

COMMERCIAL AIR CONDITIONERS

Aqua Mini Chiller 50/60Hz



Midea CAC (MCAC)

As a key subsidiary of Midea Group, the Midea Central Air Conditioner (MCAC) business unit has emerged as a leading supplier of commercial solutions. Since 1999 MCAC has contributed to the R&D and innovation of technologically-based commercial solutions. Cooperation with leading global enterprises coupled with independent R&D has enabled MCAC to implement thousands of commercial air-conditioning projects worldwide.

At present, MCAC is one of the globally leading product suppliers, underpinned by a mature marketing, sales, and project design framework.

There are three production bases in Shunde, Chongqing and Hefei.

MCAC Shunde: 38 product lines focusing on VRF (DC inverters and digital scroll products), split products, heat pump water heaters, and AHU/FCU.

MCAC Chongqing: 14 product lines focusing on water cooled centrifugal/screw/scroll chillers, air cooled screw/scroll chillers, and AHU/FCU.

MCAC Hefei: 11 product lines focusing on VRF, chillers, and heat pump water heaters.



2014 Launched the All DC Inverter V5X globally

2013 Launched the super high efficiency centrifugal chiller with full falling film technology

2011 Launched the DC Inverter V4 Plus globally

2010 Built the 3rd manufacturing base in Hefei

2007 Won the first Midea centrifugal chiller project oversea

2006 Launched the first VSD centrifugal chiller

2004 Acquired MGRE entered the chiller industry

2001 Partnered with Copeland to develop the digital scroll VRF system

2000 Developed the first inverter VRF With Toshiba

1999 Entered the CAC field

Aqua Mini chiller

Midea Mini chiller series is air-cooled water heat pump chiller, no need cooling water tower at the condensing side, easy for installation. The units can freely combined with indoor fan coil units, additionally combined with indoor top level decoration, this bring you to enjoy the nobility coming from central air conditioner.

Midea Mini chiller series include full DC inverter&fixed unitary type (hydraulic module integrated) and split type, and the capacity of full range product is from 5kW to 18kW.

It improves the features such as high efficiency, low noise, compactness, safety running, easy maintenance etc. It is widely applied in small business office building, apartments, villas, as well as restaurant and the similar places.

Mini unitary chiller (Full DC inverter) 5/7kW



Refrigerate:R410A
Compressor type: DC Inverter
Evaporator type: Plate
Built-in hydraulic module

Mini unitary chiller (Full DC inverter) 10~18kW



Refrigerate:R410A
Compressor type: DC Inverter
Evaporator type: Plate
Built-in hydraulic module

Mini unitary chiller (Fixed speed) 5~16kW



Refrigerate:R410A
Compressor type: Rotary scroll
Evaporator type: Plate
Built-in hydraulic module

Mini split chiller (Digital)10.5~16kW



Refrigerate:R410A
Compressor type: Digital scroll
Evaporator type:Plate
With outer hydraulic module

Mini unitary chiller
(Full DC Inverter)

Mini unitary chiller
(Fixed type)

Mini split chiller
(Digital type)



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Nomenclature



Mini unitary chiller
(Full DC Inverter)

Product lineup

Unitary DC Inverter type

(Hydraulic module integrated)



5/7 kW



10/12/14/16 kW

Model	Power supply	Compressor type	Refrigerant	Heat exchanger	A/C mode	Hydraulic module
MGC-V5W/D2N1	220~240 V 1Ph 50Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in
MGC-V7W/D2N1	220~240 V 1Ph 50Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in
MGC-V10W/D2N1	220~240 V 1Ph 50Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in
MGC-V12W/D2RN1	380~415 V 3Ph 50Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in
MGC-V14W/D2RN1	380~415 V 3Ph 50Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in
MGC-V16W/D2RN1	380~415 V 3Ph 50Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in

Unitary DC Inverter type

(Hydraulic module integrated)



10/18kW

Model	Power supply	Compressor type	Refrigerant	Heat exchanger	A/C mode	Hydraulic module
MGC-V10W/D2VN1	208~230 V 1Ph 60Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in
MGC-V18W/D2VN1	208~230 V 1Ph 60Hz	DC Inverter	R410A	Plate type	Heat pump	Built- in

Unitary fixed type

(Hydraulic module integrated)



5/7.2kW



10.5kW



12/14/16kW

Model	Power supply	Compressor type	Refrigerant	Heat exchanger	A/C mode	Hydraulic module
MGC-F05W/N1	220~240 V 1Ph 50Hz	Rotary	R410A	Plate type	Heat pump	Built- in
MGC-F07W/N1	220~240 V 1Ph 50Hz	Rotary	R410A	Plate type	Heat pump	Built- in
MGC-F10W/N1	220~240 V 1Ph 50Hz	Fixed scroll	R410A	Plate type	Heat pump	Built- in
MGC-F10W/SN1	380~415 V 3Ph 50Hz	Fixed scroll	R410A	Plate type	Heat pump	Built- in
MGC-F12W/SN1	380~415 V 3Ph 50Hz	Fixed scroll	R410A	Plate type	Heat pump	Built- in
MGC-F14W/SN1	380~415 V 3Ph 50Hz	Fixed scroll	R410A	Plate type	Heat pump	Built- in
MGC-F16W/SN1	380~415 V 3Ph 50Hz	Fixed scroll	R410A	Plate type	Heat pump	Built- in

Split digital type

(Digital scroll compressor adopted)



10.5kW



12/14/16kW



Water pump box

Model	Power supply	Compressor type	Refrigerant	Heat exchanger	A/C mode	Water pump box
MGA-D10/N1	220~240 V 1Ph 50Hz	Digital scroll	R410A	Plate type	Heat pump	CE-SBX/N1-01
MGA-D12/N1	220~240 V 1Ph 50Hz	Digital scroll	R410A	Plate type	Heat pump	CE-SBX/N1-01A
MGA-D14/SN1	380~415 V 3Ph 50Hz	Digital scroll	R410A	Plate type	Heat pump	CE-SBX/SN1-01
MGA-D16/SN1	380~415 V 3Ph 50Hz	Digital scroll	R410A	Plate type	Heat pump	CE-SBX/SN1-01A

Mini unitary chiller
(Full DC Inverter)

Mini unitary chiller →

Full DC Inverter type





Mini unitary chiller

Full DC Inverter type

Mini unitary chiller
(Full DC Inverter)

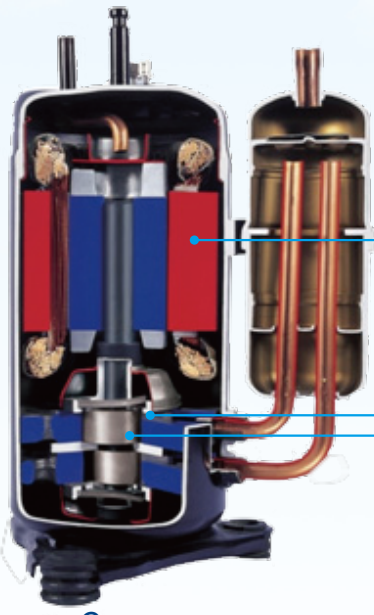
- Features
- Description of main components
- Specifications
- Operation limits
- Hydraulic performance
- Piping diagram
- Dimensions
- Installation clearance
- Performance data
- Electrical data
- Wiring specifications
- Control system
- Hydraulic connections
- Accessories

Features

Full DC inverter technology

At the heart of system is a highly intelligent inverter driven compressor. This advanced technology enables the output of the outdoor unit to be modulated by the cooling or heating demands of the zone that it controls. This advanced system ensures precise temperature regulation and highly efficient energy usage, making a significant contribution to the limiting the impact on the environment.

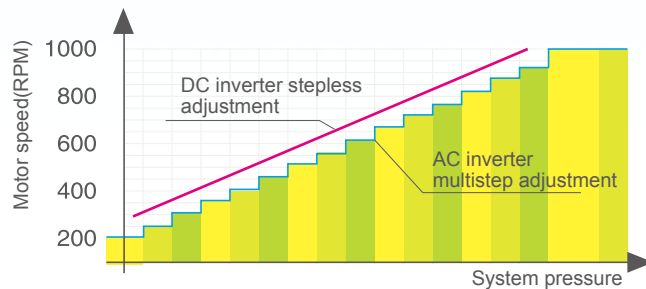
Mini unitary chiller (Full DC Inverter)



Compressor (Twin Rotary) structure

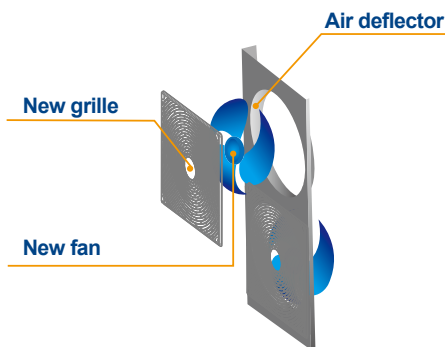
- High efficiency DC motor:**
 - Creative motor core design
 - High density neodymium magnet
 - Concentrated type stator
 - Wider operating frequency range
- Better balance and Extremely Low Vibration:**
 - Twin eccentric cams
 - 2 balance weights
- Highly Stable Moving Parts:**
 - Optimal material matching rollers and vanes
 - Optimize compressor drive technology
 - Highly robust bearings
 - Compact structure

High efficiency DC fan motor saved power up to 50%.

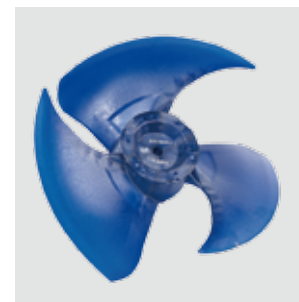


Noise reducing design

Optimally designed fan shape and air discharge grille increases air volume and reduces running noise.

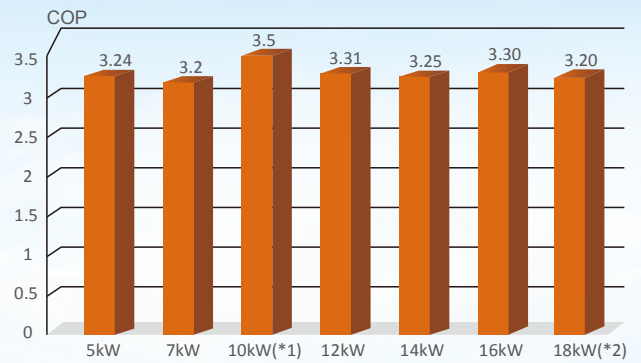
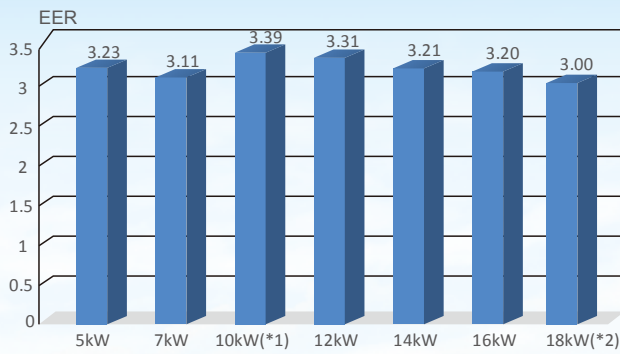


Newly Designed Fan Guard



Powerful Large Propeller

High Efficiency

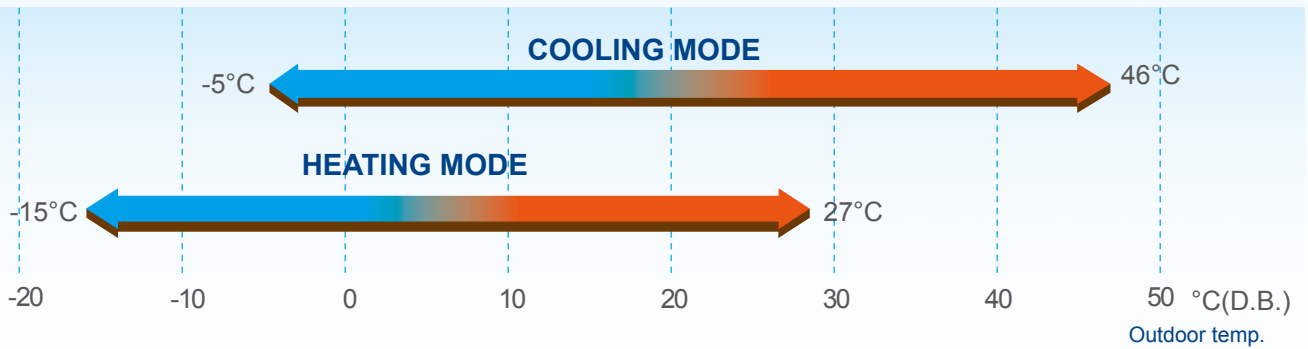


Note:

- (*1) for both 50Hz and 60Hz 10kW.
- (*2) for 60Hz 18kW only.

