat and with all the grids of cassettes equipped with the infrared receiver compatible with the VMF system.

VMF-SW: Water probe (L = 2.5m) used if required in place of the standard unit supplied with the VMF-E19 and VMF-E19I thermostats for mounting it upstream of the valve.

VMF-SW1: Additional water probe (L = 2.5m) to be used if required for 4-pipe systems with the VMF-E19 and VMF-E19I thermostats for maximum control in the cold range

VMHI: The VMHI panel can be used as a user interface for VMF-E19/E19I thermostats, GLFxN/M or GLLxN grids, or as an interface for the MZC system. What determines the function to be performed by the user interface is determined by its correct parametrisation and by following the electrical connections between interface and thermostat or interface and plenum.

Valves and additional finned-pack heat exchanger for water

BV: Hot water heat exchanger with 1 row.

VCF_X: 3-way valve kit for fan coils with single heat exchanger and hydraulic connections on the left side, for installation in 4-pipe systems. The kit is composed by 2 insulated 3-way valves and 4 connections complete with electrothermal actuators, insulating shells for the valves and with hydraulic fittings. 230V power supply. Hydraulic connections: Valve body Ø G 3/4" Male; Valve side connection pipes Ø G 3/4" Female; Unit side connection pipes Ø G 3/4" Male.

VCZ: 3-way motorised valve kit for the main coil. The kit is made up of a valve with its insulating shell, actuator and relative hydraulic fittings. It can be installed on fan coils with both right and left connections. If the valve is

combined with the BCZ5 or BCZ6 condensate drain pan, to ensure a better housing it is possible to remove the insulating shell.

VCZD: 2-way motorised valve kit. The kit consists of a valve, an actuator and the relative pipe fittings. It can be installed on fan coils with both right and left connections.

VDP: Combined adjustment and balancing valve, for 2 and 4 pipe systems to be installed outside the unit. It is comprised of a valve body without nipples with Ø 3/4" water connections, a 230 V powered actuator with On-Off function and a 5 m power supply cable. The valve is supplied without connections or hydraulic components.

VCT102: These are 3-way ball valves made of bronze, with female/female connections Ø 1/2". That can be servo-activated via servo commands. The valves do not have fittings and pipes for water connections, which are the installer's responsibility.

VCT103: These are 3-way ball valves made of bronze, with female/female connections Ø 1/2". That can be servo-activated via servo commands. The valves do not have fittings and pipes for water connections, which are the installer's responsibility.

VCTK: The VCT series valves can be combined with the actuators On-Off 230V. The actuator must be selected according to the type of system/adjustment provided.

VCTKM: The VCT series valves can be combined with the actuators 24V modulating. The actuator must be selected according to the type of system/adjustment provided.

Installation accessories

AMP: Wall mounting kit

BCZ: Condensate drip. If the valve is paired with the BCZ5 or BCZ6 condensate drip tray, the insulating shell can be removed to ensure better housing.

DSC: Condensate drainage device.

Accessories for intake

RDA_V: Straight intake connection with rectangular flange.

RDA_C: Straight intake connection with circular flanges.

RPA_V: Suction plenum with rectangular flange; both sides have a circular push-out Ø 150mm that can be removed.

PA_V: Suction plenum with circular plastic flanges; both sides have a circular push-out Ø 150mm that can be removed.

MZC: Plenum with motorised dampers.

KFV: Circular flanges kit for plenum.

GA: Intake grid with fixed louvers

GAF: Intake grid with filter and fixed louvers

GM: Flow grid with adjustable louvers.

Delivery accessories

PM_V: Internally insulated delivery plenum with circular flanges; both sides have a circular push-out Ø 150mm that can be removed.

RPM_V: Internally insulated delivery plenum with rectangular flange; both sides have a circular push-out Ø 150mm that can be removed.

RDM_V: Straight delivery coupling in galvanised sheet metal.

