AIR-COOLED MODULAR CHILLER

Introduction

Air-cooled modular chiller is a kind of central air-conditioning unit which adopts air as the cooling (or heating) source and water as cooling (or heating) heat exchange medium. As a sort of integrated equipment, it needs no cooling tower, cooling water pump, boiler and corresponding auxiliary parts for the condenser, which makes system more simple to install and convenient to maintenance, saves energy and installation space, thus it is very suitable for the regions that are short of water.

Midea® Digital Scroll Air-cooled modular chillers are designed and produced on the basement of sufficiently absorbing the top technology in AC areas, adopting high quality self-control components which are made by world famous producers. Moreover, after improvement, units can run more efficiently and more stably. 30kW module adopts independent unit frame and 65kW module consists of two units, and several modules can be formed into a digital scroll unit by connecting each module's inlet & outlet pipeline in parallel. The whole unit consists of 2-16 modules and the max. capacity can be achieved to 1040kW.

Midea® Digital Scroll Air-cooled modular chillers can be widely applied to civilian projects and industrial projects, such as hotel, villa, restaurant, hospital, factory, etc.. It is a wise choice for the regions where water is insufficient or there are strict limits on noise level and surroundings.

Specifications

R22/50Hz

Model	Appearance	Compressor quantity		Heat exchanger type		A/C mode		Hydraulic module	Max. combinations
		Digital scroll	Constant	Shell & Tube	Double tube	Cooling only	Heat pump		
MGB-F25W/R		0	2		√		√		16
MGB-F30W/R									
MGB-F35W/R									
MGB-D25W/R		1	1		√		√		16
MGB-D30W/R									
MGB-D35W/R									
MGB-F55W/R		0	2	√			√		16
MGB-F60W/R									
MGB-F65W/R									
MGB-F130W/R		0	4	√			√		8
MGB-F200W/R		0	6	√			√		5

R410A/50Hz

Model	Appearance	Compressor quantity		Heat exchanger type		A/C mode		Hydraulic module	Max. combinations
		Digital scroll	Constant	Shell & Tube	Double tube	Cooling only	Heat pump		
MGB-F25W/RN1		0	2		√		√		16
MGB-F30W/RN1		1	1		√		√		16
MGB-D25W/RN1		0	2		√		√		16
MGB-D30W/RN1		1	1		√		√		16
MGB-F55W/RN1		0	2	√			√		16
MGB-F60W/RN1		0	2	√			√		16
MGB-F65W/RN1		0	2	√			√		16
MGB-F130W/RN1		0	4	√			√		8
MGB-F200W/RN1		0	6	√			√		5

