PRM

Air-cooled reversible modular heat pump

Cooling capacity 95,6 kW
Heating capacity 101,7 kW

- **R290 natural refrigerant gas**
- **Low refrigerant charge**
- **Production of hot water up to 75 °C**
- **High efficiency also at partial loads**
- **Reliable and modular**

DESCRIPTION

Reversible outdoor heat pumps for the production of chilled/heated water designed to satisfy the needs of residential and commercial buildings, or for industrial applications.
The base, the structure and the panels are made of galvanized steel treated with polyester paint RAL 9003.

VERSIONS

A High efficiency
E Silenced high efficiency

FEATURES

Operating field

Working at full load up to -20 °C outside air temperature in winter, and up to 48 °C in summer. Hot water production up to 75 °C.

Modularity

It is possible to couple up to 9 units designed to reduce the overall unit dimensions to a minimum.
Modularity is essential when component redundancy is required, as it allows for a safer system design and increased reliability.

Flexibility

Modularity allows you to adapt installation to the actual development needs of the system. This way the capacity can be increased over time simply and affordably.

Dual-circuit unit

The units are dual-circuit, to ensure maximum efficiency both at full load and at partial load.
Two scroll compressors are installed in each circuit in a tandem configuration.

Condensation control temperature

Fitted as standard with a device for electronic condensation control so that the unit can work even with low temperatures, adapting the air flow rate to the actual system request in order to reduce consumption.

Refrigerant HC R290

Using the natural R290 refrigerant, classified A3 to ISO 817 (non-toxic, odourless and flammable refrigerant), the unit's environmental impact drops significantly.
Combining low refrigerant load (less than 5 kg per circuit) with ultra-low Global Warming Potential (GWP), these units boast practically negligible direct equivalent CO2 emissions.

■ *The refrigerant gas detector, the double pressure relief valve (with exchange isolation valve) and the battery protection grilles are standard.*

New condensing Coils

The whole range uses copper - aluminium condensation coils with reduced diameter rows, allowing a lower quantity of gas to be used compared to traditional coils.

Electronic expansion valve

The use of the electronic expansion valve offers significant benefits (especially when the unit is working with partial loads), increasing the seasonal energy efficiency of the unit.

Option integrated hydronic kit

An optional, integrated hydronic kit containing the main hydraulic components, to obtain a solution that allows you to save money and to facilitate installation.
It's available in various configurations, with storage tank or pumps.

CONTROL PCO_5

Microprocessor control, with keyboard and LCD display, for easy access on the unit with a menu available in several languages.

— The presence of a programmable timer allows functioning time periods and a possible second set-point to be set.
— The temperature control takes place with the integral proportional logic, based on the water output temperature.
— **Swing HP and LP controls:** available for all models with inverter fan or with DCPX. By continuously modulating the fans, they streamline operation of the unit at any work point both in cooling and heating mode. This results in enhanced energy efficiency of the unit at partial loads.

— **Night mode:** only in the **non-silenced** versions is it possible to set a silenced operating mode, which is useful for example at night for greater acoustic comfort but always guarantees performance even at peak load times.

— **"Noise Demand Limit" function**: only in non-quiet versions, this function limits the compressors within a time band to set a quiet operation profile, useful for example at night for greater acoustic comfort.
— Possibility to control two units in Master - Slave parallel mode. In this case, it is possible to use only one accessory PGD1 for both units.

CONFIGURATOR

Field		Description
1,2,3		**PRM**
4,5,6,7		**Size** 0504
8		**Operating field**
	X	Electronic thermostatic expansion valve (1)
	Z	Low temperature electronic thermostatic valve (2)
9		**Model**
	H	Heat pump
10		**Heat recovery**
	D	With desuperheater (3)
	°	Without heat recovery
11		**Version**
	A	High efficiency
	E	Silenced high efficiency
12		**Coils**
	R	Copper pipes-copper fins
	V	Copper pieps-Coated aluminium fins
	°	Copper-aluminium
13		**Fans**
	J	Inverter (4)
	°	Standard with DCPX
14		**System type**
	N	Version without modular pipes
	°	Modular version
15,16		**Integrated hydronic kit**
	00	Without hydronic kit
	01	Storage tank with low head pump
	02	Storage tank with low head pump + stand-by pump
	03	Storage tank with high head pump
	04	Storage tank with high head pump + stand-by pump
	09	Storage tank with double loop and intermediate heat exchanger
	P1	Single pump low head
	P2	Pump low head + stand-by pump
	P3	Single pump high head
	P4	Pump high head + stand-by pump