ACCESSORIES COMPATIBILITY

Control panels and dedicated accessories

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
AER503IR (1)	*	*	*	*	*
F3VU	*	*	*	*	*
PRO503	*	*	*	*	*
SA5 (2)	*	*	*	*	*
SA503 (3)	*	*	*	*	*
SW3 (2)	*	*	*	*	*
SW5 (2)	*	*	*	*	*
TX (4)	*	*	*	*	*
VMF-RIC	*	*	*	*	*

(1) Wall-mount installation.

(2) Probe for AER503IR-TX thermostats, if fitted.

(3) Thermostat probe for AER503IR if available.

(4) Wall-mounting. If the unit intake exceeds 0.7A, or several units need to be managed with a single thermostat, board SIT3 and/or SIT5 is required.

VMF system

To manage and control a VMF system, it is mandatory to include the VMF-E19I accessory on board the fan coil unit.

VMF system

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
DI24	*	*	*	*	*
VMF-E19I (1)	*	*	*	*	*
VMF-E3	*	*	*	*	*
VMF-E4DX	*	*	*	*	*
VMF-E4X	*	*	*	*	*
VMF-IO	*	*	*	*	*
VMF-IR	*	*	*	*	*
VMF-SW	*	*	*	*	*
VMF-SW1	*	*	*	*	*
VMHI	*	*	*	*	*

(1) Mandatory accessory.

(Heating only) additional coil

Accessory	VDCB100D	VDCB200D	VDCB300D
BV130 (1)	*		
BV162 (1)			*
BV230 (1)		*	

(1) Not available for sizes with oversized main coil.

Water valves

3 way valve kit

	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
3 way valve kit					
Main heat exchanger	VCZ43 / VCZ4324	VCZ43 / VCZ4324	VCZ43 / VCZ4324	VCF45CS	VCF45CS
Secondary heat exchanger for four pipes	-	-	-	-	-
Additional coil "BV"	VCF45 / VCF4524	VCF45 / VCF4524	VCF45 / VCF4524	-	-

VCZ43 - VCF45 - VCF45H - VCF47H Alimentazione 230V - VCZ4324 - VCF4524 Power supply 24V - Hydraulic connection Ø 3/4"

2 way valve kit

	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
2 way valve kit					
Main heat exchanger	VCZD3 / VCZD324	VCZD3 / VCZD324	VCZD3 / VCZD324	-	-
Secondary heat exchanger for four pipes	-	-	-	-	-
Additional coil "BV"	VCFD4 / VCFD424	VCFD4 / VCFD424	VCFD4 / VCFD424	-	-

VCZD3 Power supply 230V, VCFD324 Power supply 24V - Hydraulic connections Ø 3/4"

VCFD4 Power supply 230V, VCFD424 Power supply 24V - Hydraulic connections Ø 1/2"; For additional coil (heating only) BV.

Combined adjustment and balancing valve cold side

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
VDP15	*	*	*	*	*
VDP15HF (1)	*	*	*	*	*
VDP15LF	*	*	*	*	*
VDP20HF				*	*

(1) The compatibility of the valves with the unit must be checked using the project capacity. Select the appropriate valve based on the project water flow rate.

2-way globe valves actuator excluded

Accessory	VDCB500D	VDCB700D
VCT103	*	*

Accessory	VDCB500D	VDCB700D
VCT102	.	.
Accessory	VDCB500D	VDCB700D
VCTK	.	.
Accessory	VDCB500D	VDCB700D
VCTKM	.	.

Installation accessories

Installation accessories

Accessory	VDCB100D	VDCB200D	VDCB300D
AMP	.	.	.

Condensate drip

Accessory	VDCB100D	VDCB200D	VDCB300D
BCZ4 (1)	.	.	.
BCZ6 (2)	.	.	.

(1) For vertical installation.
(2) For horizontal installation.

Accessory	VDCB100D	VDCB200D	VDCB300D
BC9 (1)	.	.	.

(1) For horizontal installation.

Accessory	VDCB500D	VDCB700D
BCV45	.	.
BCV67	.	.

Condensate recirculation device

Accessory	VDCB100D	VDCB101D	VDCB200D	VDCB300D	VDCB301D
DSCZ4	.	.	.	.	.