Wide operation temperature range

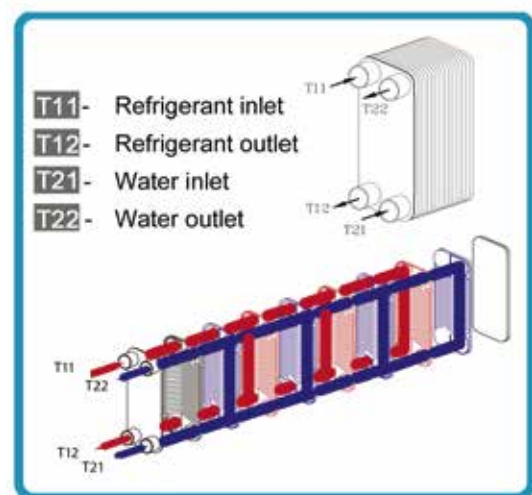
Mini chiller system operates stably at extreme temperature range from -15°C to 46°C .



Mini unitary chiller
(Full DC Inverter)

Energy saving and high reliability

By adopting high efficiency plate heat exchanger, the energy consumption can be reduced.



- Metallic protective cabinet with rustproof polyester paint.
- Built-in with voltage protection, current protection, anti-freezing protection, water flow protection and etc., effectively guarantee the system to work safely.

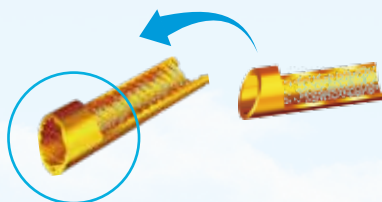
High performance heat exchanger

Reduce air resistance

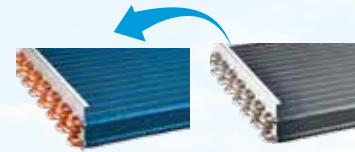


New design

Original design



High efficiency inner-threaded pipe, enhance heat transfer.



Hydrophilic fins + inner-threaded pipes

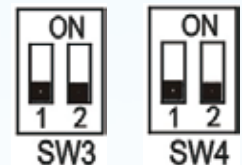
- The new designed window fins enlarge the heat-exchanging area, decrease the air resistance, save more power and enhance heat exchange performance.
- Hydrophilic film fins and inner-threaded copper pipes optimize heat exchange efficiency.
- The specially coated blue fins enhance durability and protect against corrosion from air, water and other corrosive agents, assures a longer coil service life.

User friendly remote control function

Switch SW4_1(10 kW) or SW3_1 (12~16kW) on the PCB to ON to enable the following remote control functions. The setting is not default at factory.

- Remote shut down.
- Remote cooling and heating.

Note: When all controller controls together, the unit will work according to the last order. 5/7kW will be available soon.



Flexible and convenient control

- Built-in electronic controller at factory. Compact devices with advanced function and friendly user interface. Remote shut down.
- The chiller can be controlled by wired controller (KJR-120F/BMK-E) also which is optional chosen.

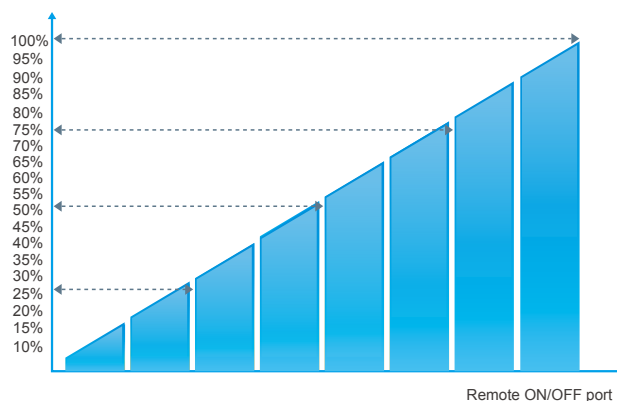
Note: When connecting wired controller, outdoor unit control panel is mainly used for display which can check parameters and inquiry, and can't be used to set mode and temperature.

- Built-in water pressure gauge.



EXV more precisely flow control

Patented liquid distribution components to maximize performance and minimize defrost impact. 500 steps EXV plus capillary for stable and accurate gas flow control. Fast respond resulting in higher efficiency and improved reliability.



Integrated and compact design

Fully integrated and built-in hydraulic module, such as expansion tank, plate type of heat exchanger, water circulating pump, etc. It saves installation space and cost.

Description of main components

Structure

Panels and base are made from galvanized steel plate painted with epoxy power to ensure total resistance to atmospheric pollution, condensate collection pan as standard.

Condenser coils

The coils are made from high performance and seamless copper tuber and high surface area aluminium fins to ensure optimum heat exchange capability. Condenser coil protection grill is standard.

Fan motor

To achieve high efficiency heat exchange, the unit is equipment with the high performance axial-flow fans. The fan is driven directly by weather proof motor to ensure reliable operation, the fan motor is six-pole electric motor with built-in thermal cut-out.

Evaporator

The heat exchanger is made of AISI 316 stainless steel to ensure high heat exchange efficiency, complete with electric heater and differential pressure switch. The complete heat exchanger is insulated with thermal insulation closed cell rubber foam to give optimum thermal insulation.

Hydraulic module

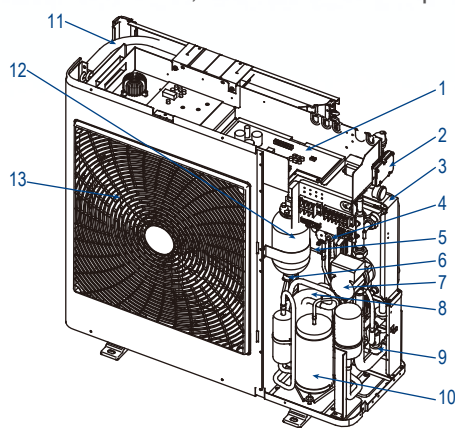
It is fully integrated and equipped with key hydraulic components such as expansion tank, plate type of heat-exchanger, water circulating pump.

The water pressure difference switch is provided in the units to protect against damage to the water pump.

Power and control electrical panel

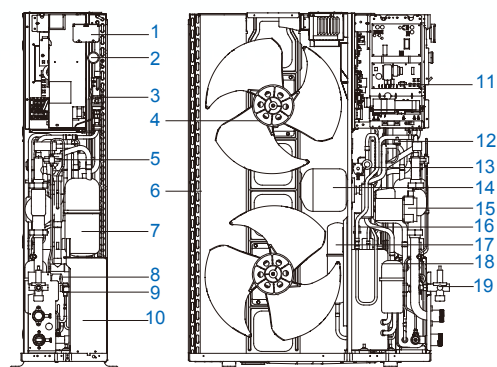
Power and control electrical panel constructed in accordance with IEC 204-1/EN60335-2-40, complete with compressor contactor, control via control panel.

Mini unitary chiller
(Full DC Inverter)



5-7kW

- | | |
|------------------------|---------------------|
| 1 Electrical panel | 8 Accumulator |
| 2 Display panel | 9 Water flow switch |
| 3 Plate heat exchanger | 10 Compressor |
| 4 Reversing valve | 11 Condenser |
| 5 High pressure switch | 12 Expansion tank |
| 6 Low pressure switch | 13 Axial-flow fan |
| 7 Pump | |



10-18kW

- | | |
|--------------------------------|-------------------------|
| 1 Operation panel | 11 Electrical panel |
| 2 Water manometer | 12 High pressure switch |
| 3 Automatic discharge valve | 13 4-way valve |
| 4 Axial-flow fan | 14 Expansion tank |
| 5 Differential pressure switch | 15 Pump |
| 6 Condenser | 16 Low pressure switch |
| 7 Accumulator | 17 Storage tank |
| 8 Security discharge | 18 Compressor |
| 9 Electric expansive valve | 19 Water supply valve |
| 10 Plate heat exchanger | |

Specifications

Model			MGC-V5W/D2N1	MGC-V7W/D2N1	MGC-V10W/D2N1	
Power supply		V-Ph-Hz	220-240, 1, 50	220-240, 1, 50	220-240, 1, 50	
Cooling*(1)	Capacity	kW	5	7	10.0(2.9~10.5)	
	Input	kW	1.55	2.25	2.95	
Cooling*(2)	Capacity	kW	6.57	7.88	10.9	
	Input	kW	1.27	1.84	2.49	
Heating*(3)	Capacity	kW	5.5	8	11.0(3.2~12.0)	
	Input	kW	1.7	2.5	3.14	
Heating*(4)	Capacity	kW	6.32	8.29	10.96	
	Input	kW	1.52	2.13	2.51	
EER*(1)		kW/kW	3.23	3.11	3.39	
EER*(2)		kW/kW	5.16	4.28	4.39	
Max. input consumption		kW	2.8	3	4.8	
Max. input current		A	14.6	15.6	25	
Compressor	Model		SNB172FJGMC	SNB172FJGMC	ATQ420D1UMU	
	Type		ROTARY	ROTARY	ROTARY	
	Brand		Mitsubishi Electric	Mitsubishi Electric	GMCC	
	Capacity	kW	5.46	5.46	13.1	
	Input	kW	1.64	1.64	3.42	
	Rated load current	A	8.1	8.1	6.85	
	Locked rotor amp	A	29.5	29.5	52	
	Thermal protector		Inner	Inner	Inner	
Refrigerant oil	ml	FV50S,400	FV50S,400	VG74,1400		
Outdoor fan motor	Model		WZDK170-38G-1	WZDK170-38G-1	WZDK100-38G	
	Type		DC Motor	DC Motor	DC Motor	
	Brand		NIDEC SHIBAURA	NIDEC SHIBAURA	Panasonic	
	Input	W	170	170	100	
	Speed	r/min	820	820	800	
Outdoor coil	Number of rows		2	2	2	
	Tube pitch(a)× row pitch(b)		mm	22×19.05	22×19.05	22×19.05
	Fin spacing		mm	1.6	1.6	1.6
	Fin type		Hydrophilic aluminum foil	Hydrophilic aluminum foil	Hydrophilic aluminum foil	
	Tube outside dia. and type		mm	φ 7.94 Inner grooved copper tube	φ 7.94 Inner grooved copper tube	φ 7.94 Inner grooved copper tube
	Coil length ×height		mm	885×880	885×880	1276×870
	Number of circuits			6	6	7
Water pump	Type		RS15/6-3-WILO	RS15/6-3-WILO	RL25/8.5	
	Input (H/M/L)	W	93/67/46	93/67/46	210/175/120	
	Pumping head	m	5.5	5.5	8	
Outdoor air flow		m ³ /h	5100	5100	7000	
Throttle			EXV+capillary	EXV+capillary	EXV	
Outdoor noise level (sound pressure)*3		dB(A)	58	58	59	
Water flow		m ³ /h	0.86	1.2	1.72	
The plate heat-exchanger water pressure drop		kPa	15	15	18	
The Max. and Min. water inlet pressure		kPa	500/150	500/150	500/150	
Outdoor unit	Net dimension (W×H×D)		mm	990×966×354	990×966×354	970×1327×400
	Packing dimension (W×H×D)		mm	1120×1100×435	1120×1100×435	1082×1456×435
	Net/ Gross weight		kg	81/91	81/91	110/121
Refrigerant	Type		R410A	R410A	R410A	
	Charged volume	kg	2.5	2.5	2.8	
Connection wiring	Power wire	NO.×mm ²	3×2.5	3×2.5	3×4.0	
	Signal wire	NO.×mm ²	3×0.75	3×0.75	3×0.75	
Pipe diameter	Water inlet/outlet	inch	1"	1"	1-1/4"	
Control			Wired controller			
Ambient temperature		°C	Cooling: -5°C~46°C; Heating: -15-27°C			
Water outlet temperature range		°C	Cooling: 4~20°C; Heating: 30~55 °C			

- Cooling: (*1) chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(*2) chilled water inlet/outlet temperature: 23/18°C, outdoor ambient temperature 35°C DB.
- Heating: (*3) warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB .
(*4) warm water inlet/outlet temperature: 30/35°C, outdoor ambient temperature 7°C DB/6°C WB .
- It is tested 1m away in front of the unit in a semi-anechoic room(sound pressure).
- The above data may be changed without notice for future improvement on quality and performance.