(1) Water produced up to +4 °C
(2) Processed water temperature -10 °C
(3) The desuperheater must be intercepted in heating mode. In cooling mode, a water temperature no lower than 35°C must always be guaranteed on the heat exchanger inlet.
(4) Standard from the E version.

ACCESSORIES

The units PRM must be controlled remotely through an appropriate accessory (remote control panelPGD1,,AERNET MULTICHILLER-EVO, AERLINK orPR4) to be obligatorily and separately. Only in this way is it possible to modify some basic operating parameters or view the presence of any alarms, which avoids accessing risk and restricted access areas.

AER485P1: RS-485 interface for supervising systems with MODBUS protocol. 1 accessory is provided for each unit control board.
AERBAC-ONE: Ethernet communication interface for Bacnet/IP and Modbus TCP/IP protocols, HTTPS protocol for web interface, encrypted communication protocols and access credential management in accordance with the latest standards. One accessory is provided for each unit control board.
AERBACP: Ethernet communication interface for Bacnet/IP and Modbus TCP/IP protocols. 1 accessory is provided for each unit control board.
AERLINK: Aerlink is a WiFi gateway with an RS485 serial port that allows a wide range of Aermec products (heat pumps/chillers/system controllers) equipped with this interface to connect easily and securely to a Wi-Fi network. It works both as an access point (AP access point) and as a client (WiFi Station), it can be connected to a single generator or system centraliser, allowing anyone to easily integrate them into any network. Thanks to the AerApp and AerPlants apps, which can be used on Android and iOS platforms, the remote management of the air conditioning systems developed by Aermec becomes intuitive and simple.
AERNET: The device remotely controls, manages and remotely monitors a chiller/heat pump using a PC, smartphone or table via a Cloud connection. AERNET acts as Master while each connected unit is configured as Slave up to a maximum of 6 control cards. The connection is made via cable and/or USB key. Wi-Fi connectivity is not available. It is also possible to save a log file with all the data from the connected units to your terminal with a simple click for possible post-analysis. With the purchase of the Router, the Customer benefits from a 24-month free period during which he can use the Aernet Service at no additional cost. At the end of this initial period, the Service may be renewed by subscribing to a 1, 2 or 3 year subscription. For further details on costs and renewal methods, please contact our office or consult the technical documentation available on our website. www.aermec.com.
MULTICHILLER-EVO: Control, switch-on and switch-off system of the single chillers where multiple units are installed in parallel (max. no. 9), always ensuring constant flow rate to the evaporators.
PGD1: Allows you to control the unit at a distance.
PR4: Remote panel with LCD display and touch keyboard that allows carrying out the basic controls, the programming of time ranges and the signalling of the alarms of a single unit.
VT: Anti-vibration supports.
KTUBES: Pipe kits required to connect more than one unit. Available only for modular units (unit type °).

FACTORY FITTED ACCESSORIES

DRE: Electronic device for peak current reduction.
RIF: Power factor correction. Connected in parallel to the motor allowing about 10% reduction of input current.
KNYB: Pair of caps with grooved joints assembled on the unit manifold.
BRC1R_PRM: Condensate drip with resistance
BRC1_PRM: Condensate drip.