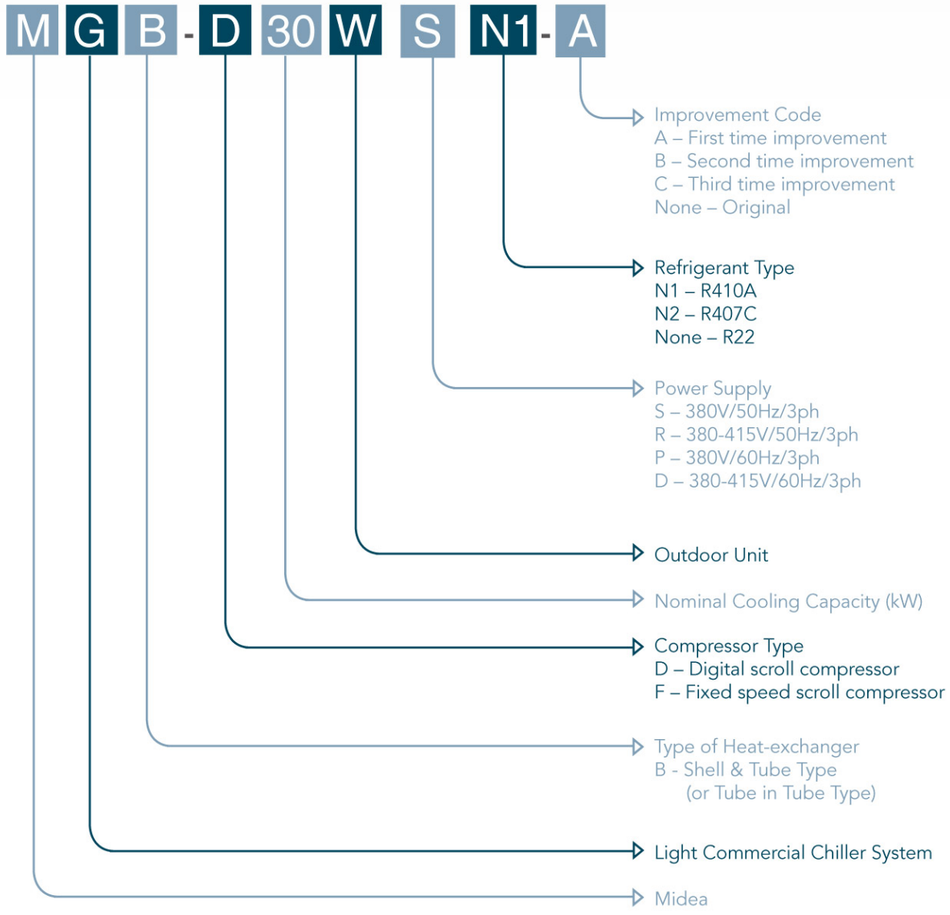
R410A/60Hz

Model	Appearance	Compressor quantity		Heat exchanger type		A/C mode		Hydraulic module	Max. combinations
		Digital scroll	Constant	Shell & Tube	Double tube	Cooling only	Heat pump		
MGBT-F60W/DN1		0	2	√			√		16
MGBT-F130W/DN1		0	4	√			√		8

HOW TO READ THE MODELS

HOW TO READ THE MODELS

Nomenclature

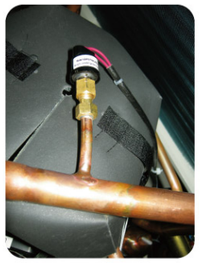


Performance Features

■ Wide range of use, can be used in school, factory, hotel, hospital, office and etc..

School Factory Hotel Hospital Office

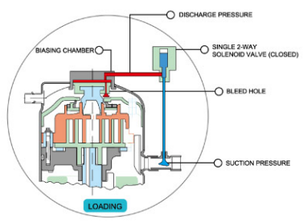
■ Optimizing the design of system and using varieties of protection devices, to make the system more safe and reliable.

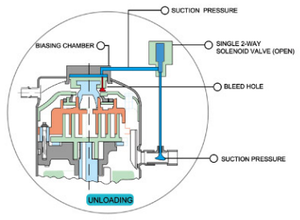


Low pressure switch

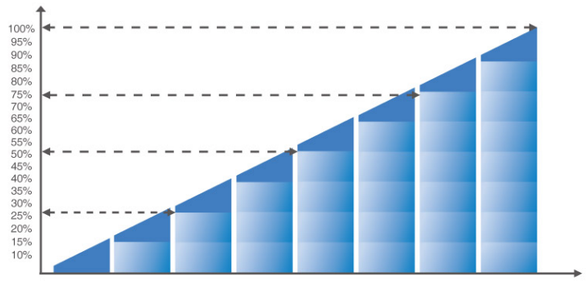
High pressure switch

■ By adopting digital scroll compressor, the capacity can be stepless adjusted.





■ High efficiency, especially for the part load condition, energy can be saved heavily.



Design Features

■ Various types of units are available for user to choose.
8 different capacity models: 25kW, 30kW, 35kW, 55kW, 60kW, 65kW, 130kW, 185kW.
2 kinds of refrigerant are optional: R22, R410A.
2 types of heat-exchanger are optional: shell & tube heat exchanger and double-tube heat exchanger.

■ 4 types and nearly 100 specifications of FCUs are available for choosing, requirements of different types and decorations of the houses can be met.

■ Modular design, flexible combination, the maximum combinations of one system can be achieved to 16 (1040kW, 1 master and 15 slaves), convenient for design and installation.