Model			MGC-V12W/D2RN1	MGC-V14W/D2RN1	MGC-V16W/D2RN1
Power supply		V-Ph-Hz	380-415, 3, 50	380-415, 3, 50	380-415, 3, 50
Cooling*(1)	Capacity	kW	11.2(3.1~12.0)	12.5(3.3~14)	14.5(3.5~15.5)
	Input	kW	3.38	3.9	4.53
Cooling*(2)	Capacity	kW	14.5	15.17	16.7
	Input	kW	2.8	3.13	3.73
Heating*(3)	Capacity	kW	12.3(3.3~13.2)	13.8(3.5~15.4)	16.0(3.7~17.0)
	Input	kW	3.72	4.25	4.85
Heating*(4)	Capacity	kW	13.75	15.3	16.97
	Input	kW	2.85	3.15	3.86
EER*(1)		kW/kW	3.31	3.2	3.2
EER*(2)		kW/kW	5.17	4.84	4.48
Max. input consumption		kW	5.2	5.6	5.9
Max. input current		A	8.9	9.6	10.1
Compressor	Model		ATQ420D2UMU	ATQ420D2UMU	ATQ420D2UMU
	Type		ROTARY	ROTARY	ROTARY
	Brand		GMCC	GMCC	GMCC
	Capacity	kW	13	13	13
	Input	kW	3.45	3.45	3.45
	Rated load current	A	6.9	6.9	6.9
	Locked rotor amp	A	44	44	44
	Thermal protector		Inner	Inner	Inner
Refrigerant oil	ml	VG74,1400	VG74,1400	VG74,1400	
Outdoor fan motor	Model		WZDK100-38G	WZDK100-38G	WZDK100-38G
	Type		DC Motor	DC Motor	DC Motor
	Brand		Panasonic	Panasonic	Panasonic
	Input	W	100	100	100
	Speed	r/min	800	800	800
Outdoor coil	Number of rows		2	2	2
	Tube pitch(a)× row pitch(b)		mm 22×19.05	22×19.05	22×19.05
	Fin spacing		mm 1.6	1.6	1.6
	Fin type		Hydrophilic aluminum foil	Hydrophilic aluminum foil	Hydrophilic aluminum foil
	Tube outside dia. and type		mm ϕ 7.94 Inner grooved copper tube	ϕ 7.94 Inner grooved copper tube	ϕ 7.94 Inner grooved copper tube
	Coil length ×height		mm 1276×870	1276×870	1276×870
	Number of circuits		7	7	7
Water pump	Type		RL25/8.5	RL25/8.5	RL25/8.5
	Input (H/M/L)	W	210/175/120	210/175/120	210/175/120
	Pumping head	m	8	8	8
Outdoor air flow		m ³ /h	7000	7000	7000
Throttle			EXV	EXV	EXV
Outdoor noise level (sound pressure)*3		dB(A)	59	60	60
Water flow		m ³ /h	1.92	2.15	2.49
The plate heat-exchanger water pressure drop		kPa	18	18	19
The Max. and Min. water inlet pressure		kPa	500/150	500/150	500/150
Outdoor unit	Net dimension (W×H×D)		mm 970×1327×400	970×1327×400	970×1327×400
	Packing dimension (W×H×D)		mm 1082×1456×435	1082×1456×435	1082×1456×435
	Net/ Gross weight		kg 110/121	111/122	111/122
Refrigerant	Type		R410A	R410A	R410A
	Charged volume	kg	2.8	2.9	3.2
Connection wiring	Power wire	NO.×mm ²	5×3.0	5×3.0	5×3.0
	Signal wire	NO.×mm ²	3×0.75	3×0.75	3×0.75
Pipe diameter	Water inlet/outlet	inch	1-1/4"	1-1/4"	1-1/4"
Control			Wired controller		
Ambient temperature		°C	Cooling: -5°C~46°C;		Heating: -15-27°C
Water outlet temperature range		°C	Cooling: 4~20 °C;		Heating: 30~55 °C

- Cooling: (*1) chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
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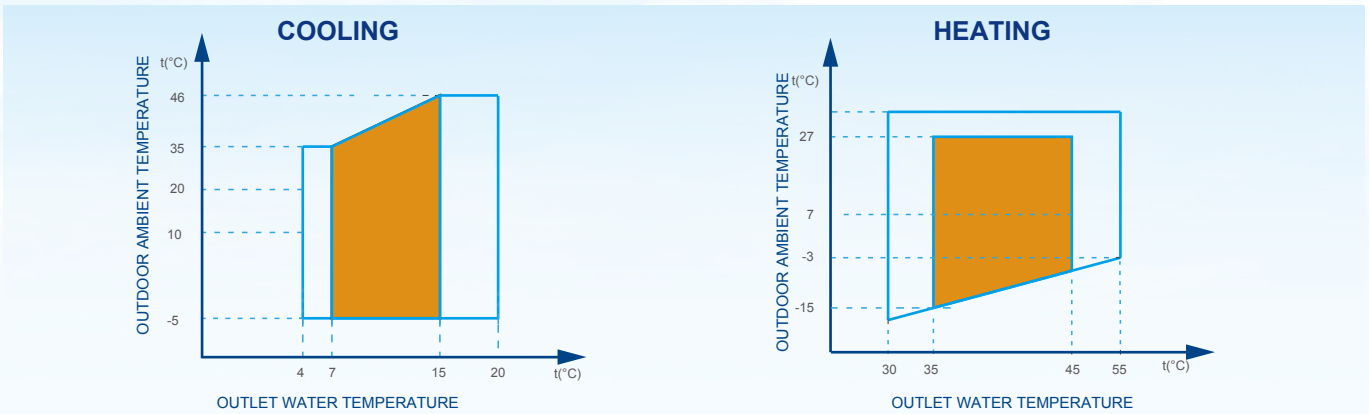
Model			MGC-V10W/D2VN1	MGC-V18W/D2VN1
Power supply		V-Ph-Hz	208-230, 1,60	208-230, 1,60
Cooling*(1)	Capacity	kW	10.0(2.9~10.5)	17.0(3.8~18.0)
	Input	kW	2.95	5.6
	EER	kW/kW	3.39	3.00
Heating*(2)	Capacity	kW	11.0(3.2~12.0)	18.5(4.0~19.0)
	Input	kW	3.14	5.78
	COP	kW/kW	3.5	3.20
Max. input consumption		kW	4800	6700
Max. input current		A	25	30
Compressor	Model		ATQ420D1UMU	ATQ420D1UMU
	Type		ROTARY	ROTARY
	Brand		GMCC	GMCC
	Capacity	Btu/h(kW)	44710(13.1)	44710(13.1)
	Input	kW	3.42	3.42
	Rated load current	A	6.85	6.85
	Locked rotor Amp	A	52	52
	Thermal protector		Inner	Inner
	Refrigerant oil	ml	VG74,1400ml	VG74,1400ml
Outdoor fan motor	Model		WZDK100-38G	WZDK100-38G
	Type		DC MOTOR	DC MOTOR
	Brand		NIDEC SHIBAURA	NIDEC SHIBAURA
	Input	W	100	100
	Speed	r/min	780	780
Outdoor coil	Number of rows		2	2
	Tube pitch(a)× row pitch(b)		mm	22×19.05
	Fin spacing		mm	1.6
	Fin type		Hydrophilic aluminium foil	Hydrophilic aluminium foil
	Tube outside dia. and type		mm	φ 7.94 Inner grooved copper tube
	Coil length ×height		mm	870×1276
	Number of circuits			7
Water pump	Type		RS25/7.5 RKC	RS25/7.5 RKC
	Input	W	75	75
	Pumping head	m	7.5	7.5
Outdoor air flow		m³/h	7000	7000
Throttle			Electronic expansion valve	Electronic expansion valve
Outdoor noise level (sound pressure)*3		dB(A)	56	60
Water flow		m³/h	1.72	2.92
The plate heat-exchanger water pressure drop		kPa	18.0	23
The Max. and Min. water inlet pressure		kPa	500/150	500/150
Outdoor unit	Net dimension (W×H×D)		mm	970×1327×400
	Packing dimension (W×H×D)		mm	1082×1456×435
	Net/ Gross weight		kg	110/121
Refrigerant	Type		R410A	R410A
	Charged volume	g	2800	3400
Connection wiring	Power wire	NO.×mm²	3×4.0	3×6.0
	Signal wire	NO.×mm²	3×1.0	3×1.0
Pipe diameter	Water inlet/outlet	inch	R1-1/4"	R1-1/4"
Control			Wired controller	
Ambient temperature		℃	Cooling: -5℃~46℃; Heating: -15~27℃	
Water outlet temperature range		℃	Cooling: 4~20℃; Heating mode: 30~55℃	

1. Cooling: (*1) chilled water inlet/outlet temperature: 12/7℃, outdoor ambient temperature 35℃ DB.
2. Heating: (*2) warm water inlet/outlet temperature: 40/45℃, outdoor ambient temperature 7℃ DB/6℃ WB .
3. It is tested 1m away in front of the unit in a semi-anechoic room(sound pressure).
4. The above data may be changed without notice for future improvement on quality and performance.

Operation limits

Cooling and heating operation temperature range

Cooling operation	Outdoor ambient temperature: -5°C~46°C
	Outlet water temperature: 4°C~20°C
Heating operation	Outdoor ambient temperature: -15°C~27°C
	Outlet water temperature: 30°C~55°C



Ethylene glycol solutions

Water and ethylene glycol solutions used as a thermal vector in the place of water reduce the performance of the unit. Multiply the performance figures by the values given in the following table.

	Freezing point (°C)					
	0	-5	-10	-15	-20	-25
	Percentage of ethylene glycol in weight					
	0	12%	20%	28%	35%	40%
cPf	1	0.98	0.97	0.965	0.96	0.955
cQ	1	1.02	1.04	1.075	1.11	1.14
cdp	1	1.07	1.11	1.18	1.22	1.24

cPf: correction factor refrigerating capacity cQ: correction factor flow rate cdp: correction factor pressure drop

Notes:

1. During winter leaving the unit unused, please drain water out completely from unit if no antifreeze were charged into pipeline, or keep power on (at standby or off status) and ensure that water is contained inside of unit.
2. When ambient temperature lower 5°C, running cooling mode must be charged antifreeze. Refer to upper parameters for the charged volume.

Fouling factors

The performance data given refer to conditions with clean evaporator plates (fouling factor=1). For different fouling factors, multiply the figures in the performance tables by the coefficient given in the following table.

Fouling factors (m ² °C/W)	Evaporator		
	f1	fk1	fx1
4.4×10 ⁻⁵	-	-	-
0.86×10 ⁻⁴	0.96	0.99	0.99
1.72×10 ⁻⁴	0.93	0.98	0.98

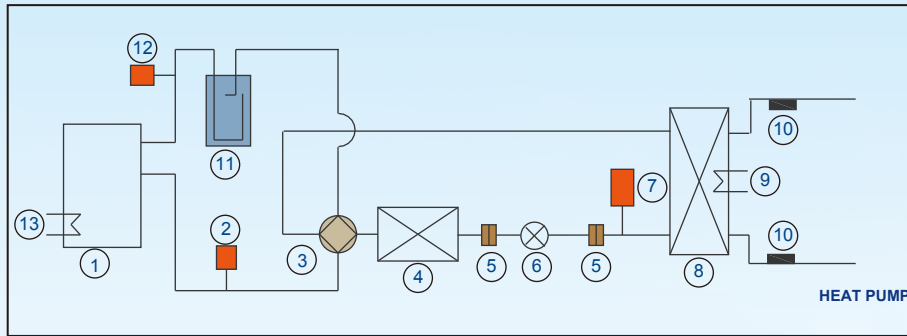
f1: Capacity correction factor fk1: Compressor power input correction factor fx1: Total power input correction factor

Minimum and maximum water flow rates

Model	Item	Water flow rate(m ³ /h)	
		Minimum	Maximum
MGC-V5W/D2N1		0.77	0.95
MGC-V7W/D2N1		1.08	1.32
MGC-V10W/D2N1		1.54	1.89
MGC-V12W/D2RN1		1.72	2.11
MGC-V14W/D2RN1		1.93	2.36
MGC-V16W/D2RN1		2.24	2.73
MGC-V10W/D2VN1		1.54	1.89
MGC-V18W/D2VN1		2.63	3.22