COMPATIBILITY WITH VMF SYSTEM

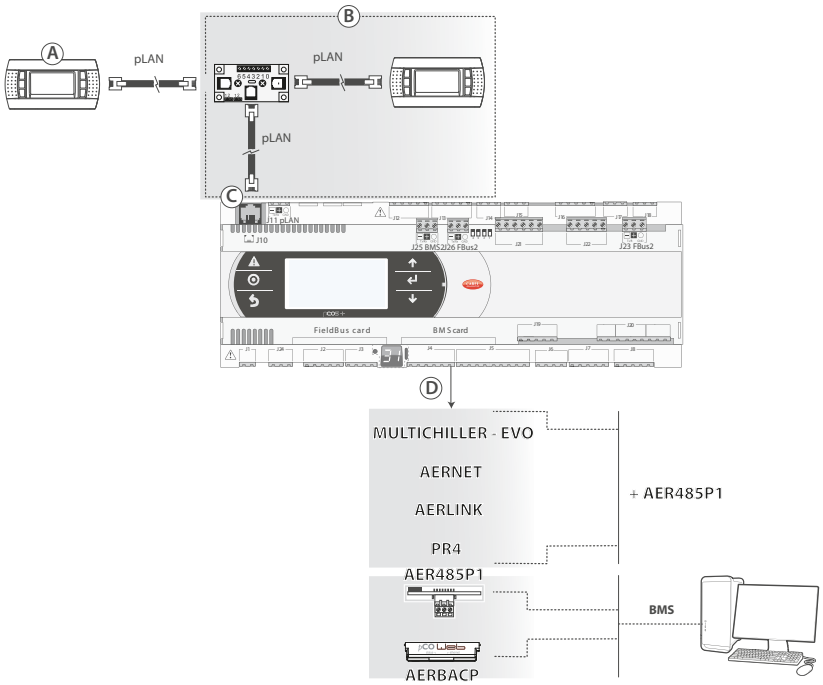
For more information about VMF system, refer to the dedicated documentation.

COMPATIBILITY BETWEEN CONTROL ACCESSORIES

Model	Ver	0504
AER485P1	A,E	•
AERBAC-ONE	A,E	•
AERBACP	A,E	•
AERLINK	A,E	•
AERNET	A,E	•
MULTICHILLER-EVO	A,E	•
PGD1	A,E	•

Remote panel

Model	Ver	0504
PR4	A,E	•



Key:

A Display on the unit.

B Control panel accessory "PGD1".

C Control panel connection port "PGD1".

D **BMS Card serial port:** where to connect 1 among the accessories "MULTICHILLER-EVO AERNET, ,AERLINK, PR4 but to be connected also must also have "AER485P1"; in the case of BMS communication with the accessories "AER485P1 or AERBACP" the only mandatory compatible accessory is the control panel "PGD1".

ACCESSORIES COMPATIBILITY

Antivibration

Ver	0504
Integrated hydronic kit: 00, 01, 02, 03, 04, 09, P1, P2, P3, P4	
A, E	VT11

Pipe kits required to connect more than one unit

Ver	0504
System type: °	
A, E	KTUBES

Pair of caps with grooved joints assembled on the unit manifold

Ver	0504
System type: °	
A, E	KNYB

A grey background indicates the accessory must be assembled in the factory

Condensate drip with resistance

Ver	0504
A, E	BRC1R_PRM

A grey background indicates the accessory must be assembled in the factory

Condensate drip

Ver	0504
A, E	BRC1_PRM

A grey background indicates the accessory must be assembled in the factory

Device for peak current reduction

Ver	0504
A, E	DREPRM504

A grey background indicates the accessory must be assembled in the factory

Power factor correction

Ver	0504
A, E	RIFPRM504

A grey background indicates the accessory must be assembled in the factory

PERFORMANCE SPECIFICATIONS 12 °C/ 7 °C - 40 °C/ 45 °C

PRM - A

Size		0504
Fans: J, °		
Cooling performance 12 °C / 7 °C (1)		
Cooling capacity	kW	95,6
Input power	kW	35,5
Cooling total input current	A	68,07
EER	W/W	2,69
Water flow rate system side	l/h	16.444
Pressure drop system side	kPa	22
Heating performance 40 °C / 45 °C (2)		
Heating capacity	kW	101,8
Input power	kW	31,9
Heating total input current	A	64,27
COP	W/W	3,19
Water flow rate system side	l/h	17.655
Pressure drop system side	kPa	24

(1) Data EN 14511:2022; Heat exchanger water (services side) 12°C / 7°C; outside air 35°C
(2) Data EN 14511:2022; System side water heat exchanger 40 °C / 45 °C; Outside air 7 °C d.b. / 6 °C w.b.