25/30/35kW

55/60/65kW

55/60/65kW

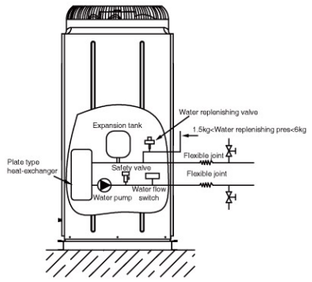
130kW

185kW

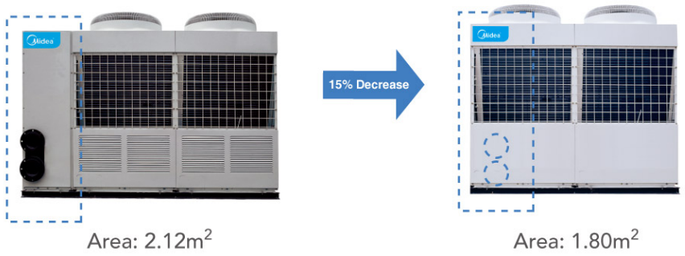
Installation Features

■ Air cooled system, no need cooling water tower at the condensing side, easy to install.

■ Package unit integrated with hydraulic module, installation costs can be saved greatly.



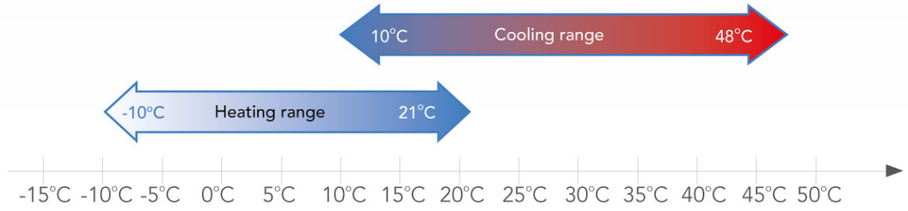
■ Easy for transporting because of the compact size.



■ No need machine room, no need equipment manage man.

Usage Features

■ Wide operation range of cooling mode, from 10oC to 48oC.



■ Chilled water outlet temperature can be adjusted by wired controller according to customer's demand. In cooling mode, the adjustable range from 7oC~12oC, and in heating mode,

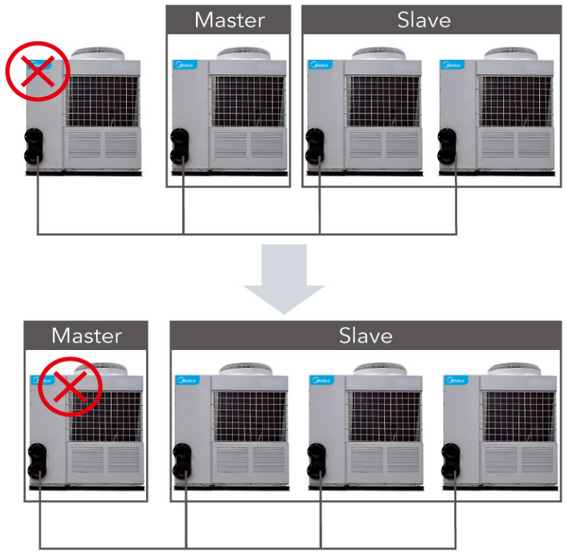
■ A variety of thermostats are optional, meets various function requirements.

■ Wired control, remote control, central control, touch screen control are optional.

■ Low noise and vibration.

Maintenance Features

- By adopting high capacity compressor, reducing the number of the compressors, to improve the reliability of the system.
- Master and slave can be setup at will, easy for maintenance.