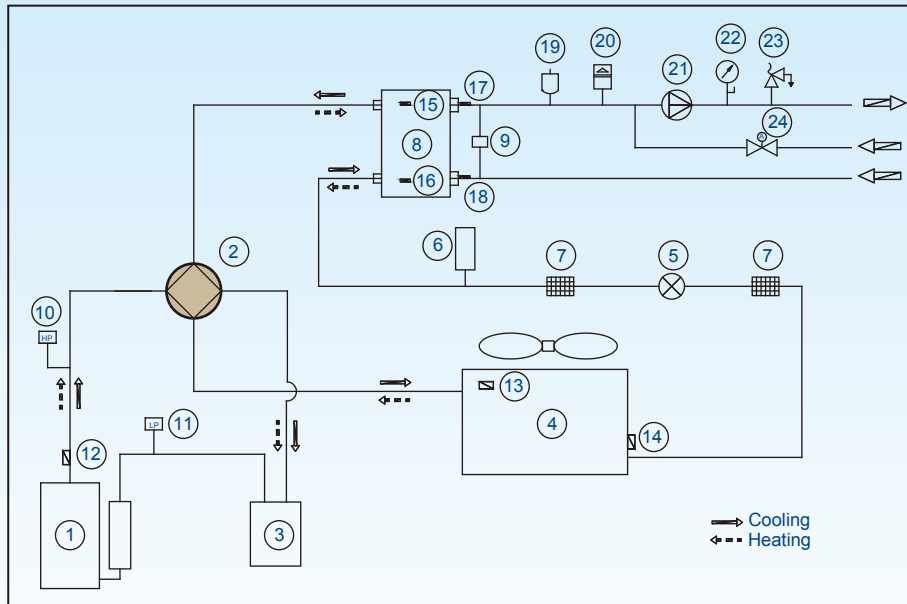
Piping diagram

5~7kW



- | | |
|------------------------------|-----------------------------|
| 1 Compressor | 8 Plate heat exchanger |
| 2 High pressure switch | 9 Defrost heater |
| 3 4-way valve | 10 Water temperature sensor |
| 4 Condenser | 11 Accumulator |
| 5 Filter | 12 Low pressure switch |
| 6 Electronic expansive value | 13 Crankcase heater |
| 7 Liquid receiver | |

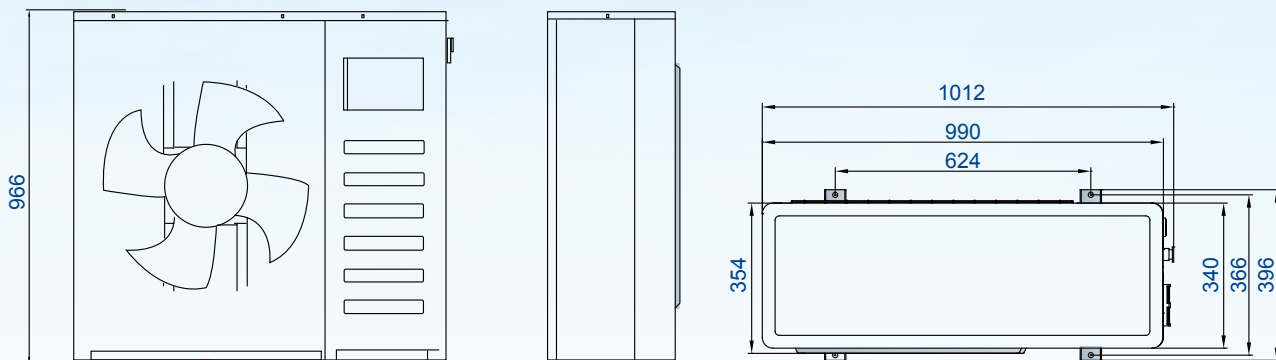
10~18kW



- | | | |
|--|--|--------------------------------|
| 1 Compressor | 9 Differential Pressure Switch | 17 Thermistor For Water Outlet |
| 2 4-Way Valve | 10 High Pressure Switch | 18 Thermistor For Water Inlet |
| 3 Accumulator | 11 Low Pressure Switch | 19 Automatic Discharge Valve |
| 4 Air Side Heat Exchanger | 12 Discharge Gas thermistor | 20 Expansion Tank |
| 5 Electronic Expansion Valve | 13 thermistor For Outdoor Temperature | 21 Circulating Pump |
| 6 Storage Tank | 14 Thermistor For Evaporation In Heating | 22 Pressure Gauge |
| 7 Strainer | 15 Thermistor For Plate Heat Exchange 1 | 23 Safety Valve |
| 8 Water Side Heat Exchanger
(Plate Heat Exchange) | 16 Thermistor For Plate Heat Exchange 2 | 24 Auto-watet replenishing |

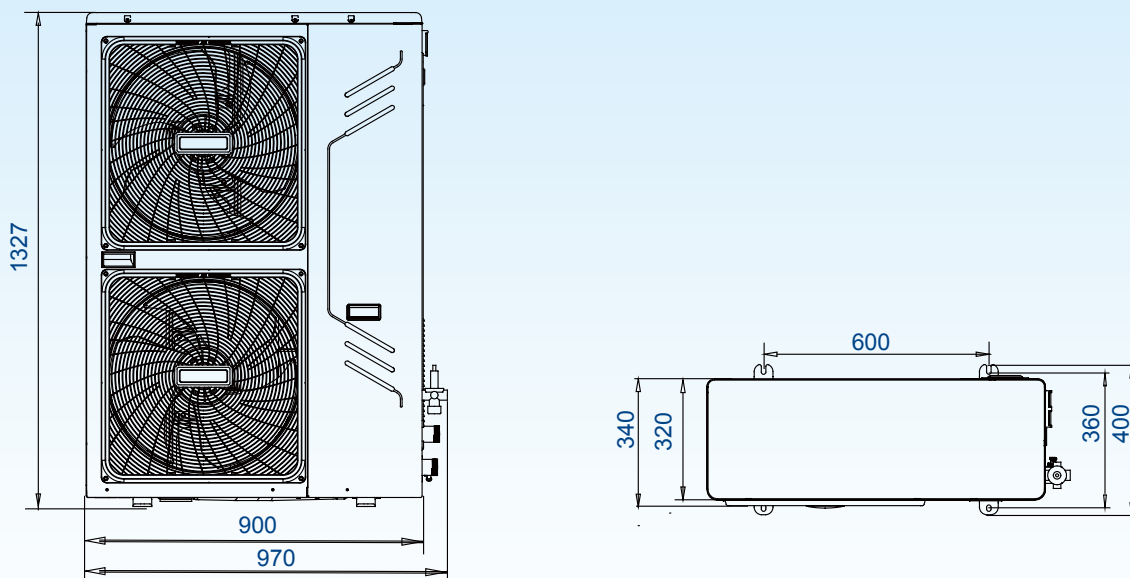
Dimensions (unit: mm)

5/7kW



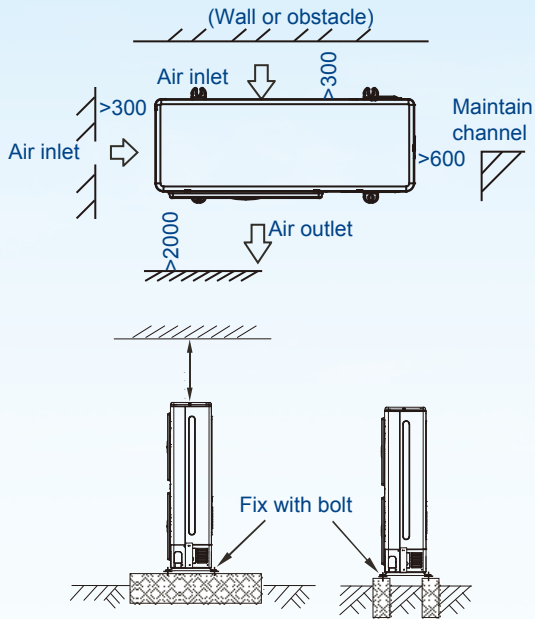
Mini unitary chiller
(Full DC Inverter)

10~18kW

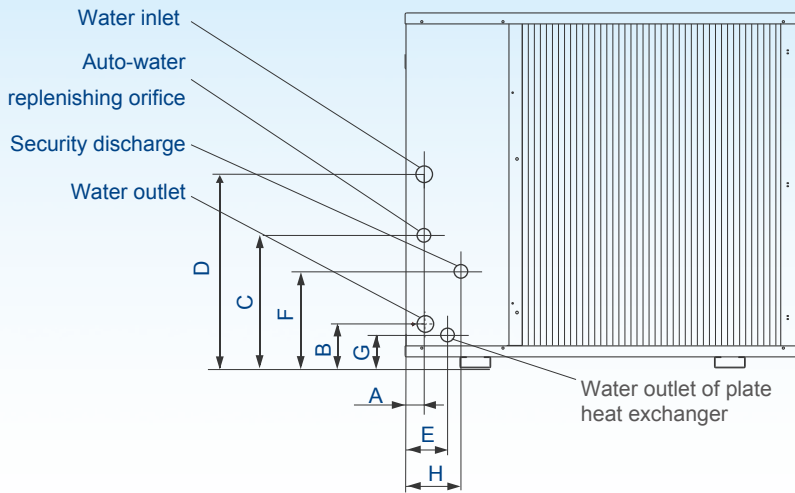
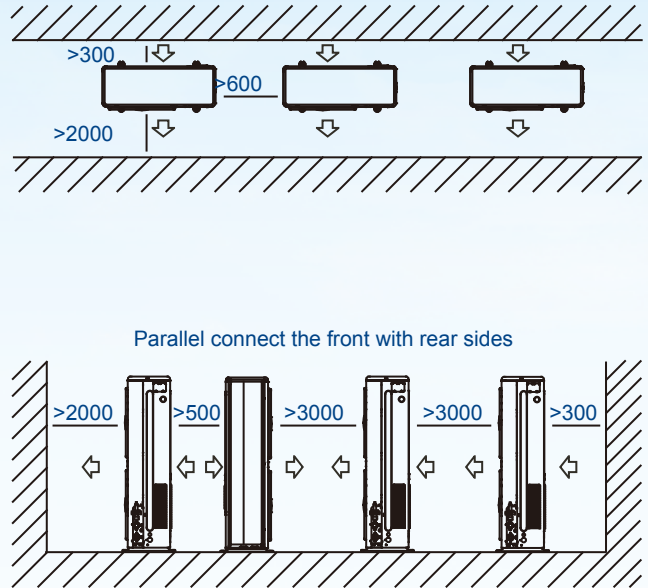


Single unit installation

Unit: mm

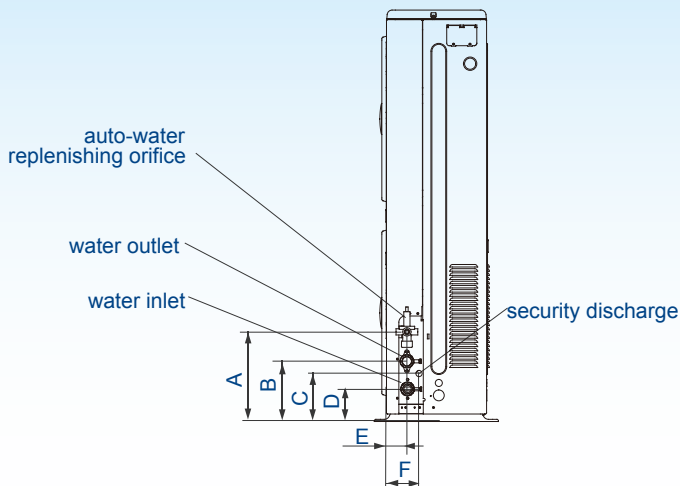


Parallel installation



Size and position of connections

Model	5kW	7kW
A (mm)	70	70
B (mm)	106	106
C (mm)	230	230
D (mm)	362	362
E (mm)	108	108
F (mm)	161	161
G (mm)	76	76
H (mm)	119	119
Water inlet/outlet (Ø)	R1	R1
Auto-water replenishing (Ø)	G1/2	G1/2
Security discharge (Ø)	G1/2	G1/2



Model	10/12/14/16/18kW
A (mm)	300
B (mm)	195
C (mm)	155
D (mm)	105
E (mm)	68
F (mm)	105
Water inlet/outlet (Ø)	R5/4
Auto-water replenishing (Ø)	G1/2
Security discharge (Ø)	G1/2

