

# HMG – HMG\_P

## Reversible air/water heat pump

HMG: Cooling capacity 32 ÷ 60 kW – Heating capacity 35 ÷ 65 kW  
 HMG\_P: Cooling capacity 33 ÷ 60 kW – Heating capacity 36 ÷ 65 kW



- R32 ecological refrigerant gas.
- Touch-screen control panel
- Easy and quick to install
- Reliability and compactness
- Hermetically sealed equipment
- Modularity



### DESCRIPTION

HMG and HMG\_P are the new outdoor reversible inverter heat pump system for producing chilled and heated water. These units are designed to meet the plant engineering needs of residential or commercial contexts, or industrial applications. HMG and HMG\_P Are designed to meet the needs of both the new constructions market and the renovation market, replacing or working alongside conventional boilers. They can be combined with low-temperature emission systems such as floor heating or fan coils. They are formed of fully independent modules that can be linked together to create a modular system. The base, the structure and the panels are made of galvanized steel treated with polyester paint. HMG\_P comes supplied with the main hydraulic components needed, thereby facilitating the final installation and is supplied with Integrated hydronic kit

### FEATURES

#### Operating limits

Operation from -20°C outside air temperature (winter) to 52°C (summer). Production of hot water up to 50 °C.

**For more information about the operating limits of these units, refer to the specific paragraph on this product data sheet.**

#### Modularity

HMG and HMG\_P unit can be installed in a modular system of reversible inverter heat pumps for producing hot and chilled water, with connectable base modules purposely designed to minimise the overall dimensions.

**For HMG units it is possible to connect units with different capacity.**

**For HMG\_P units, connection is only possible between units of the same capacity.**

Modularity allows the installation of these units to be adapted to the real system development requirements, so the installed power can be increased over time in a simple and cost effective manner.

On the basis of these requirements, the user can choose either: **homogeneous modularity** or **sequential modularity**.

### Homogeneous modularity

Made possible with the use of a control panel **TCP** (mandatory accessory) to be connected to the master unit of the system.

This type of modularity allows the modules to work with a homogeneous capacity control logic whilst still guaranteeing delay switch-on and switch-off to avoid power consumption peaks and intelligent defrosting (the simultaneous defrosting of up to 1/3 of the modules installed).

Up to 16 modules for HMG also of different capacity., and 3 modules for HMG\_P modules of equal capacity, can be linked together with this operating mode.

### For HMG

To take full advantage of the characteristics of this working mode, you are advised to use it in systems with a pump (or a group of pumps) that serves all the units. The control logic manages the switch-on and switch-off of the pump(s) on the basis of the operating conditions of the generation system.

### Sequential modularity

Made possible with the use of accessories **TCP** (mandatory accessory), **IC-2P**, **VMF-485LINK** and **VMF-E6**.

This type of modularity allows the HMG and HMG\_P units to be added to the control system of the whole hydraulic/aeraulic system, so DHW can also be managed.

Unit switch-on and switch-off is managed in a sequential manner, according to a selected control logic (free regulation, regulation by load or regulation by temperature difference).

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

Up to 4 modules for HMG also of different capacity., and 3 modules for HMG\_P modules of equal capacity, can be linked together with this operating mode.

Management is optimised for systems where each unit HMG commands its own pump.

## Main components

### HMG

- Flow switch.
- DC brushless axial flow fans designed for aerodynamic optimisation, reducing the noise level whilst at the same time increasing the efficiency and air flow rate.
- Compressor twin rotary inverter.
- Special coil with fin golden coating.
- High-efficiency shell & tube heat exchanger (system side) for excellent reliability and a long lifespan.
- Electronic expansion valve.
- Fitted with a electrical anti-freeze heater (in unit base) to avoid the formation of ice and encourage the drainage of condensate during heating operation.

### HMG\_P

- DC brushless axial flow fans designed for aerodynamic optimisation, reducing the noise level whilst at the same time increasing the efficiency and air flow rate.
- Compressor twin rotary inverter.
- Special coil with fin golden coating.
- High-efficiency plate heat exchanger (system side) for excellent reliability and a long lifespan.
- Electronic expansion valve.
- Fitted with a electrical anti-freeze heater (in unit base) to avoid the formation of ice and encourage the drainage of condensate during heating operation.

### Main hydraulic components HMG\_P

- Flow switch.
- Inverter pump.
- Expansion tank.
- Drain valve.
- Safety valve.
- Water filter supplied (mandatory installation).