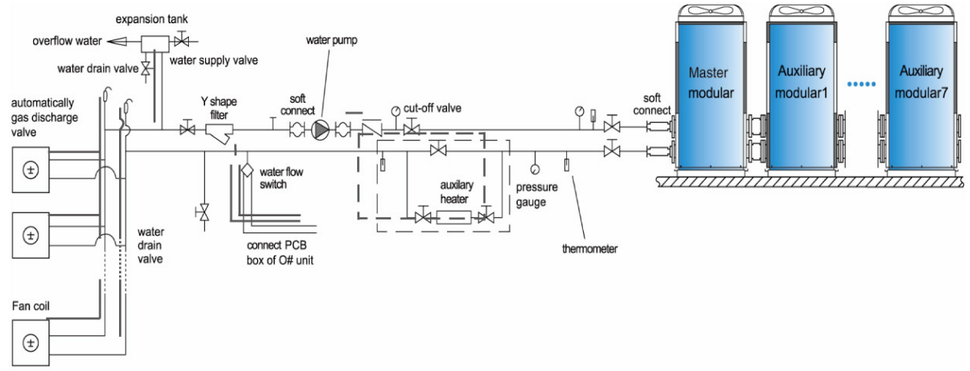
Accessories

Item	Model	Optionnal/Standard	Description	Appearance
Water flow switch	WFS-1001-H	Optionnal	Low pressure loss/High accuracy/5 kinds of chip size	
Controller	KJR-08B/BE KJR-08B/BE(C)	Necessary. Should buy from Midea	Suitable for air-cooled chiller system, control function as ON/OFF/Mode select/Temp. setting/Query/Power failure memory	

Note:
1. One wired controller and one water flow switch are needed in one combination system at the least.
2. Wired controller and water flow switch are not standard accessories, both of them can be ordered from factory, and water flow switch can also be found on local market.

Sketches

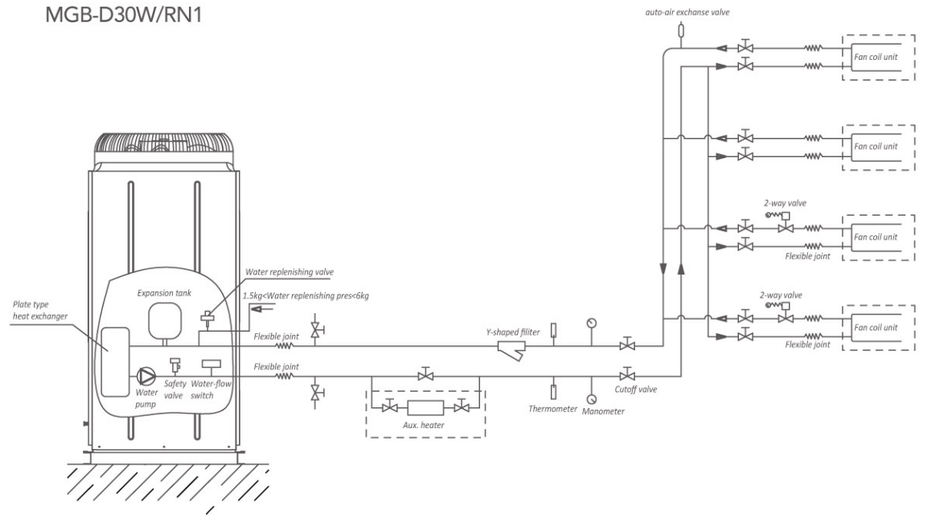
Sketch of Module Connection.



Sketch of Package Unit Connection.

MGB-F30W/RN1

MGB-D30W/RN1



Remarks:
1. If two-way valve used for all terminals and most of them are close when main unit is operating,the plate exchanger may be damaged. So pass-by adjusting valve should be set in the system.
2. If there is no any pass-by adjusting valve in the system, the number of fan coil with two-way water valve should not over 50%.

Specifications

R22/50Hz

Model				MGB-F55W/R	MGB-F60W/R	MGB-F65W/R
Cooling Capacity			KW	55	60	65
Heating Capacity			KW	59	64	69
Power supply			V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50
Power Input	Cooling		KW	17.0	18.6	20.2
	Heating		KW	16.8	18.3	19.8
Rated current	Cooling		A	29.8	32.6	35.4
	Heating		A	29.2	32.0	34.8
Compressor	Type			Scroll	Scroll	Scroll
	Quantities		Pieces	2 fixed speed	2 fixed speed	2 fixed speed
Energy control class			%	0,50,100	0,50,100	0,50,100
Refrigerant	Type			R22	R22	R22
	Weight		kg	15	15	15
Condenser (Air side)	Air side heat-exchanger type			Copper-fin-coil	Copper-fin-coil	Copper-fin-coil
	Quantities of fan motor		Pieces	2	2	2
	Air flow volume		m^3/h	24000	24000	24000
Evaporator (Water side)	Water side heat-exchanger type			Shell & tube	Shell & tube	Shell & tube
	Water resistance loss		kPa	15	15	15
	Water inlet/outlet pipeline diameter		mm	100	100	100
	Water flow volume		m^3/h	9.4	10.3	11.2
	Max. Pressure		MPa	1.0	1.0	1.0
	Water pipe connection type			Soft connection	Soft connection	Soft connection
Dimension	LxWxH	Net	mm	2000×900×1880	2000×900×1880	2000×900×1880
		Packing	mm	2090×985×2020	2090×985×2020	2090×985×2020
Weight	Net weight		kg	580	580	580
	Operating weight		kg	650	650	650
Control type				Wired control	Wired control	Wired control
Safety protection device				High/low-pressure switch, anti-frost switch, water-flow switch, over-load protection, and power phases sequence protection.		
Electric heater (optional)	Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50
	Power input		kW	15	15	15