Performance data Cooling

MGC-V5W/D2N1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W
5.00	5.60	1.37	4.10	5.27	1.41	3.75	4.97	1.45	3.43	4.70	1.50	3.14	4.40	1.57	2.80	4.05	1.65	2.46
6.00	5.79	1.39	4.17	5.44	1.43	3.81	5.13	1.47	3.48	4.85	1.52	3.19	4.54	1.59	2.85	4.19	1.67	2.50
7.00	5.99	1.41	4.23	5.63	1.46	3.86	5.30	1.50	3.53	5.00	1.55	3.23	4.70	1.63	2.88	4.33	1.71	2.53
8.00	6.17	1.46	4.24	5.80	1.50	3.86	5.45	1.55	3.52	5.14	1.60	3.22	4.83	1.68	2.88	4.46	1.76	2.53
9.00	6.35	1.47	4.31	5.95	1.52	3.93	5.60	1.56	3.58	5.27	1.61	3.27	4.96	1.69	2.93	4.58	1.78	2.58
10.00	6.59	1.49	4.41	6.17	1.54	4.01	5.80	1.59	3.65	5.45	1.64	3.33	5.14	1.72	2.99	4.75	1.80	2.63
11.00	6.77	1.51	4.49	6.34	1.55	4.08	5.95	1.60	3.71	5.59	1.65	3.38	5.27	1.73	3.04	4.88	1.82	2.68
12.00	6.93	1.53	4.53	6.48	1.58	4.11	6.07	1.63	3.73	5.70	1.68	3.40	5.38	1.76	3.06	4.99	1.85	2.70
13.00	7.05	1.54	4.57	6.59	1.59	4.14	6.17	1.64	3.76	5.79	1.69	3.43	5.47	1.77	3.08	5.08	1.86	2.72
14.00	7.23	1.55	4.65	6.75	1.60	4.21	6.31	1.65	3.82	5.92	1.70	3.48	5.60	1.79	3.13	5.20	1.88	2.77
15.00	7.32	1.56	4.69	6.83	1.61	4.24	6.38	1.66	3.85	5.97	1.71	3.49	5.66	1.80	3.15	5.26	1.89	2.79
16.00	7.50	1.58	4.76	6.99	1.63	4.30	6.53	1.68	3.90	6.11	1.73	3.54	5.79	1.81	3.19	5.39	1.90	2.83
17.00	7.60	1.58	4.80	7.07	1.63	4.33	6.60	1.68	3.92	6.17	1.74	3.55	5.85	1.82	3.21	5.45	1.91	2.85

MGC-V7W/D2N1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W
5.00	7.84	1.98	3.95	7.38	2.04	3.61	6.96	2.11	3.31	6.58	2.17	3.03	6.17	2.28	2.70	5.67	2.39	2.37
6.00	8.10	2.01	4.03	7.62	2.07	3.67	7.18	2.14	3.36	6.78	2.21	3.08	6.36	2.32	2.75	5.86	2.43	2.41
7.00	8.38	2.05	4.08	7.88	2.12	3.72	7.42	2.18	3.40	7.00	2.25	3.11	6.57	2.36	2.78	6.06	2.48	2.44
8.00	8.64	2.12	4.09	8.12	2.18	3.72	7.63	2.25	3.40	7.20	2.32	3.11	6.76	2.43	2.78	6.24	2.56	2.44
9.00	8.89	2.14	4.16	8.34	2.20	3.79	7.84	2.27	3.45	7.38	2.34	3.15	6.94	2.46	2.83	6.42	2.58	2.49
10.00	9.22	2.17	4.26	8.64	2.23	3.87	8.12	2.30	3.52	7.64	2.38	3.22	7.19	2.49	2.88	6.65	2.62	2.54
11.00	9.48	2.19	4.33	8.88	2.26	3.93	8.33	2.33	3.58	7.83	2.40	3.26	7.38	2.52	2.93	6.83	2.64	2.58
12.00	9.70	2.22	4.37	9.07	2.29	3.96	8.50	2.36	3.60	7.98	2.43	3.28	7.54	2.56	2.95	6.99	2.68	2.60
13.00	9.87	2.24	4.41	9.23	2.31	4.00	8.64	2.38	3.63	8.10	2.45	3.30	7.66	2.58	2.97	7.11	2.70	2.63
14.00	10.12	2.25	4.49	9.45	2.32	4.06	8.84	2.40	3.69	8.28	2.47	3.35	7.83	2.59	3.02	7.28	2.72	2.67
15.00	10.25	2.27	4.52	9.56	2.34	4.09	8.93	2.41	3.71	8.36	2.48	3.37	7.92	2.61	3.04	7.37	2.74	2.69
16.00	10.50	2.29	4.59	9.79	2.36	4.15	9.14	2.43	3.76	8.55	2.51	3.41	8.10	2.63	3.08	7.54	2.76	2.73
17.00	10.64	2.30	4.63	9.90	2.37	4.18	9.24	2.44	3.78	8.63	2.52	3.43	8.19	2.65	3.10	7.64	2.78	2.75

MGC-V10W/D2N1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W	Capacity kW	Power kW	COP W/W
5.00	11.20	2.60	4.31	10.54	2.68	3.94	9.95	2.76	3.60	9.40	2.85	3.30	8.81	2.99	2.95	8.10	3.14	2.58
6.00	11.57	2.64	4.39	10.89	2.72	4.00	10.26	2.80	3.66	9.69	2.89	3.35	9.09	3.04	2.99	8.37	3.19	2.63
7.00	11.98	2.69	4.45	11.26	2.78	4.06	10.60	2.86	3.70	10.00	2.95	3.39	9.39	3.10	3.03	8.66	3.25	2.66
8.00	12.35	2.77	4.45	11.59	2.86	4.06	10.91	2.95	3.70	10.28	3.04	3.38	9.66	3.19	3.03	8.92	3.35	2.66
9.00	12.70	2.80	4.53	11.91	2.89	4.13	11.19	2.98	3.76	10.54	3.07	3.44	9.92	3.22	3.08	9.16	3.38	2.71
10.00	13.18	2.84	4.64	12.35	2.93	4.22	11.60	3.02	3.84	10.91	3.11	3.50	10.28	3.27	3.14	9.51	3.43	2.77
11.00	13.54	2.87	4.72	12.68	2.96	4.29	11.90	3.05	3.90	11.18	3.14	3.56	10.54	3.30	3.19	9.76	3.47	2.82
12.00	13.85	2.91	4.76	12.96	3.00	4.32	12.15	3.09	3.92	11.41	3.19	3.57	10.77	3.35	3.21	9.98	3.52	2.84
13.00	14.10	2.94	4.80	13.18	3.03	4.36	12.34	3.12	3.96	11.58	3.22	3.60	10.94	3.38	3.24	10.15	3.55	2.86
14.00	14.45	2.96	4.89	13.49	3.05	4.43	12.62	3.14	4.02	11.83	3.24	3.65	11.19	3.40	3.29	10.40	3.57	2.91
15.00	14.64	2.97	4.93	13.66	3.06	4.46	12.76	3.16	4.04	11.95	3.25	3.67	11.32	3.42	3.31	10.52	3.59	2.93
16.00	15.00	3.00	5.00	13.98	3.09	4.52	13.05	3.19	4.09	12.21	3.29	3.72	11.58	3.45	3.35	10.78	3.62	2.97
17.00	15.19	3.01	5.04	14.15	3.11	4.55	13.20	3.20	4.12	12.33	3.30	3.73	11.71	3.47	3.37	10.91	3.64	3.00

MGC-V12W/D2RN1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W
5.00	12.54	2.98	4.21	11.81	3.07	3.85	11.14	3.16	3.52	10.53	3.26	3.23	9.86	3.42	2.88	9.08	3.60	2.52
6.00	12.96	3.02	4.29	12.19	3.12	3.91	11.49	3.21	3.58	10.85	3.31	3.28	10.18	3.48	2.93	9.38	3.65	2.57
7.00	13.41	3.08	4.35	12.61	3.18	3.96	11.87	3.28	3.62	11.20	3.38	3.31	10.52	3.55	2.96	9.70	3.73	2.60
8.00	13.83	3.18	4.35	12.99	3.28	3.96	12.22	3.38	3.62	11.51	3.48	3.31	10.82	3.66	2.96	9.99	3.84	2.60
9.00	14.22	3.21	4.43	13.34	3.31	4.03	12.54	3.41	3.68	11.80	3.52	3.36	11.11	3.69	3.01	10.26	3.88	2.65
10.00	14.76	3.26	4.53	13.83	3.36	4.12	12.99	3.46	3.75	12.22	3.57	3.42	11.51	3.75	3.07	10.65	3.93	2.71
11.00	15.17	3.29	4.61	14.20	3.39	4.19	13.32	3.49	3.81	12.52	3.60	3.48	11.81	3.78	3.12	10.94	3.97	2.75
12.00	15.52	3.34	4.65	14.52	3.44	4.22	13.60	3.55	3.84	12.77	3.66	3.49	12.06	3.84	3.14	11.18	4.03	2.77
13.00	15.79	3.36	4.70	14.76	3.47	4.26	13.82	3.57	3.87	12.97	3.69	3.52	12.25	3.87	3.17	11.37	4.06	2.80
14.00	16.19	3.39	4.78	15.11	3.49	4.33	14.14	3.60	3.93	13.25	3.71	3.57	12.54	3.90	3.22	11.65	4.09	2.85
15.00	16.39	3.40	4.82	15.29	3.51	4.36	14.29	3.62	3.95	13.38	3.73	3.59	12.67	3.92	3.24	11.79	4.11	2.87
16.00	16.80	3.44	4.89	15.66	3.54	4.42	14.62	3.65	4.00	13.68	3.77	3.63	12.97	3.95	3.28	12.07	4.15	2.91
17.00	17.02	3.45	4.93	15.85	3.56	4.45	14.78	3.67	4.03	13.81	3.78	3.65	13.11	3.97	3.30	12.22	4.17	2.93

MGC-V14W/D2RN1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W
5.00	13.99	3.43	4.07	13.18	3.54	3.72	12.43	3.65	3.41	11.75	3.76	3.12	11.01	3.95	2.79	10.13	4.15	2.44
6.00	14.47	3.49	4.15	13.61	3.60	3.78	12.83	3.71	3.46	12.11	3.82	3.17	11.36	4.01	2.83	10.46	4.21	2.48
7.00	14.97	3.56	4.21	14.07	3.67	3.83	13.25	3.78	3.50	12.50	3.90	3.21	11.74	4.10	2.87	10.82	4.30	2.52
8.00	15.43	3.67	4.21	14.49	3.78	3.83	13.63	3.90	3.50	12.85	4.02	3.20	12.08	4.22	2.86	11.15	4.43	2.52
9.00	15.87	3.70	4.29	14.89	3.82	3.90	13.99	3.93	3.56	13.18	4.06	3.25	12.40	4.26	2.91	11.46	4.47	2.56
10.00	16.47	3.76	4.38	15.44	3.87	3.99	14.50	3.99	3.63	13.64	4.12	3.31	12.85	4.32	2.97	11.88	4.54	2.62
11.00	16.93	3.79	4.46	15.85	3.91	4.05	14.87	4.03	3.69	13.98	4.16	3.36	13.18	4.37	3.02	12.20	4.58	2.66
12.00	17.32	3.85	4.50	16.20	3.97	4.08	15.18	4.09	3.71	14.26	4.22	3.38	13.46	4.43	3.04	12.48	4.65	2.68
13.00	17.63	3.88	4.54	16.47	4.00	4.12	15.43	4.12	3.74	14.47	4.25	3.40	13.67	4.46	3.06	12.69	4.69	2.71
14.00	18.07	3.91	4.62	16.87	4.03	4.19	15.78	4.15	3.80	14.79	4.28	3.45	13.99	4.50	3.11	13.00	4.72	2.75
15.00	18.30	3.93	4.66	17.07	4.05	4.22	15.95	4.17	3.82	14.94	4.30	3.47	14.15	4.52	3.13	13.15	4.74	2.77
16.00	18.75	3.97	4.73	17.48	4.09	4.27	16.32	4.22	3.87	15.27	4.35	3.51	14.47	4.56	3.17	13.47	4.79	2.81
17.00	18.99	3.99	4.77	17.68	4.11	4.30	16.50	4.24	3.89	15.42	4.37	3.53	14.63	4.59	3.19	13.64	4.81	2.83