Accessories for intake

Intake straight with rectangular flanges

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
RDA100V	.	.	.	.	.
RDA200V	.	.	.	.	.
RDA300V	.	.	.	.	.
RDA450V	.	.	.	.	.
RDA670V	.	.	.	.	.

Intake straight internally insulated, with circular flanges

Accessory	VDCB100D	VDCB200D	VDCB300D
RDAC100V	.	.	.
RDAC200V	.	.	.
RDAC300V	.	.	.

Intake plenum with rectangular flanges

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
RPA100V	.	.	.	.	.
RPA200V	.	.	.	.	.
RPA300V	.	.	.	.	.
RPA450V	.	.	.	.	.
RPA670V	.	.	.	.	.

Intake plenum with circular flanges

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
PA100V	.	.	.	.	.
PA200V	.	.	.	.	.
PA300V	.	.	.	.	.
PA450V	.	.	.	.	.
PA670V	.	.	.	.	.

Intake grids

Accessory	VDCB100D	VDCB200D	VDCB300D
GA32	.	.	.
GA42	.	.	.
GA62	.	.	.

Intake grid with filter and fixed louvers

Accessory	VDCB100D	VDCB200D	VDCB300D
GAF32	.		
GAF42		.	
GAF62			.

Flow grid with adjustable louvers

Accessory	VDCB100D	VDCB200D	VDCB300D
GM32	.		
GM42		.	
GM62			.

Delivery accessories**Plenum with motor-driven dampers**

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
MZC320	.				
MZC5040				.	
MZC530		.			
MZC7050					.
MZC830			.		

Delivery plenum internally insulated, with circular flanges

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
PM100V	.				
PM200V		.			
PM300V			.		
PM450V				.	
PM670V					.

Delivery plenum internally insulated, with rectangular flanges

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
RPM100V	.				
RPM200V		.			
RPM300V			.		
RPM450V				.	
RPM670V					.

Delivery straight internally insulated, with circular flanges

Accessory	VDCB100D	VDCB200D	VDCB300D
RDMC100V	.		
RDMC200V		.	
RDMC300V			.

Straight delivery coupling

Accessory	VDCB100D	VDCB200D	VDCB300D
RDM100V	.		
RDM200V		.	
RDM300V			.

Circular flanges kit for plenum

Accessory	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
KFV				.	.
KFV10	.	.	.		