PRM - E

Size		0504
Fans: J		
Cooling performance 12 °C / 7 °C (1)		
Cooling capacity	kW	92,8
Input power	kW	35,8
Cooling total input current	A	66,18
EER	W/W	2,59
Water flow rate system side	l/h	15.965
Pressure drop system side	kPa	21
Heating performance 40 °C / 45 °C (2)		
Heating capacity	kW	101,8
Input power	kW	31,9
Heating total input current	A	64,27
COP	W/W	3,19
Water flow rate system side	l/h	17.655
Pressure drop system side	kPa	24

(1) Data EN 14511:2022; Heat exchanger water (services side) 12°C / 7°C; outside air 35°C
(2) Data EN 14511:2022; System side water heat exchanger 40 °C / 45 °C; Outside air 7 °C d.b. / 6 °C w.b.

PERFORMANCE SPECIFICATIONS 23 °C/ 18 °C - 30 °C/ 35 °C

PRM - A

Size		0504
Fans: J		
Cooling performance 23 °C / 18 °C (1)		
Cooling capacity	kW	128,3
Input power	kW	39,3
Cooling total input current	A	74,92
EER	W/W	3,26
Water flow rate system side	l/h	22.186
Pressure drop system side	kPa	40
Heating performance 30 °C / 35 °C (2)		
Heating capacity	kW	104,7
Input power	kW	26,9
Heating total input current	A	54,00
COP	W/W	3,90
Water flow rate system side	l/h	18.094
Pressure drop system side	kPa	26

(1) Data EN 14511:2022; System side water heat exchanger 23 °C/ 18 °C; External air 35 °C
(2) Data EN 14511:2022; System side water heat exchanger 30 °C / 35 °C; External air 7 °C d.b. / 6 °C w.b.

Size			0504
Fans: °			
Cooling performance 23 °C / 18 °C (1)			
Cooling capacity		kW	127,3
Input power		kW	39,3
Cooling total input current		A	74,92
EER		W/W	3,24
Water flow rate system side		l/h	22.008
Pressure drop system side		kPa	40
Heating performance 30 °C / 35 °C (2)			
Heating capacity		kW	104,7
Input power		kW	26,9
Heating total input current		A	54,00
COP		W/W	3,90
Water flow rate system side		l/h	18.094
Pressure drop system side		kPa	26

(1) Data EN 14511:2022; System side water heat exchanger 23 °C/ 18 °C; External air 35 °C
(2) Data EN 14511:2022; System side water heat exchanger 30 °C / 35 °C; External air 7 °C d.b. / 6 °C w.b.

PRM - E

Size			0504
Fans: J			
Cooling performance 23 °C / 18 °C (1)			
Cooling capacity		kW	122,6
Input power		kW	40,3
Cooling total input current		A	74,01
EER		W/W	3,05
Water flow rate system side		l/h	21.201
Pressure drop system side		kPa	37
Heating performance 30 °C / 35 °C (2)			
Heating capacity		kW	104,7
Input power		kW	26,9
Heating total input current		A	54,00
COP		W/W	3,90
Water flow rate system side		l/h	18.094
Pressure drop system side		kPa	26

(1) Data EN 14511:2022; System side water heat exchanger 23 °C/ 18 °C; External air 35 °C
(2) Data EN 14511:2022; System side water heat exchanger 30 °C / 35 °C; External air 7 °C d.b. / 6 °C w.b.

ENERGY DATA - STANDARD/INVERTER FANS

Size			0504
Fans: J			
SEER - 12/7 (EN14825: 2018)			
SEER	A	W/W	4,08
	E	W/W	4,03
Seasonal efficiency	A	%	160,00
	E	%	158,10
Water Regulation (1)	A,E	type	VW/VO
SEER - 23/18 (EN14825: 2018)			
SEER	A	W/W	4,93
	E	W/W	4,82
Seasonal efficiency	A	%	194,26
	E	%	189,80
Water Regulation (1)	A,E	type	VW/FO

(1) VW/VO - variable water flow rate/variable outlet temperature; FW/VO - fixed water flow rate/variable outlet temperature; VW/FO - variable water flow rate/fixed outlet temperature; FW/FO - fixed water flow rate/fixed outlet temperature.