MGC-V16W/D2RN1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W
5.00	16.23	3.99	4.07	15.29	4.11	3.72	14.42	4.24	3.40	13.63	4.37	3.12	12.77	4.59	2.78	11.75	4.82	2.44
6.00	16.78	4.05	4.14	15.79	4.18	3.78	14.88	4.31	3.46	14.05	4.44	3.16	13.18	4.66	2.83	12.14	4.89	2.48
7.00	17.37	4.13	4.20	16.32	4.26	3.83	15.37	4.39	3.50	14.50	4.53	3.20	13.62	4.76	2.86	12.55	4.99	2.51
8.00	17.90	4.26	4.20	16.81	4.39	3.83	15.82	4.53	3.49	14.91	4.67	3.19	14.01	4.90	2.86	12.93	5.14	2.51
9.00	18.41	4.30	4.28	17.27	4.43	3.90	16.23	4.57	3.55	15.28	4.71	3.24	14.38	4.95	2.91	13.29	5.19	2.56
10.00	19.11	4.36	4.38	17.91	4.50	3.98	16.81	4.64	3.63	15.82	4.78	3.31	14.90	5.02	2.97	13.78	5.27	2.61
11.00	19.64	4.41	4.46	18.39	4.54	4.05	17.25	4.68	3.68	16.21	4.83	3.36	15.29	5.07	3.02	14.16	5.32	2.66
12.00	20.09	4.47	4.49	18.79	4.61	4.08	17.61	4.75	3.71	16.54	4.90	3.38	15.61	5.14	3.03	14.47	5.40	2.68
13.00	20.45	4.51	4.54	19.11	4.65	4.11	17.89	4.79	3.74	16.79	4.94	3.40	15.86	5.19	3.06	14.72	5.45	2.70
14.00	20.96	4.54	4.62	19.57	4.68	4.18	18.30	4.82	3.79	17.15	4.97	3.45	16.23	5.22	3.11	15.08	5.48	2.75
15.00	21.23	4.56	4.65	19.80	4.70	4.21	18.50	4.85	3.82	17.33	5.00	3.47	16.41	5.25	3.13	15.26	5.51	2.77
16.00	21.75	4.61	4.72	20.27	4.75	4.27	18.93	4.90	3.87	17.71	5.05	3.51	16.79	5.30	3.17	15.63	5.57	2.81
17.00	22.03	4.63	4.76	20.51	4.77	4.30	19.14	4.92	3.89	17.88	5.07	3.53	16.97	5.33	3.19	15.82	5.59	2.83

MGC-V10W/D2VN1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER
	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W
5.00	11.20	2.60	4.31	10.54	2.68	3.94	9.95	2.76	3.60	9.40	2.85	3.30	8.81	2.99	2.95	8.10	3.14	2.58
6.00	11.57	2.64	4.39	10.89	2.72	4.00	10.26	2.80	3.66	9.69	2.89	3.35	9.09	3.04	2.99	8.37	3.19	2.63
7.00	11.98	2.69	4.45	11.26	2.78	4.06	10.60	2.86	3.70	10.00	2.95	3.39	9.39	3.10	3.03	8.66	3.25	2.66
8.00	12.35	2.77	4.45	11.59	2.86	4.06	10.91	2.95	3.70	10.28	3.04	3.38	9.66	3.19	3.03	8.92	3.35	2.66
9.00	12.70	2.80	4.53	11.91	2.89	4.13	11.19	2.98	3.76	10.54	3.07	3.44	9.92	3.22	3.08	9.16	3.38	2.71
10.00	13.18	2.84	4.64	12.35	2.93	4.22	11.60	3.02	3.84	10.91	3.11	3.50	10.28	3.27	3.14	9.51	3.43	2.77
11.00	13.54	2.87	4.72	12.68	2.96	4.29	11.90	3.05	3.90	11.18	3.14	3.56	10.54	3.30	3.19	9.76	3.47	2.82
12.00	13.85	2.91	4.76	12.96	3.00	4.32	12.15	3.09	3.92	11.41	3.19	3.57	10.77	3.35	3.21	9.98	3.52	2.84
13.00	14.10	2.94	4.80	13.18	3.03	4.36	12.34	3.12	3.96	11.58	3.22	3.60	10.94	3.38	3.24	10.15	3.55	2.86
14.00	14.45	2.96	4.89	13.49	3.05	4.43	12.62	3.14	4.02	11.83	3.24	3.65	11.19	3.40	3.29	10.40	3.57	2.91
15.00	14.64	2.97	4.93	13.66	3.06	4.46	12.76	3.16	4.04	11.95	3.25	3.67	11.32	3.42	3.31	10.52	3.59	2.93
16.00	15.00	3.00	5.00	13.98	3.09	4.52	13.05	3.19	4.09	12.21	3.29	3.72	11.58	3.45	3.35	10.78	3.62	2.97
17.00	15.19	3.01	5.04	14.15	3.11	4.55	13.20	3.20	4.12	12.33	3.30	3.73	11.71	3.47	3.37	10.91	3.64	3.00

Mini unitary chiller
(Full DC Inverter)

MGC-V18W/D2VN1

Chilled water outlet temp. (°C)	Ambient temp.(°C)																	
	21.00			25.00			30.00			35.00			40.00			46.00		
	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER	Capacity	Power	EER
	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W
5.00	19.03	4.93	3.86	17.92	5.08	3.52	16.91	5.24	3.23	15.98	5.40	2.96	14.97	5.67	2.64	13.78	5.96	2.31
6.00	19.68	5.01	3.93	18.51	5.16	3.58	17.44	5.32	3.28	16.47	5.49	3.00	15.45	5.76	2.68	14.23	6.05	2.35
7.00	20.36	5.11	3.98	19.14	5.27	3.63	18.02	5.43	3.32	17.00	5.60	3.04	15.96	5.88	2.71	14.72	6.17	2.38
8.00	20.99	5.26	3.99	19.71	5.43	3.63	18.54	5.59	3.31	17.48	5.77	3.03	16.43	6.06	2.71	15.16	6.36	2.38
9.00	21.58	5.32	4.06	20.25	5.48	3.69	19.03	5.65	3.37	17.92	5.82	3.08	16.86	6.12	2.76	15.58	6.42	2.43
10.00	22.40	5.40	4.15	20.99	5.56	3.77	19.71	5.73	3.44	18.55	5.91	3.14	17.47	6.21	2.81	16.16	6.52	2.48
11.00	23.03	5.45	4.23	21.56	5.62	3.84	20.23	5.79	3.49	19.01	5.97	3.18	17.93	6.27	2.86	16.60	6.58	2.52
12.00	23.55	5.53	4.26	22.03	5.70	3.87	20.65	5.88	3.51	19.39	6.06	3.20	18.30	6.36	2.88	16.97	6.68	2.54
13.00	23.97	5.57	4.30	22.41	5.74	3.90	20.98	5.92	3.54	19.68	6.11	3.22	18.60	6.41	2.90	17.26	6.73	2.56
14.00	24.57	5.61	4.38	22.94	5.78	3.97	21.46	5.96	3.60	20.11	6.15	3.27	19.03	6.46	2.95	17.68	6.78	2.61
15.00	24.89	5.64	4.41	23.21	5.81	3.99	21.70	5.99	3.62	20.31	6.18	3.29	19.24	6.49	2.97	17.89	6.81	2.63
16.00	25.50	5.70	4.48	23.77	5.87	4.05	22.19	6.05	3.67	20.76	6.24	3.33	19.68	6.55	3.00	18.32	6.88	2.66
17.00	25.83	5.72	4.51	24.05	5.90	4.08	22.44	6.08	3.69	20.97	6.27	3.34	19.90	6.58	3.02	18.55	6.91	2.68

Heating

MGC-V5W/D2N1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
40.00	3.41	1.06	3.21	4.26	1.21	3.53	5.02	1.34	3.74	5.58	1.46	3.82	6.06	1.54	3.94	6.79	1.63	4.17	7.81	1.76	4.44
41.00	3.30	1.09	3.04	4.13	1.23	3.35	4.87	1.37	3.55	5.42	1.49	3.64	5.89	1.57	3.76	6.59	1.66	3.97	7.57	1.80	4.21
42.00	3.21	1.11	2.90	4.02	1.26	3.19	4.74	1.40	3.39	5.28	1.52	3.47	5.75	1.60	3.59	6.42	1.70	3.78	7.36	1.83	4.02
43.00	3.13	1.13	2.77	3.93	1.28	3.06	4.64	1.43	3.25	5.17	1.55	3.33	5.64	1.63	3.45	6.28	1.73	3.63	7.19	1.87	3.84
44.00	3.07	1.15	2.66	3.86	1.31	2.94	4.56	1.46	3.13	5.09	1.58	3.21	5.56	1.67	3.33	6.18	1.77	3.50	7.05	1.91	3.70
45.00	3.03	1.18	2.57	3.81	1.34	2.85	4.50	1.49	3.03	5.03	1.62	3.12	5.50	1.70	3.24	6.11	1.80	3.39	6.96	1.95	3.58
46.00	2.97	1.19	2.50	3.74	1.35	2.77	4.43	1.50	2.95	4.95	1.63	3.04	5.42	1.72	3.16	6.00	1.82	3.30	6.83	1.97	3.48
47.00	2.88	1.21	2.37	3.63	1.38	2.64	4.31	1.53	2.81	4.82	1.66	2.90	5.28	1.75	3.02	5.84	1.86	3.15	6.64	2.00	3.31
48.00	2.77	1.25	2.21	3.49	1.42	2.46	4.15	1.58	2.63	4.65	1.71	2.71	5.10	1.80	2.83	5.63	1.91	2.94	6.38	2.07	3.09
49.00	2.61	1.30	2.01	3.31	1.48	2.24	3.93	1.64	2.40	4.41	1.78	2.48	4.84	1.88	2.58	5.34	1.99	2.68	6.04	2.15	2.81
50.00	2.45	1.36	1.79	3.10	1.55	2.00	3.69	1.72	2.14	4.14	1.87	2.21	4.55	1.97	2.31	5.01	2.09	2.40	5.66	2.26	2.51

Note: The inlet/outlet water temperature difference is 5°C.

MGC-V7W/D2N1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
40.00	4.96	1.56	3.17	6.20	1.78	3.49	7.30	1.98	3.70	8.11	2.15	3.78	8.81	2.26	3.90	9.87	2.40	4.12	11.35	2.59	4.39
41.00	4.81	1.60	3.01	6.01	1.81	3.32	7.08	2.02	3.51	7.88	2.19	3.60	8.57	2.31	3.72	9.59	2.44	3.92	11.00	2.64	4.17
42.00	4.67	1.63	2.87	5.85	1.85	3.16	6.90	2.06	3.35	7.68	2.24	3.44	8.37	2.35	3.56	9.34	2.49	3.74	10.70	2.69	3.97
43.00	4.55	1.66	2.74	5.71	1.89	3.03	6.75	2.10	3.21	7.52	2.28	3.30	8.20	2.40	3.42	9.14	2.55	3.59	10.45	2.75	3.80
44.00	4.47	1.70	2.63	5.61	1.93	2.91	6.63	2.14	3.10	7.40	2.33	3.18	8.08	2.45	3.30	8.98	2.60	3.46	10.26	2.80	3.66
45.00	4.40	1.73	2.54	5.54	1.97	2.82	6.55	2.19	3.00	7.32	2.38	3.08	8.00	2.50	3.20	8.88	2.65	3.35	10.12	2.86	3.54
46.00	4.31	1.75	2.47	5.43	1.99	2.74	6.44	2.21	2.92	7.20	2.40	3.00	7.88	2.53	3.12	8.73	2.68	3.26	9.94	2.89	3.44
47.00	4.19	1.78	2.35	5.28	2.03	2.61	6.26	2.25	2.78	7.01	2.45	2.87	7.68	2.58	2.98	8.50	2.73	3.11	9.65	2.95	3.27
48.00	4.02	1.84	2.19	5.08	2.09	2.43	6.03	2.32	2.60	6.76	2.52	2.68	7.41	2.65	2.79	8.19	2.81	2.91	9.28	3.04	3.06
49.00	3.80	1.91	1.99	4.81	2.17	2.22	5.72	2.41	2.37	6.42	2.62	2.45	7.04	2.76	2.55	7.76	2.92	2.65	8.79	3.16	2.78
50.00	3.56	2.01	1.77	4.50	2.28	1.98	5.36	2.53	2.12	6.02	2.75	2.19	6.62	2.90	2.29	7.28	3.07	2.37	8.23	3.32	2.48

Note: The inlet/outlet water temperature difference is 5°C.