Notes:
1. Nominal capacity is based on the following conditions:
   Cooling mode: chilled water inlet/outlet: 12°C/7°C (53.6°F/44.6°F); Outdoor temp. (DB/WB): 35°C/24°C (95°F/75.2°F)
   Heating mode: hot water inlet/outlet: 40°C/45°C (104°F/113°F); Outdoor temp. (DB/WB): 7°C/6°C (44.6°F/42.8°F)
2. Auxiliary electric heater is not provided by Midea. If heater is needed, please refer to the above parameters of heater and configure yourself.
3. Optional accessories: 1 wired controller and 1 set water flow switch are needed in 1 combination system. Please notice that they are not standard accessories.
4. All the units above also have power supply of 380-415V/3ph/50Hz.

Specifications

R22/50Hz

Model				MGB-F25W/R	MGB-F30W/R	MGB-F35W/R	MGB-D25W/R	MGB-D30W/R	MGB-D35W/R
Cooling Capacity			KW	25	30	35	25	30	35
Heating Capacity			KW	27	32	37	27	32	37
Power supply			V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Power Input	Cooling		KW	8.2	9.8	11.5	8.2	9.8	11.5
	Heating		KW	8.1	9.6	11.3	8.1	9.6	11.3
Rated current	Cooling		A	13.6	16.3	19.1	13.6	16.3	19.1
	Heating		A	13.3	16.0	18.7	13.3	16.0	18.7
Compressor	Type			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
	Quantities		Pieces	2 fixed speed	2 fixed speed	2 digtal + 1 fixed	1 digtal + 1 fixed	1 digtal + 1 fixed	1 digtal + 1 fixed
Energy control class			%	0,50,100	0,50,100	0,50,100	10-100	10-100	10-100
Refrigerant	Type			R22	R22	R22	R22	R22	R22
	Weight		kg	6.2	6.2	6.2	6.2	6.2	6.2
Condenser (Air side)	Air side heat-exchanger type			Copper-fin-coil	Copper-fin-coil	Copper-fin-coil	Copper-fin-coil	Copper-fin-coil	Copper-fin-coil
	Quantities of fan motor		Pieces	1	1	1	1	1	1
	Air flow volume		m^3/h	12000	12000	12000	12000	12000	12000
Evaporator (Water side)	Water side heat-exchanger type			Double tube	Double tube	Double tube	Double tube	Double tube	Double tube
	Water resistance loss		kPa	20	20	20	20	20	20
	Water inlet/outlet pipeline diameter		mm	40	40	40	40	40	40
	Water flow volume		m^3/h	4.4	5.2	5.9	4.4	5.2	5.9
	Max. Pressure		MPa	1.0	1.0	1.0	1.0	1.0	1.0
	Water pipe connection type			Soft connection	Soft connection	Soft connection	Soft connection	Soft connection	Soft connection
Dimension	LxWxH	Net	mm	1514×841×1840	1514×841×1840	1514×841×1840	1514×841×1840	1514×841×1840	1514×841×1840
		Packing	mm	1585×995×2040	1585×995×2040	1585×995×2040	1585×995×2040	1585×995×2040	1585×995×2040
Weight	Net weight		kg	380	380	380	380	380	380
	Operating weight		kg	400	400	400	400	400	400
Control type				Wired control	Wired control	Wired control	Wired control	Wired control	Wired control
Safety protection device				High/low-pressure switch, anti-frost switch, water-flow switch, over-load protection, and power phases sequence protection.					
Electric heater (optional)	Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
	Power input		kW	7.5	7.5	7.5	7.5	7.5	7.5