Size			0504
Fans: °			
SEER - 12/7 (EN14825: 2018)			
SEER	A	W/W	3,96
	E	W/W	-
Seasonal efficiency	A	%	155,55
	E	%	-
Water Regulation (1)	A	type	VW/VO
	E	type	-
SEER - 23/18 (EN14825: 2018)			
SEER	A	W/W	4,85
	E	W/W	-
Seasonal efficiency	A	%	190,96
	E	%	-
Water Regulation (1)	A	type	VW/FO
	E	type	-

(1) VW/VO - variable water flow rate/variable outlet temperature; FW/VO - fixed water flow rate/variable outlet temperature; VW/FO - variable water flow rate/fixed outlet temperature; FW/FO - fixed water flow rate/fixed outlet temperature.

ENERGY DATA - STANDARD/INVERTER FANS (35°C)

Size			0504
Fans: J			
Performance in average ambient conditions (average) - 35 °C (1)			
Pdesignh	A,E	kW	82,81
SCOP	A,E	W/W	4,10
ηsh	A,E	%	161,00
Water Regulation (2)	A,E	type	FW/VO

(1) Efficiencies for low temperature applications (35 °C)
(2) VW/VO - variable water flow rate/variable outlet temperature; FW/VO - fixed water flow rate/variable outlet temperature; VW/FO - variable water flow rate/fixed outlet temperature; FW/FO - fixed water flow rate/fixed outlet temperature.

Size			0504
Fans: °			
Performance in average ambient conditions (average) - 35 °C (1)			
Pdesignh	A	kW	82,81
	E	kW	-
SCOP	A	W/W	3,86
	E	W/W	-
ηsh	A	%	151,41
	E	%	-
Water Regulation (2)	A	type	FW/VO
	E	type	-

(1) Efficiencies for low temperature applications (35 °C)
(2) VW/VO - variable water flow rate/variable outlet temperature; FW/VO - fixed water flow rate/variable outlet temperature; VW/FO - variable water flow rate/fixed outlet temperature; FW/FO - fixed water flow rate/fixed outlet temperature.

ENERGY DATA - STANDARD/INVERTER FANS (55°C)

Size			0504
Fans: J			
Performance in average ambient conditions (average) - 55 °C (1)			
Pdesignh	A,E	kW	80,58
SCOP	A,E	W/W	3,30
ηsh	A,E	%	128,91
Water Regulation (2)	A,E	type	FW/VO

(1) Efficiencies for average temperature applications (55 °C)
(2) VW/VO - variable water flow rate/variable outlet temperature; FW/VO - fixed water flow rate/variable outlet temperature; VW/FO - variable water flow rate/fixed outlet temperature; FW/FO - fixed water flow rate/fixed outlet temperature.

Size			0504
Fans: °			
Performance in average ambient conditions (average) - 55 °C (1)			
Pdesignh	A	kW	80,58
	E	kW	-
SCOP	A	W/W	3,14
	E	W/W	-
ηsh	A	%	122,74
	E	%	-
Water Regulation (2)	A	type	FW/VO
	E	type	-

(1) Efficiencies for average temperature applications (55 °C)
(2) VW/VO - variable water flow rate/variable outlet temperature; FW/VO - fixed water flow rate/variable outlet temperature; VW/FO - variable water flow rate/fixed outlet temperature; FW/FO - fixed water flow rate/fixed outlet temperature.

ELECTRIC DATA

Size			0504
Electric data			
Maximum current (FLA)	A,E	A	115,2
Peak current (LRA)	A,E	A	235,2

Data calculated without hydronic kit and accessories.

GENERAL TECHNICAL DATA

Refrigerant circuit

Size			0504
Fans: J, °			
Compressor			
Type	A,E	type	Scroll
Compressor regulation	A,E	Type	On-Off
Number	A,E	no.	4
Circuits	A,E	no.	2
Refrigerant	A,E	type	R290
Total refrigerant charge (1)	A,E	kg	7,60
Potential global heating (GWP)	A,E		0.02
Equivalent CO_2	A,E	$kgCO_2eq$	0,152

(1) The load indicated in the table is an estimated and preliminary value. The final value of the refrigerant load is indicated on the unit's technical label. For further information contact the office.