MGC-V10W/D2N1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
(°C)	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W
40.00	6.82	1.96	3.47	8.53	2.23	3.82	10.04	2.48	4.05	11.15	2.70	4.14	12.12	2.84	4.27	13.57	3.01	4.51	15.61	3.25	4.80
41.00	6.61	2.00	3.30	8.27	2.28	3.63	9.74	2.53	3.85	10.83	2.75	3.94	11.79	2.90	4.07	13.18	3.07	4.29	15.13	3.32	4.56
42.00	6.42	2.05	3.14	8.04	2.32	3.46	9.48	2.58	3.67	10.56	2.81	3.76	11.50	2.96	3.89	12.84	3.13	4.10	14.71	3.38	4.35
43.00	6.26	2.09	3.00	7.86	2.37	3.31	9.28	2.64	3.52	10.34	2.86	3.61	11.28	3.02	3.74	12.56	3.20	3.93	14.37	3.45	4.16
44.00	6.14	2.13	2.88	7.71	2.42	3.19	9.12	2.69	3.39	10.18	2.92	3.48	11.11	3.08	3.61	12.35	3.26	3.79	14.11	3.52	4.00
45.00	6.05	2.17	2.78	7.61	2.47	3.08	9.01	2.74	3.28	10.07	2.98	3.37	11.00	3.14	3.50	12.21	3.33	3.67	13.92	3.59	3.87
46.00	5.93	2.20	2.70	7.47	2.49	3.00	8.85	2.77	3.19	9.90	3.01	3.29	10.84	3.17	3.42	12.01	3.36	3.57	13.66	3.63	3.76
47.00	5.76	2.24	2.57	7.26	2.54	2.85	8.61	2.83	3.05	9.65	3.07	3.14	10.56	3.23	3.27	11.68	3.43	3.41	13.27	3.70	3.58
48.00	5.53	2.31	2.40	6.98	2.62	2.66	8.29	2.91	2.85	9.30	3.17	2.94	10.19	3.33	3.06	11.25	3.53	3.19	12.76	3.81	3.35
49.00	5.23	2.40	2.18	6.61	2.73	2.43	7.86	3.03	2.60	8.82	3.29	2.68	9.68	3.47	2.79	10.67	3.67	2.91	12.08	3.97	3.05
50.00	4.89	2.52	1.94	6.19	2.86	2.16	7.37	3.18	2.32	8.28	3.46	2.40	9.10	3.64	2.50	10.01	3.86	2.60	11.32	4.17	2.72

Note: The inlet/outlet water temperature difference is 5°C.

MGC-V12W/D2RN1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
(°C)	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W	kW	kW	W/W
40.00	7.63	2.33	3.28	9.54	2.65	3.61	11.22	2.94	3.82	12.47	3.19	3.90	13.55	3.36	4.03	15.18	3.56	4.26	17.46	3.85	4.53
41.00	7.39	2.38	3.11	9.25	2.70	3.43	10.89	3.00	3.63	12.12	3.26	3.72	13.18	3.43	3.84	14.74	3.64	4.05	16.92	3.93	4.31
42.00	7.17	2.42	2.96	8.99	2.75	3.26	10.60	3.06	3.46	11.81	3.33	3.55	12.86	3.50	3.67	14.35	3.71	3.87	16.45	4.01	4.10
43.00	7.00	2.47	2.83	8.78	2.81	3.13	10.37	3.12	3.32	11.56	3.39	3.41	12.61	3.57	3.53	14.05	3.79	3.71	16.07	4.09	3.93
44.00	6.87	2.52	2.72	8.63	2.87	3.01	10.20	3.19	3.20	11.38	3.46	3.29	12.42	3.65	3.41	13.81	3.86	3.57	15.78	4.17	3.78
45.00	6.77	2.58	2.63	8.51	2.93	2.91	10.07	3.25	3.10	11.25	3.53	3.18	12.30	3.72	3.31	13.65	3.94	3.46	15.56	4.26	3.65
46.00	6.63	2.60	2.55	8.36	2.96	2.83	9.90	3.28	3.01	11.07	3.57	3.10	12.12	3.76	3.22	13.42	3.98	3.37	15.28	4.30	3.55
47.00	6.44	2.65	2.43	8.12	3.01	2.69	9.63	3.35	2.88	10.78	3.64	2.96	11.81	3.83	3.08	13.06	4.06	3.22	14.84	4.39	3.38
48.00	6.18	2.73	2.26	7.81	3.10	2.51	9.27	3.45	2.69	10.40	3.75	2.77	11.40	3.95	2.89	12.58	4.18	3.01	14.27	4.52	3.16
49.00	5.85	2.84	2.06	7.39	3.23	2.29	8.79	3.59	2.45	9.87	3.90	2.53	10.83	4.11	2.64	11.93	4.35	2.74	13.51	4.70	2.87
50.00	5.47	2.98	1.83	6.93	3.39	2.04	8.24	3.77	2.19	9.26	4.09	2.26	10.18	4.31	2.36	11.20	4.57	2.45	12.65	4.93	2.56

Note: The inlet/outlet water temperature difference is 5°C.

MGC-V14W/D2RN1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
40.00	8.56	2.66	3.22	10.70	3.02	3.54	12.59	3.36	3.75	13.99	3.65	3.83	15.20	3.84	3.96	17.03	4.07	4.18	19.58	4.40	4.45
41.00	8.29	2.71	3.05	10.37	3.08	3.36	12.22	3.43	3.57	13.59	3.72	3.65	14.79	3.92	3.77	16.54	4.16	3.98	18.98	4.49	4.23
42.00	8.05	2.77	2.91	10.09	3.15	3.21	11.90	3.50	3.40	13.25	3.80	3.49	14.43	4.00	3.61	16.10	4.24	3.80	18.46	4.58	4.03
43.00	7.86	2.83	2.78	9.86	3.21	3.07	11.64	3.57	3.26	12.97	3.88	3.35	14.15	4.08	3.47	15.76	4.33	3.64	18.03	4.67	3.86
44.00	7.70	2.88	2.67	9.68	3.28	2.95	11.44	3.64	3.14	12.77	3.96	3.23	13.94	4.17	3.35	15.50	4.41	3.51	17.70	4.77	3.71
45.00	7.59	2.94	2.58	9.55	3.34	2.86	11.30	3.71	3.04	12.63	4.04	3.13	13.80	4.25	3.25	15.32	4.51	3.40	17.46	4.87	3.59
46.00	7.44	2.97	2.51	9.37	3.38	2.78	11.11	3.75	2.96	12.42	4.08	3.05	13.59	4.29	3.17	15.06	4.55	3.31	17.14	4.91	3.49
47.00	7.22	3.03	2.38	9.11	3.44	2.64	10.81	3.83	2.82	12.10	4.16	2.91	13.25	4.38	3.03	14.66	4.64	3.16	16.65	5.01	3.32
48.00	6.94	3.12	2.22	8.76	3.55	2.47	10.40	3.94	2.64	11.66	4.28	2.72	12.79	4.51	2.84	14.12	4.78	2.95	16.01	5.16	3.10
49.00	6.56	3.25	2.02	8.29	3.69	2.25	9.86	4.10	2.41	11.07	4.46	2.48	12.15	4.69	2.59	13.39	4.97	2.69	15.16	5.37	2.82
50.00	6.14	3.41	1.80	7.77	3.87	2.01	9.25	4.30	2.15	10.39	4.68	2.22	11.42	4.92	2.32	12.56	5.22	2.41	14.20	5.64	2.52

Note: The inlet/outlet water temperature difference is 5°C.

MGC-V16W/D2RN1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
40.00	9.93	3.03	3.27	12.41	3.45	3.60	14.60	3.83	3.81	16.22	4.16	3.89	17.63	4.38	4.02	19.74	4.65	4.25	22.71	5.02	4.52
41.00	9.61	3.10	3.10	12.03	3.52	3.42	14.17	3.91	3.62	15.76	4.25	3.71	17.15	4.47	3.83	19.17	4.74	4.04	22.01	5.12	4.30
42.00	9.33	3.16	2.95	11.70	3.59	3.26	13.79	3.99	3.46	15.36	4.34	3.54	16.73	4.56	3.67	18.67	4.84	3.86	21.40	5.23	4.09
43.00	9.11	3.22	2.82	11.43	3.66	3.12	13.49	4.07	3.31	15.04	4.43	3.40	16.40	4.66	3.52	18.27	4.94	3.70	20.90	5.33	3.92
44.00	8.93	3.29	2.71	11.22	3.74	3.00	13.26	4.15	3.19	14.80	4.52	3.28	16.16	4.75	3.40	17.97	5.04	3.57	20.52	5.44	3.77
45.00	8.80	3.36	2.62	11.07	3.82	2.90	13.10	4.24	3.09	14.64	4.61	3.18	16.00	4.85	3.30	17.76	5.14	3.45	20.25	5.55	3.65
46.00	8.63	3.39	2.55	10.87	3.85	2.82	12.88	4.28	3.01	14.40	4.65	3.10	15.76	4.90	3.22	17.46	5.19	3.36	19.87	5.61	3.54
47.00	8.37	3.46	2.42	10.56	3.93	2.69	12.53	4.37	2.87	14.03	4.75	2.96	15.37	5.00	3.08	16.99	5.30	3.21	19.31	5.72	3.38
48.00	8.04	3.56	2.26	10.16	4.05	2.51	12.06	4.50	2.68	13.52	4.89	2.77	14.83	5.15	2.88	16.37	5.46	3.00	18.56	5.89	3.15
49.00	7.61	3.70	2.05	9.62	4.21	2.28	11.43	4.68	2.44	12.83	5.08	2.52	14.09	5.35	2.63	15.52	5.67	2.74	17.57	6.13	2.87
50.00	7.12	3.89	1.83	9.01	4.42	2.04	10.72	4.91	2.18	12.05	5.34	2.26	13.24	5.62	2.36	14.57	5.96	2.45	16.46	6.43	2.56

Note: The inlet/outlet water temperature difference is 5°C.

MGC-V10W/D2VN1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
40.00	6.82	1.96	3.47	8.53	2.23	3.82	10.04	2.48	4.05	11.15	2.70	4.14	12.12	2.84	4.27	13.57	3.01	4.51	15.61	3.25	4.80
41.00	6.61	2.00	3.30	8.27	2.28	3.63	9.74	2.53	3.85	10.83	2.75	3.94	11.79	2.90	4.07	13.18	3.07	4.29	15.13	3.32	4.56
42.00	6.42	2.05	3.14	8.04	2.32	3.46	9.48	2.58	3.67	10.56	2.81	3.76	11.50	2.96	3.89	12.84	3.13	4.10	14.71	3.38	4.35
43.00	6.26	2.09	3.00	7.86	2.37	3.31	9.28	2.64	3.52	10.34	2.86	3.61	11.28	3.02	3.74	12.56	3.20	3.93	14.37	3.45	4.16
44.00	6.14	2.13	2.88	7.71	2.42	3.19	9.12	2.69	3.39	10.18	2.92	3.48	11.11	3.08	3.61	12.35	3.26	3.79	14.11	3.52	4.00
45.00	6.05	2.17	2.78	7.61	2.47	3.08	9.01	2.74	3.28	10.07	2.98	3.37	11.00	3.14	3.50	12.21	3.33	3.67	13.92	3.59	3.87
46.00	5.93	2.20	2.70	7.47	2.49	3.00	8.85	2.77	3.19	9.90	3.01	3.29	10.84	3.17	3.42	12.01	3.36	3.57	13.66	3.63	3.76
47.00	5.76	2.24	2.57	7.26	2.54	2.85	8.61	2.83	3.05	9.65	3.07	3.14	10.56	3.23	3.27	11.68	3.43	3.41	13.27	3.70	3.58
48.00	5.53	2.31	2.40	6.98	2.62	2.66	8.29	2.91	2.85	9.30	3.17	2.94	10.19	3.33	3.06	11.25	3.53	3.19	12.76	3.81	3.35
49.00	5.23	2.40	2.18	6.61	2.73	2.43	7.86	3.03	2.60	8.82	3.29	2.68	9.68	3.47	2.79	10.67	3.67	2.91	12.08	3.97	3.05
50.00	4.89	2.52	1.94	6.19	2.86	2.16	7.37	3.18	2.32	8.28	3.46	2.40	9.10	3.64	2.50	10.01	3.86	2.60	11.32	4.17	2.72

Note: The inlet/outlet water temperature difference is 5°C.