Notes:
1. Nominal capacity is based on the following conditions:E
   Cooling mode: chilled water inlet/outlet: 12°C/7°C (53.6°F/44.6°F); Outdoor temp. (DB/WB): 35°C/24°C (95°F/75.2°F)
   Heating mode: hot water inlet/outlet: 40°C/45°C (104°F/113°F); Outdoor temp. (DB/WB): 7°C/6°C (44.6°F/42.8°F)
2. Auxiliary electric heater is not provided by Midea. If heater is needed, please refer to the above parameters of heater and configure yourself.
3. Optional accessories: 1 wired controller and 1 set water flow switch are needed in 1 combination system. Please notice that they are not standard accessories.
4. All the units above also have power supply of 380-415V/3ph/50Hz.

Specifications

R22/50Hz

Model				MGB-F130W/S	MGB-F200W/S
Cooling Capacity			KW	130	185
Heating Capacity			KW	138	200
Power supply			V/Ph/Hz	380/3/50	380-400/3/50
Power Input	Cooling		KW	40.4	63
	Heating		KW	39	61
Rated current	Cooling		A	70.6	110
	Heating		A	69.4	107
Compressor	Type			Scroll	Scroll
	Quantities		Pieces	4 fixed speed	6 fixed speed
Energy control class			%	0,25,50,75,100	0,17,33,50,67,83,100
Refrigerant	Type			R22	"
	Weight		kg	30	R22
Condenser (Air side)	Air side heat-exchanger type			Copper-fin-coil	42
	Quantities of fan motor		Pieces	4	Copper-fin-coil
	Air flow volume		m^3/h	48000	6
Evaporator (Water side)	Water side heat-exchanger type			Shell & tube	72000
	Water resistance loss		kPa	25	Shell & tube
	Water inlet/outlet pipeline diameter		mm	65	30
	Water flow volume		m^3/h	22.4	65
	Max. Pressure		MPa	1.0	31.8
	Water pipe connection type			Soft connection	1.0
Dimension	LxWxH	Net	mm	2000×1685×2090	Soft connection
		Packing	mm	2080×1755×2240	2850×2000×2110
Weight	Net weight		kg	1150	2980×2135×2260
	Operating weight		kg	1270	1730
Control type				Wired control	2000
Safety protection device				High/low-pressure switch, anti-frost switch, water-flow switch, over-load protection, and power phases sequence protection.	
Electric heater (optional)	Power supply		V/Ph/Hz	380/3/50	380-400/3/50
	Power input		kW	30	45

Notes:

1. Nominal capacity is based on the following conditions:
   Cooling mode: chilled water inlet/outlet: 12°C/7°C (53.6°F/44.6°F); Outdoor temp. (DB/WB): 35°C/24°C (95°F/75.2°F)
   Heating mode: hot water inlet/outlet: 40°C/45°C (104°F/113°F); Outdoor temp. (DB/WB): 7°C/6°C (44.6°F/42.8°F)
2. Auxiliary electric heater is not provided by Midea. If heater is needed, please refer to the above parameters of heater and configure yourself.
3. Optional accessories: 1 wired controller and 1 set water flow switch are needed in 1 combination system. Please notice that they are not standard accessories.
4. All the units above also have power supply of 380-415V/3ph/50Hz.