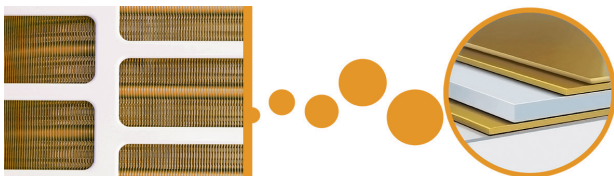
## Regulation

Adjustment via **touch-screen control panel (TCP accessory compulsory)**:

- **Only for HMG:** management of (up to) two pumps (not supplied) that can work alternately, boosting the reliability of the system,
- management of (up to) two auxiliary electric resistors (not supplied),
- **Quiet** function for reduced noise operation,
- climatic regulation function,
- unit anti-freeze protection at low temperatures,
- weekly programming in time periods,
- high and low pressure protection,
- smart compressor control, extending the lifespan of the unit and enhancing its reliability,
- alarm history.

## Special golden fin coil

Unlike normal batteries, this special golden epoxy coating silicon free is able to protect the heat exchanger against rust and corrosion, in areas where the air has a high salt content.



## ACCESSORIES

**TCP:** Touch-screen control panel. (Accessory compulsory).

**IC-2P:** Connector for communication via Mod Bus or VMF-485LINK. Accessory compulsory if combined with VMF-485LINK, or for third party supervision systems.

**VMF-485LINK:** Expansion to interface the unit with the VMF communication protocol, making it possible to manage it from the VMF-E6 supervisor.

**VMF-E6:** White flush-mounting panel with 4.3 inch colour touchscreen. For the centralised command/control of a complete hydronic/aerualic system consisting of: fan coils (up to 64 fan coil zones formed of 1 master + max. 5 slaves), heat pumps (up to 4), MZC accessories (up to 5) for the management of radiant panels (using a suitable number of VMF-REB accessories, up to 64 radiant panels associated with the fan coil zones and up to 32 radiant panels associated with the zones served by MZC), the complete management of DHW production, control of the RAS heater and/or the boiler, management of digital I/Os, control of heat recovery units and VOC probes (up to 4).

**LOGATW:** Diagnostic tool for air-water heat pumps.

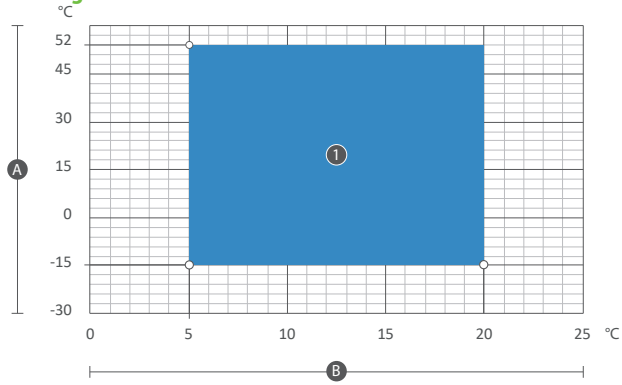
**SGD:** Electronic expansion that enables connecting to the photovoltaic system and heat pumps to accumulate heat in the DHW tank or in the heating system during the photovoltaic production phase and release it at times when heating demand is highest.

## COMPATIBILITY WITH VMF SYSTEM

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

## OPERATING LIMITS

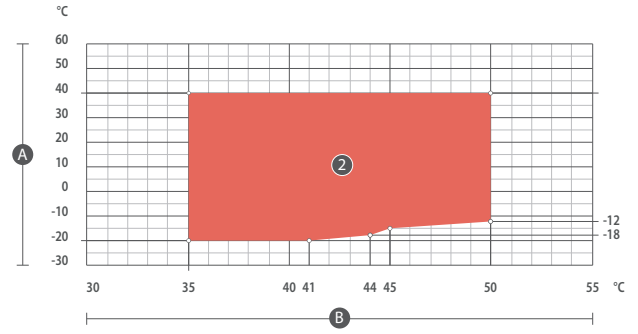
### Cooling mode



#### KEY

- 1 cooling mode
- A outdoor air temperature (°C)
- B water produced temperature (°C)