PERFORMANCE SPECIFICATIONS

2-pipe

	VDCB100D					VDCB200D					VDCB300D					VDCB500D					VDCB700D				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	UL	L	M	H	HH	UL	L	M	H	HH	UL	L	M	H	HH	UL	L	M	H	HH	UL	L	M	H	HH
Heating performances 45 °C / 35 °C (1)																									
Heating capacity	kW					2,18 2,96 3,80 4,08 5,97					2,75 4,14 5,46 5,70 7,06					3,18 5,17 7,02 8,22 11,87					4,37 9,98 12,63 14,64 18,63				
Water flow rate system side	l/h					189 257 329 354 518					238 360 474 495 613					276 449 609 713 1030					379 866 1096 1271 1617				
Pressure drop system side	kPa					15 26 40 46 91					7 16 26 28 41					3 8 14 18 35					3 13 20 26 40				
Cooling performance 5.5 °C / 14.5 °C (2)																									
Cooling capacity	kW					1,67 2,27 2,92 3,13 4,59					2,11 3,18 4,20 4,38 5,43					2,44 3,97 5,40 6,31 9,12					3,35 7,67 9,71 11,25 14,32				
Sensible cooling capacity	kW					1,19 1,64 2,15 2,33 3,58					1,57 2,43 3,28 3,44 4,40					1,77 2,82 3,77 4,40 6,51					2,93 5,86 7,20 8,20 10,39				
Water flow rate system side	l/h					160 217 279 300 439					202 304 401 419 519					233 380 516 604 872					321 733 928 1075 1369				
Pressure drop system side	kPa					13 22 35 40 79					6 13 22 24 35					3 7 12 16 30					3 11 17 22 34				
Cooling performances 9 °C / 18 °C (3)																									
Cooling capacity	kW					1,10 1,49 1,92 2,06 3,02					1,39 2,09 2,76 2,88 3,57					1,60 2,61 3,55 4,15 5,99					2,20 5,04 6,38 7,39 9,41				
Sensible cooling capacity	kW					1,00 1,38 1,81 1,96 3,01					1,32 2,04 2,75 2,88 3,57					1,48 2,36 3,17 3,69 5,47					2,20 4,92 6,04 6,89 8,72				
Water flow rate system side	l/h					105 143 183 197 288					133 200 264 275 341					153 249 339 397 573					211 481 610 706 899				
Pressure drop system side	kPa					6 10 16 19 37					3 6 10 11 16					1 3 6 7 14					1 5 8 10 16				
Fan																									
Type	Centrifugal					Centrifugal					Centrifugal					Centrifugal					Centrifugal				
Fan motor	Inverter					Inverter					Inverter					Inverter					Inverter				
Number	2					2					3					2					3				
Air flow rate	m ³ /h					300 437 585 635 1000					400 606 840 888 1200					600 913 1204 1393 2000					1000 1617 2017 2384 3200				
High static pressure	Pa					6 28 50 59 34					3 26 50 56 16					9 29 50 67 19					5 32 50 70 79				
Input power	W					10 23 45 55 100					14 35 76 93 121					18 50 103 155 249					31 100 166 255 471				
Signal 0-10V	%					30 55 74 81 90					30 61 85 90 90					30 49 66 76 90					30 53 65 75 90				
Duct type fan coil sound data (4)																									
Sound power level (inlet + radiated)	dB(A)					40,0 50,0 56,0 57,0 62,0					41,0 52,0 58,0 60,0 61,0					44,0 53,0 60,0 63,0 65,0					49,0 62,0 66,0 69,0 73,0				
Sound power level (outlet)	dB(A)					37,0 48,0 55,0 56,0 60,0					39,0 50,0 57,0 58,0 60,0					40,0 51,0 57,0 60,0 64,0					43,0 56,0 62,0 66,0 69,0				
Power supply																									
Power supply	230V~50Hz					230V~50Hz					230V~50Hz					230V~50Hz					230V~50Hz				

(1) Room air temperature 20 °C d.b.; Water (in/out) 45 °C/35 °C;

(2) Room air temperature 24 °C d.b./18 °C w.b.; Water (in/out) 5.5 °C/14.5 °C; EUROVENT

(3) Room air temperature 26 °C d.b./18.6 °C w.b.; Water (in/out) 9 °C/18 °C; EUROVENT

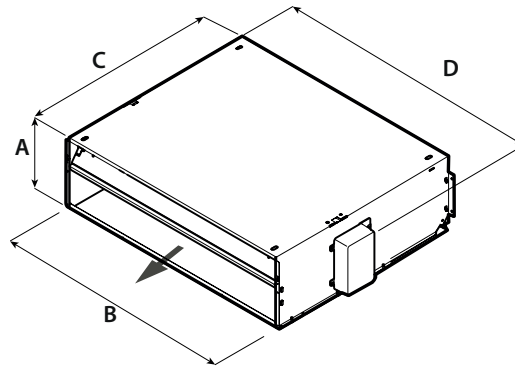
(4) Aermec determines the sound power value on the basis of measurements taken in accordance with standard UNI EN 16583:15, respecting the Eurovent certification.

Eurovent certified speed: H, M, L

Only for units configured with electric heater (field 12 of the configurator, option H)

	VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
Electric heater					
Number	no.	1	1	1	1
Heating power	kW	1310	1970	2190	4000

DIMENSIONS



		VDCB100D	VDCB200D	VDCB300D	VDCB500D	VDCB700D
Dimensions and weights						
A	mm	217	217	217	300	351
B	mm	781	1001	1122	1133	1153
C	mm	584	584	584	737	789
D	mm	807	1027	1148	1158	1558

Aermec reserves the right to make any modifications deemed necessary.
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