Specifications

R410A/50Hz

Model				MGB-F25W/RN1	MGB-D25W/RN1	MGB-D30W/RN1	MGB-D35W/RN1
Cooling Capacity			KW	28	30	28	30
Heating Capacity			KW	29.5	32	29.5	32
Power supply			V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Power Input	Cooling		KW	9.3	10.0	9.3	10.0
	Heating		KW	9.2	9.8	9.2	9.8
Rated current	Cooling		A	14.6	16.3	14.6	16.3
	Heating		A	14.3	16.0	14.3	16.0
Compressor	Type			Scroll	Scroll	Scroll	Scroll
	Quantities		Pieces	2 fixed speed	2 fixed speed	1 digtal + 1 fixed	1 digtal + 1 fixed
Energy control class			%	0,50,100	0,50,100	10-100	10-100
Refrigerant	Type			R410A	R410A	R410A	R410A
	Weight		kg	7	7	7	7
Condenser (Air side)	Air side heat-exchanger type			Copper-fin-coil	Copper-fin-coil	Copper-fin-coil	Copper-fin-coil
	Quantities of fan motor		Pieces	1	1	1	1
	Air flow volume		m^3/h	12000	12000	12000	12000
Evaporator (Water side)	Water side heat-exchanger type			Double tube	Double tube	Double tube	Double tube
	Water resistance loss		kPa	60	60	60	60
	Water inlet/outlet pipeline diameter		mm	40	40	40	40
	Water flow volume		m^3/h	4.4	5.2	4.4	5.2
	Max. Pressure		MPa	1.0	1.0	1.0	1.0
	Water pipe connection type			Soft connection	Soft connection	Soft connection	Soft connection
Dimension	LxWxH	Net	mm	1514×841×1865	1514×841×1865	1514×841×1865	1514×841×1865
		Packing	mm	1590×995×2065	1590×995×2065	1590×995×2065	1590×995×2065
Weight	Net weight		kg	380	380	380	380
	Operating weight		kg	400	400	400	400
Control type				Wired control	Wired control	Wired control	Wired controll
Safety protection device				High/low-pressure switch, anti-frost switch, water-flow switch, over-load protection, and power phases sequence protection.			
Electric heater (optional)	Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
	Power input		kW	7.5	7.5	7.5	7.5

Notes:

1. Nominal capacity is based on the following conditions:
   Cooling mode: chilled water inlet/outlet: 12°C/7°C (53.6°F/44.6°F); Outdoor temp. (DB/WB): 35°C/24°C (95°F/75.2°F)
   Heating mode: hot water inlet/outlet: 40°C/45°C (104°F/113°F); Outdoor temp. (DB/WB): 7°C/6°C (44.6°F/42.8°F)
2. Auxiliary electric heater is not provided by Midea. If heater is needed, please refer to the above parameters of heater and configure yourself.
3. Optional accessories: 1 wired controller and 1 set water flow switch are needed in 1 combination system. Please notice that they are not standard accessories.

Specifications

R410A/50Hz

Model				MGB-F55W/RN1	MGB-F60W/RN1	MGB-F65W/RN1	MGB-F130W/RN1	200kW/R410A
Cooling Capacity			KW	55	60	65	130	185.0
Heating Capacity			KW	59	64	69	138	200.0
Power supply			V/Ph/Hz	380-400/3/50	380-400/3/50	380-400/3/50	380-400/3/50	380/3/50
Power Input	Cooling		KW	17.5	19.3	20.4	40.8	63
	Heating		KW	18.3	19.8	21.5	43	61
Rated current	Cooling		A	30.5	33.6	36.5	73	110
	Heating		A	31.5	34.3	37.2	74.4	107
Compressor	Type			Scroll	Scroll	Scroll	Scroll	Scroll
	Quantities		Pieces	2 fixed speed	2 fixed speed	2 fixed speed	4 fixed speed	6 fixed speed
Energy control class			%	0,50,100	0,50,100	0,50,100	0,25,50,75,100	0，17，33，50，67，83，100
Refrigerant	Type			R410A	R410A	R410A	R410A	R410A
	Weight		kg	14	14	14	28	42
Condenser (Air side)	Air side heat-exchanger type			Copper-fin-coil	Copper-fin-coil	Copper-fin-coil	Copper-fin-coil	Copper-fin-coil
	Quantities of fan motor		Pieces	2	2	2	4	6
	Air flow volume		m³/h	24000	24000	24000	48000	72000
Evaporator (Water side)	Water side heat-exchanger type			Shell & tube	Shell & tube	Shell & tube	Shell & tube	Shell & tube
	Water resistance loss		kPa	15	15	15	25	25
	Water inlet/outlet pipeline diameter		mm	100	100	100	65	80
	Water flow volume		m³/h	9.4	10.3	11.2	22.4	31.8
	Max. Pressure		MPa	1.0	1.0	1.0	1.0	1
	Water pipe connection type			Soft connection	Soft connection	Soft connection	Soft connection	Soft connection
Dimension	LxWxH	Net	mm	2000×900×1880	2000×900×1880	2000×900×1880	2000×1685×2090	2850×2000×2110
		Packing	mm	2090×985×2020	2090×985×2020	2090×985×2020	2080×1755×2240	2980×2135×2260
Weight	Net weight		kg	580	580	580	1150	1730
	Operating weight		kg	650	650	650	1270	2000
Control type					Wired control	Wired control	Wired control	Wired control
Safety protection device				High/low-pressure switch, anti-frost switch, water-flow switch, over-load protection, and power phases sequence protection.				
Electric heater (optional)	Power supply		V/Ph/Hz	380-400/3/50	380-400/3/50	380-400/3/50	380-400/3/50	380/3/50
	Power input		kW	15	15	15	30	45