### Heating mode range



#### KEY

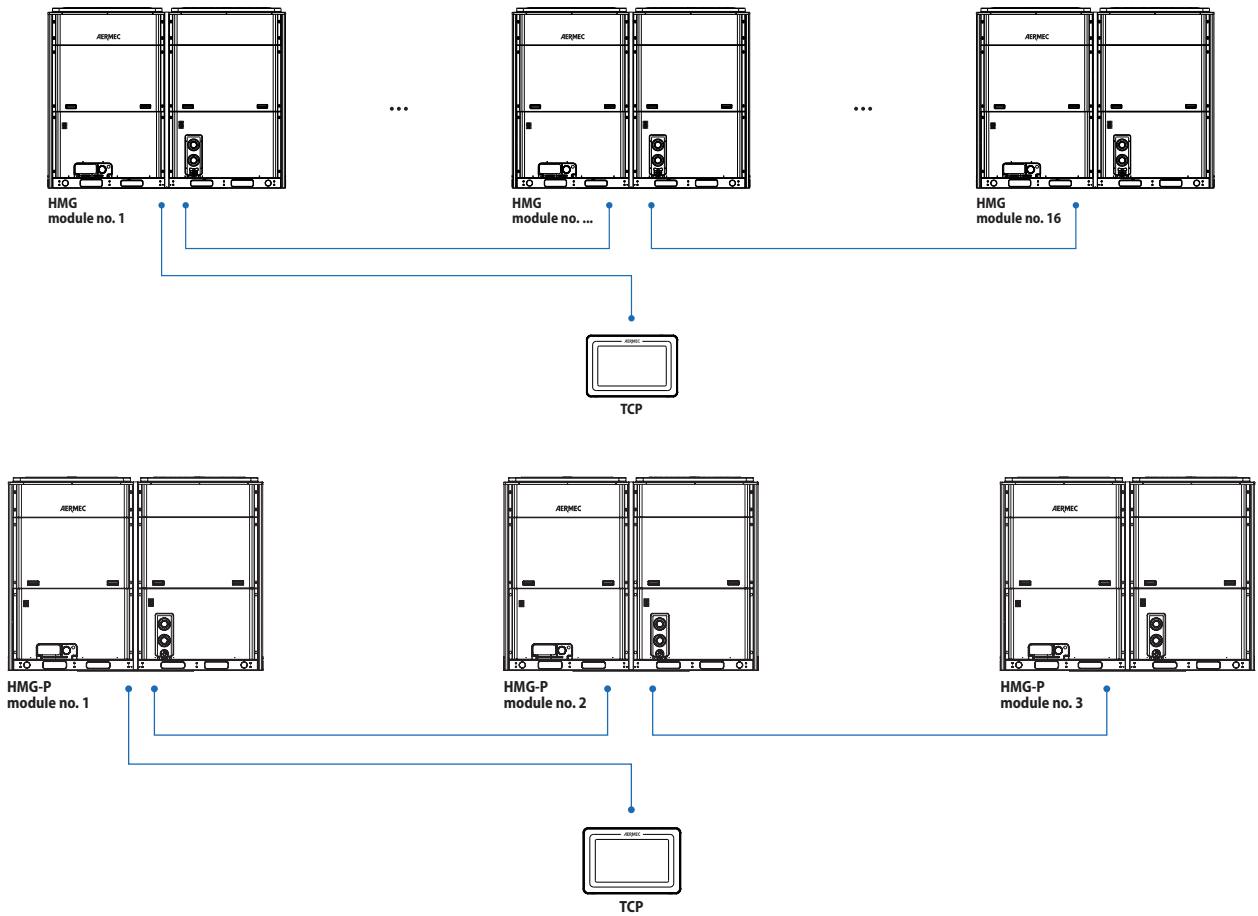
- 2 heating mode
- A outdoor air temperature (°C)
- B water produced temperature (°C)