System side heat exchanger

Size			0504
System side heat exchanger			
Type	A,E	type	Brazed plate
Number	A,E	no.	1

Size			0504
System type: N			
Hydraulic connections without hydronic kit			
Sizes (in/out)	A,E	Ø	2"1/2
Connections (in/out)	A,E	Type	Grooved joints

Size			0504
System type: °			
Hydraulic connections without hydronic kit			
Sizes (in/out)	A,E	Ø	6"
Connections (in/out)	A,E	Type	Grooved joints

Fans

Size			0504
Fans: J			
Fan			
Type	A,E	type	Axial
Fan motor	A,E	type	Inverter
Number	A,E	no.	2
Air flow rate	A	m^3/h	38.500
	E	m^3/h	27.500

Size			0504
Fans: °			
Fan			
Type	A	type	Axial
	E	type	-
Fan motor	A	type	Asynchronous + DCPX
	E	type	-
Number	A	no.	2
	E	no.	-
Air flow rate	A	m^3/h	38.500
	E	m^3/h	-

Sound data

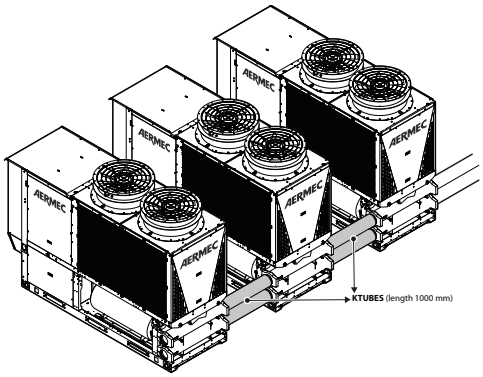
Size			0504
Fans: J			
Sound data calculated in cooling mode (1)			
Sound power level	A	dB(A)	87,8
	E	dB(A)	84,8
Sound data calculated in heating mode (1)			
Sound power level	A,E	dB(A)	87,8

(1) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification. Sound pressure (cold functioning) measured in free field, 10m away from the unit external surface (in compliance with UNI EN ISO 3744).

Size			0504
Fans: °			
Sound data calculated in cooling mode (1)			
Sound power level	A	dB(A)	87,8
	E	dB(A)	-
Sound data calculated in heating mode (1)			
Sound power level	A	dB(A)	87,8
	E	dB(A)	-

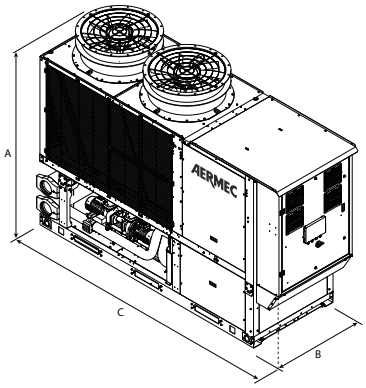
(1) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification. Sound pressure (cold functioning) measured in free field, 10m away from the unit external surface (in compliance with UNI EN ISO 3744).

MODULAR INSTALLATION

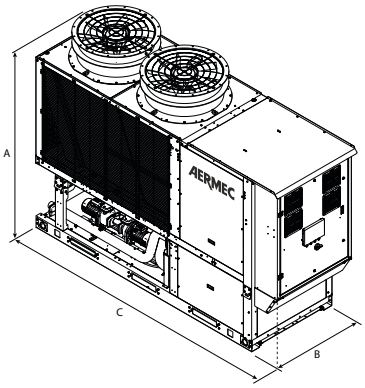


It is possible to couple up to 9 units designed to reduce the overall unit dimensions to a minimum.

DIMENSIONS



Modular version (°)



Version without modular pipes (N)

Size			0504
Integrated hydronic kit: 00			
Dimensions and weights			
A	A,E	mm	2.520
B	A,E	mm	1.236
C	A,E	mm	3.583

Size			0504
Integrated hydronic kit: 00			
Modular version (°)			
Empty weight	A,E	kg	1.502
Weight functioning	A,E	kg	1.567
Version without modular pipes (N)			
Empty weight	A,E	kg	1.441
Weight functioning	A,E	kg	1.451

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