Notes:

1. Nominal capacity is based on the following conditions:
   Cooling mode: chilled water inlet/outlet: 12°C/7°C (53.6°F/44.6°F); Outdoor temp. (DB/WB): 35°C/24°C (95°F/75.2°F)
   Heating mode: hot water inlet/outlet: 40°C/45°C (104°F/113°F); Outdoor temp. (DB/WB): 7°C/6°C (44.6°F/42.8°F)
2. Auxiliary electric heater is not provided by Midea. If heater is needed, please refer to the above parameters of heater and configure yourself.
3. Optional accessories: 1 wired controller and 1 set water flow switch are needed in 1 combination system. Please notice that they are not standard accessories.

Specifications

R410A/60Hz

Model				MGBT-F60W/DN1	MGBT-F130W/DN1
Cooling Capacity			KW	60.0	120.0
Heating Capacity			KW	65.0	130.0
Power supply			V/Ph/Hz	220/3/60	220/3/60
Power Input	Cooling		KW	19.5	39
	Heating		KW	20	40
Rated current	Cooling		A	63	126
	Heating		A	65.5	131
Compressor	Type			Scroll	Scroll
	Quantities		Pieces	2 fixed speed	4 fixed speed
Energy control class			%	0，50，100	0，25，50，75，100
Refrigerant	Type			R410A	R410A
	Weight		kg	13	26
Condenser (Air side)	Air side heat-exchanger type			Copper-fin-coil	Copper-fin-coil
	Quantities of fan motor		Pieces	2	4
	Air flow volume		m³/h	24000	48000
Evaporator (Water side)	Water side heat-exchanger type			Shell & tube	Shell & tube
	Water resistance loss		kPa	15	15
	Water inlet/outlet pipeline diameter		mm	100	65
	Water flow volume		m³/h	10.3	20.6
	Max. Pressure		MPa	1	1
	Water pipe connection type			Soft connection	Soft connection
Dimension	LxWxH	Net	mm	2000×900×1880	2000×1685×2090
		Packing	mm	2090×985×2020	2080×1755×2240
Weight	Net weight		kg	580	1150
	Operating weight		kg	650	1270
Control type				Wired control	Wired control
Safety protection device				High/low-pressure switch, anti-frost switch, water-flow switch, over-load protection, and power phases sequence protection.	
Electric heater (optional)	Power supply		V/Ph/Hz	220/3/60	220/3/60
	Power input		kW	15	30

Notes:

1. Nominal capacity is based on the following conditions:
   Cooling mode: chilled water inlet/outlet: 12°C/7°C (53.6°F/44.6°F); Outdoor temp. (DB/WB): 35°C/24°C (95°F/75.2°F)
   Heating mode: hot water inlet/outlet: 40°C/45°C (104°F/113°F); Outdoor temp. (DB/WB): 7°C/6°C (44.6°F/42.8°F)
2. Auxiliary electric heater is not provided by Midea. If heater is needed, please refer to the above parameters of heater and configure yourself.
3. Optional accessories: 1 wired controller and 1 set water flow switch are needed in 1 combination system. Please notice that they are not standard accessories.