## MODULARITY

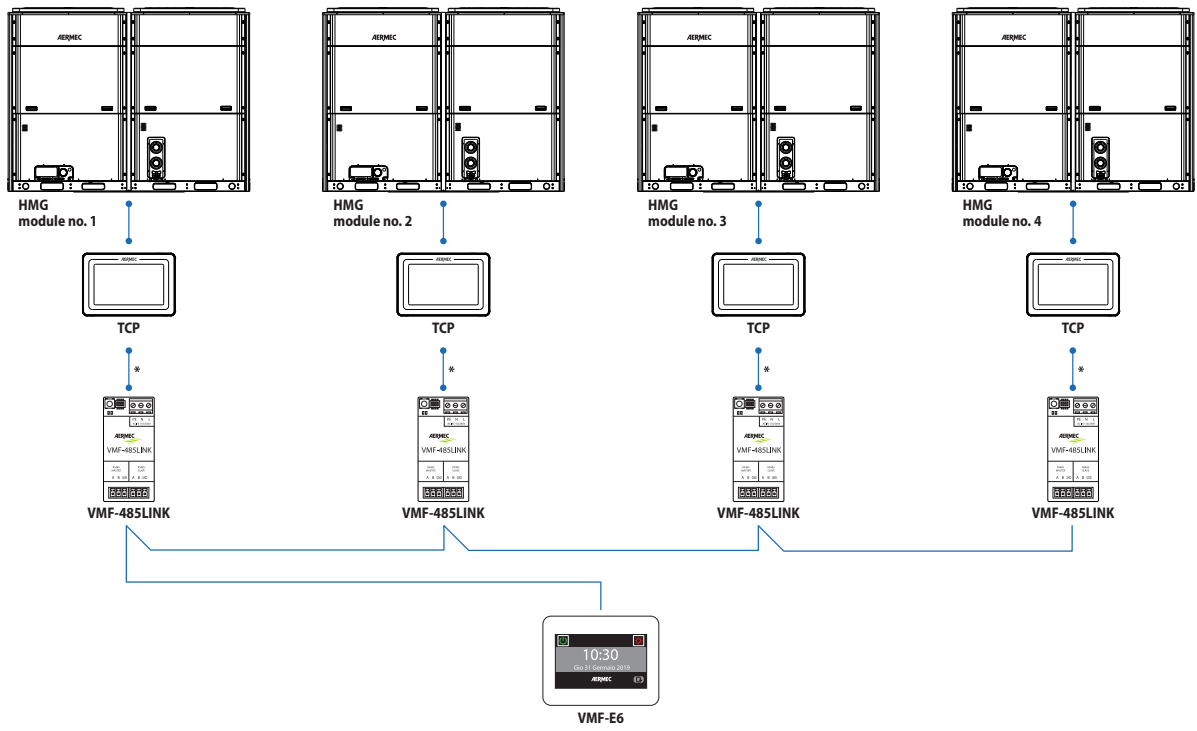
For HMG units it is possible to connect units with different capacity.

For HMG\_P units, connection is only possible between units of the same capacity.

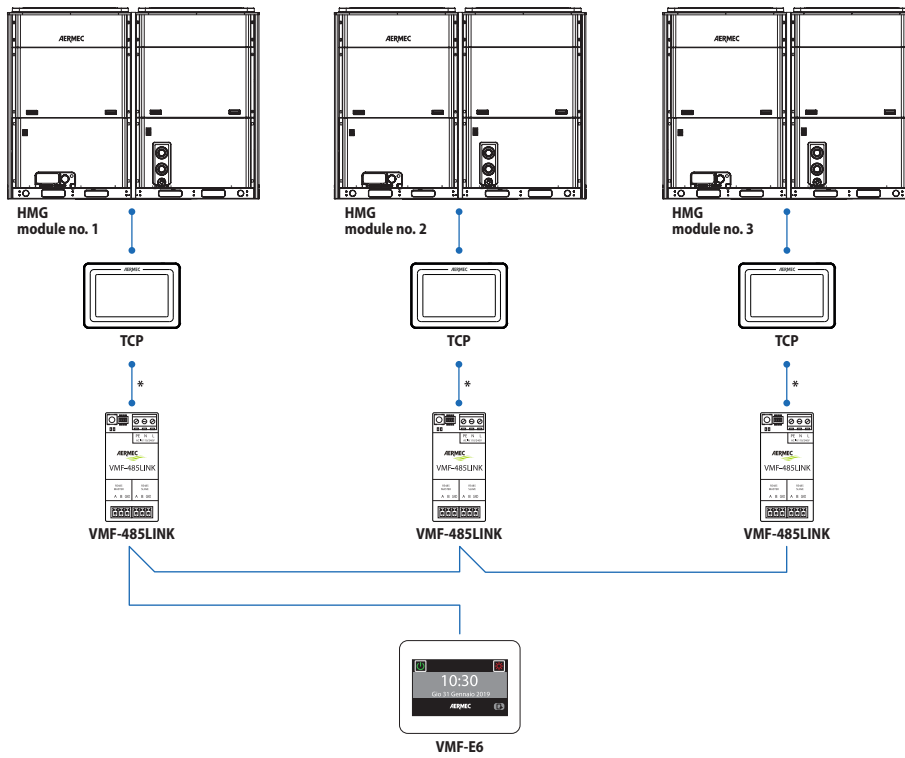
### Homogeneous modularity - connection diagram



Sequential modularity - connection diagram



\* Connection to be made with the aid of the accessory IC-2P.



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## PERFORMANCE SPECIFICATIONS

		HMG0350	HMG0600
<b>Cooling performance 12 °C / 7 °C (1)</b>			
Cooling capacity	kW	32,0	60,0
Input power	kW	11,7	20,8
Water flow rate system side	l/h	5528	10346
Pressure drop system side	kPa	80	55
Cooling total input current	A	19,2	32,9
EER	W/W	2,74	2,88
<b>Heating performance 40 °C / 45 °C (2)</b>			
Heating capacity	kW	35,0	65,0
Input power	kW	10,6	19,9
Water flow rate system side	l/h	6039	11249
Heating total input current	A	17,5	30,7
COP	W/W	3,30	3,27
<b>Cooling performance 23 °C / 18 °C (3)</b>			
Cooling capacity	kW	41,4	72,5
Input power	kW	10,5	19,1
Water flow rate system side	l/h	7198	12574
Cooling total input current	A	16,2	31,0
EER	W/W	3,94	3,80
<b>Heating performance 30 °C / 35 °C (4)</b>			
Heating capacity	kW	36,0	62,6
Input power	kW	8,8	15,1
Water flow rate system side	l/h	6191	10798
Heating total input current	A	12,4	24,2
COP	W/W	4,09	4,15

(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.

(3) Data EN 14511:2022; System side water heat exchanger 23 °C / 18 °C; External air 35 °C

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

		HMG0350P	HMG0600P
<b>Cooling performance 12 °C / 7 °C (1)</b>			
Cooling capacity	kW	33,0	60,0
Input power	kW	11,4	21,1
Water flow rate system side	l/h	5680	10320
Useful head	kPa	203,0	210,0
Cooling total input current	A	18,7	33,2
EER	W/W	2,89	2,84
<b>Heating performance 40 °C / 45 °C (2)</b>			
Heating capacity	kW	36,0	65,0
Input power	kW	10,9	19,7
Water flow rate system side	l/h	6190	11180
Useful head	kPa	180,0	200,0
Heating total input current	A	18,1	32,3
COP	W/W	3,30	3,30
<b>Cooling performance 23 °C / 18 °C (3)</b>			
Cooling capacity	kW	32,8	64,0
Input power	kW	8,0	18,0
Water flow rate system side	l/h	5648	11015
Cooling total input current	A	13,3	28,4
EER	W/W	4,10	3,57
<b>Heating performance 30 °C / 35 °C (4)</b>			
Heating capacity	kW	33,4	61,6
Input power	kW	8,4	16,0
Water flow rate system side	l/h	5729	10650
Heating total input current	A	13,8	25,4
COP	W/W	4,00	3,86

(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.

(3) Data EN 14511:2022; System side water heat exchanger 23 °C / 18 °C; External air 35 °C

(4) 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

		HMG0350	HMG0600
<b>UE 811/2013 performance in average ambient conditions (average) - 35 °C - Pdesignh ≤ 70 kW (1)</b>			
Pdesignh	kW	24	51
SCOP	W/W	3,90	3,90
ηsh	%	153,00	153,00
Efficiency energy class		A++	A++
<b>Cooling capacity with low leaving water temp (UE n° 2016/2281)</b>			
ηsc	%	173,00	181,00
SEER	W/W	4,40	4,60

(1) Efficiencies for low temperature applications (35 °C)

		HMG0350P	HMG0600P
<b>UE 811/2013 performance in average ambient conditions (average) - 35 °C - Pdesignh ≤ 70 kW (1)</b>			
Pdesignh	kW	24	52
SCOP	W/W	4,00	4,01
ηsh	%	157,00	157,50
Efficiency energy class		A++	A++
<b>Cooling capacity with low leaving water temp (UE n° 2016/2281)</b>			
ηsc	%	183,00	186,60
SEER	W/W	4,65	4,74

(1) Efficiencies for low temperature applications (35 °C)

## ELECTRIC DATA

		HMG0350	HMG0600
<b>Electric data</b>			
Rated current input (1)	A	22,0	52,0
<b>Power supply</b>			
Power supply		380-415V 3N ~ 50Hz	380-415V 3N ~ 50Hz

(1) The rated power input (rated current input) is the maximum input electrical power (maximum current input) from the system, in accordance with the Standards EN 60335-1 and EN 60335-2-40.

		HMG0350P	HMG0600P
<b>Electric data</b>			
Rated power input (1)	kW	13,40	25,60
<b>Power supply</b>			
Power supply		380-415V 3N ~ 50Hz	380-415V 3N ~ 50Hz

(1) The rated power input (rated current input) is the maximum input electrical power (maximum current input) from the system, in accordance with the Standards EN 60335-1 and EN 60335-2-40.

## GENERAL TECHNICAL DATA

		HMG0350	HMG0600
<b>Compressor</b>			
Type	type	Inverter rotary	
Number	no.	1	2
Circuits	no.	1	2
Refrigerant	type	R32	
Refrigerant load circuit 1 (1)	kg	5,5	5,5
Refrigerant load circuit 2 (1)	kg	-	5,5
<b>System side heat exchanger</b>			
Type	type	Shell and tube	
Number	no.	1	1
Connections (in/out)	Type	G1" 1/2 (male)	G2" (male)
<b>Fan</b>			
Type	type	Axial	
Fan motor	type	Inverter	
Number	no.	2	2
Air flow rate	m <sup>3</sup> /h	12600	24000
<b>Sound data calculated in cooling mode (2)</b>			
Sound power level	dB(A)	81,0	86,0
Sound pressure level (10 m)	dB(A)	49,5	54,3
Sound pressure level (1 m)	dB(A)	65,0	69,0

(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.

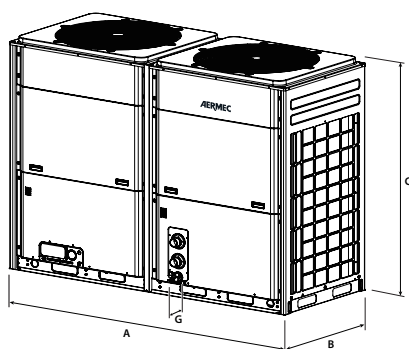
(2) Sound power calculated on the basis of measurements made in accordance with UNI EN ISO 9614-2, as required for Eurovent certification. Sound pressure (cold functioning) measured in free field, 10m away from the unit external surface (in compliance with UNI EN ISO 3744).

		HMG0350P	HMG0600P
<b>Compressor</b>			
Type	type	Inverter rotary	
Number	no.	1	2
Circuits	no.	1	2
Refrigerant	type	R32	
<b>Compressor</b>			
Refrigerant load circuit 1	kg	5,20	5,35
Refrigerant load circuit 2	kg	-	5,35
<b>System side heat exchanger</b>			
Type	type	Brazeed plate	
Number	no.	1	1
Connections (in/out)	Type	Gas maschio	
<b>Fan</b>			
Type	type	Axial	
Fan motor	type	Inverter	
Number	no.	2	2
Air flow rate	m <sup>3</sup> /h	12600	24000
<b>Sound data calculated in cooling mode (1)</b>			
Sound power level	dB(A)	81,0	86,0
Sound pressure level (10 m)	dB(A)	-	-
Sound pressure level (1 m)	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).

## DIMENSIONS

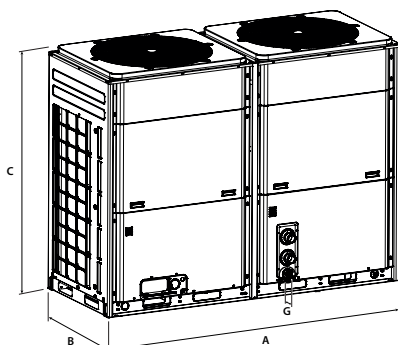
### HMG



		HMG0350	HMG0600
<b>Dimensions and weights</b>			
A	mm	1340	2200
B	mm	765	880
C	mm	1605	1675
G	mm	80	85
D	mm	1420	2267
E	mm	920	1030
F	mm	1775	1867
Net weight	kg	405,0	686,0
Weight for transport	kg	422,0	722,0

G: tap protrusion

### HMG\_P



		HMG0350P	HMG0600P
<b>Dimensions and weights</b>			
A	mm	1340	2200
B	mm	765	880
C	mm	1605	1675
G	mm	37	57
D	mm	1775	1867
E	mm	1420	2267
F	mm	905	1030
Net weight	kg	323,0	609,0
Weight for transport	kg	340,0	645,0

G: tap protrusion

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