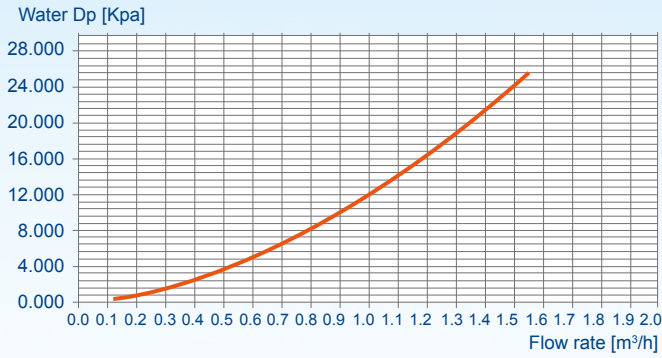
MGC-V18W/D2VN1

Hot water outlet temp. (°C)	Ambient temp.(°C)																				
	-10			-6			-2			2			7			10			13		
	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP	Capacity	Power	COP
40.00	11.48	3.62	3.17	14.35	4.11	3.49	16.88	4.57	3.70	18.75	4.96	3.78	20.38	5.22	3.90	22.83	5.54	4.12	26.25	5.98	4.39
41.00	11.11	3.69	3.01	13.91	4.19	3.32	16.38	4.66	3.52	18.22	5.06	3.60	19.83	5.33	3.72	22.17	5.65	3.92	25.45	6.10	4.17
42.00	10.79	3.77	2.87	13.52	4.28	3.16	15.95	4.75	3.35	17.76	5.17	3.44	19.34	5.44	3.56	21.59	5.77	3.74	24.74	6.23	3.97
43.00	10.53	3.84	2.74	13.21	4.37	3.03	15.60	4.85	3.22	17.39	5.27	3.30	18.97	5.55	3.42	21.13	5.88	3.59	24.17	6.35	3.80
44.00	10.33	3.92	2.63	12.97	4.46	2.91	15.34	4.95	3.10	17.12	5.38	3.18	18.69	5.66	3.30	20.78	6.00	3.46	23.73	6.48	3.66
45.00	10.18	4.00	2.54	12.80	4.55	2.82	15.15	5.05	3.00	16.93	5.49	3.08	18.50	5.78	3.20	20.54	6.13	3.35	23.41	6.62	3.54
46.00	9.98	4.04	2.47	12.57	4.59	2.74	14.89	5.10	2.92	16.66	5.55	3.00	18.22	5.84	3.12	20.19	6.19	3.26	22.98	6.68	3.44
47.00	9.68	4.12	2.35	12.21	4.68	2.61	14.49	5.20	2.78	16.22	5.66	2.87	17.77	5.95	2.98	19.65	6.31	3.11	22.32	6.82	3.27
48.00	9.30	4.25	2.19	11.74	4.82	2.43	13.95	5.36	2.60	15.64	5.83	2.68	17.15	6.13	2.80	18.93	6.50	2.91	21.46	7.02	3.06
49.00	8.79	4.42	1.99	11.12	5.02	2.22	13.22	5.57	2.37	14.84	6.06	2.45	16.29	6.38	2.55	17.95	6.76	2.65	20.32	7.30	2.78
50.00	8.23	4.64	1.77	10.42	5.27	1.98	12.40	5.85	2.12	13.93	6.36	2.19	15.31	6.70	2.29	16.84	7.10	2.37	19.03	7.67	2.48

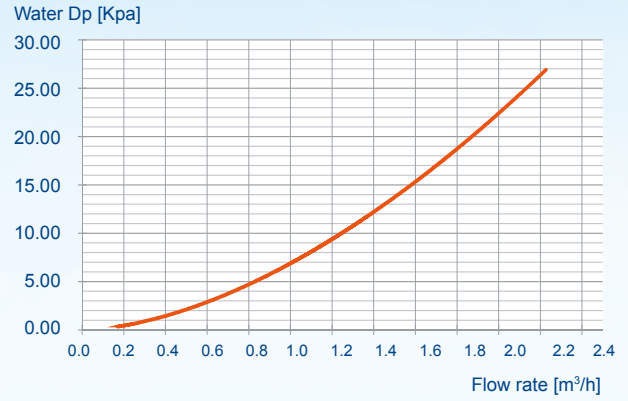
Note: The inlet/outlet water temperature difference is 5°C.

Water Pressure Drop

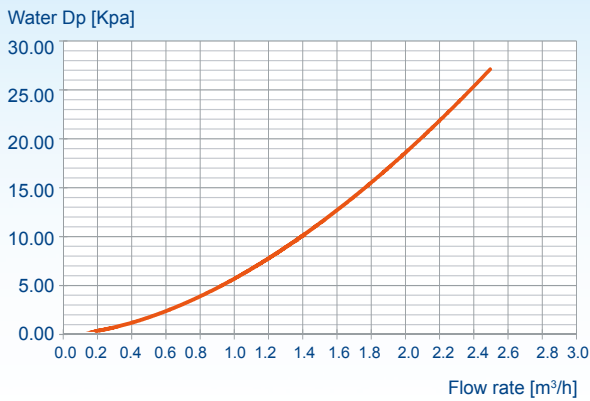
Model: MGC-V5W/D2N1, MGC-V7W/D2N1



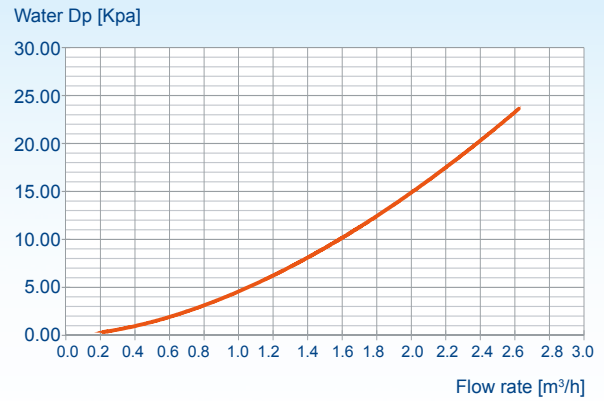
Model: MGC-V10W/D2N1, MGC-V10W/D2VN1



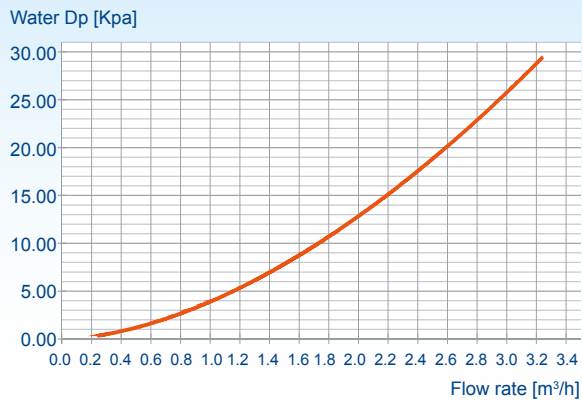
Model: MGC-V12W/D2RN1



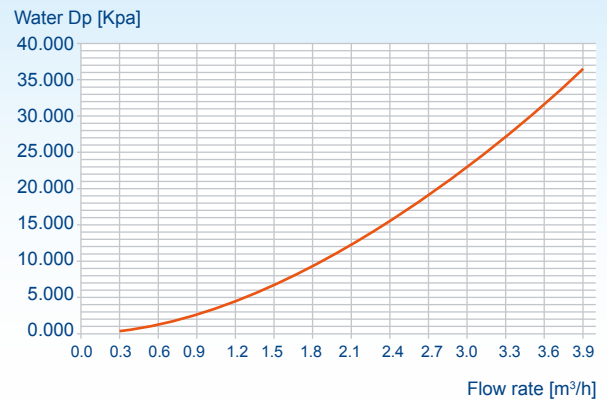
Model: MGC-V14W/D2RN1



Model: MGC-V16W/D2RN1



Model: MGC-V18W/D2VN1



Mini unitary chiller (Full DC Inverter)

Electrical data

Model	Outdoor Unit				Power Supply			Compressor		OFM	
	Hz	Voltage	Min.	Max.	MCA	TOCA	MFA	MSC	RLA	KW	FLA
MGC-V5W/D2N1	50	220-240	198	264	10.1	14.6	20	29.5	8.1	0.195	1.65
MGC-V7W/D2N1	50	220-240	198	264	10.1	15.6	20	29.5	8.1	0.195	1.65
MGC-V10W/D2N1	50	220-240	198	264	15.1	25	30	52	12.1	0.20	1.8
MGC-V12W/D2RN1	50	380-415	342	456	8.6	8.9	15	44	6.9	0.20	1.8
MGC-V14W/D2RN1	50	380-415	342	456	8.6	9.6	15	44	6.9	0.20	1.8
MGC-V16W/D2RN1	50	380-415	342	456	8.6	10.1	15	44	6.9	0.20	1.8
MGC-V10W/D2VN1	60	208-230	187	253	15.1	25.0	30	52	12.1	0.20	1.8
MGC-V18W/D2VN1	60	208-230	187	253	15.1	30.0	35	52	12.1	0.20	1.8

MCA: Min. Current Amps. (A)
RLA: Rated Locked Amps. (A)

TOCA: Total Over-current Amps. (A)
OFM: Outdoor Fan Motor.

MFA: Max. Fuse Amps. (A)
FLA: Full Load Amps. (A)

MSC: Max. Starting Amps. (A)
KW: Rated Motor Output (KW)

Wiring specifications

Type	MGC-V5W/D2N1	MGC-V7W/D2N1	MGC-V10W/D2N1	MGC-V12W/D2RN1
Power(V/Ph/Hz)	220~240/1/50	220~240/1/50	220~240/1/50	380~415/3/50
Circuit breaker/fuse (A)	25/20	30/25	40/35	30/25
Power wire(mm ²)	3×2.5	3×2.5	3×4.0	5×3.0
Ground wire (mm ²)	2.5	2.5	4.0	2.5

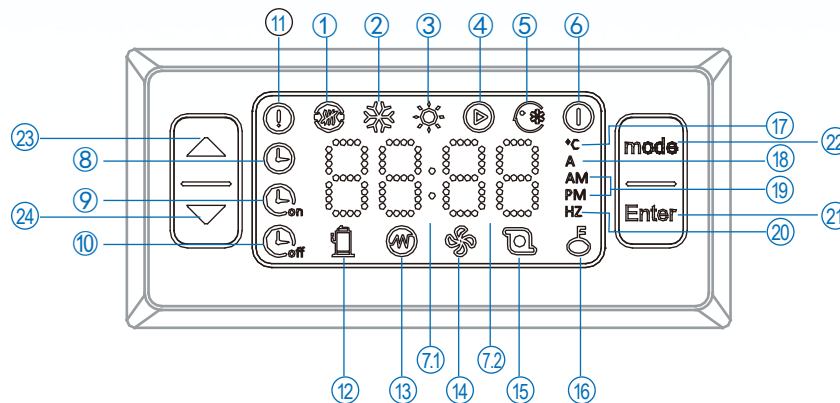
Type	MGC-V14W/D2RN1	MGC-V16W/D2RN1	MGC-V10W/D2VN1	MGC-V18W/D2VN1
Power(V/Ph/Hz)	380~415/3/50	380~415/3/50	208~230/1/60	208~230/1/60
Circuit breaker/fuse (A)	30/25	30/25	40/35	40/35
Power wire(mm ²)	5×3.0	5×3.0	3×4.0	3×6.0
Ground wire (mm ²)	2.5	2.5	4	6

- The power core type designation is H07RN-F (H07RN-F: a flexible cable model).
- Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed flexible cord, type designation H07RN-F or heavier cord.
- The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

Control system

Controller

The panel of the controller is used to perform all related operations as the user interface.

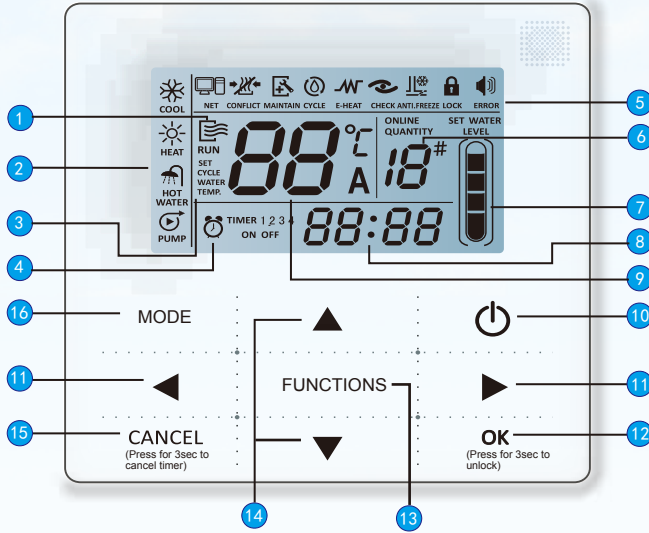


NO.	Description	NO.	Description
1	Outside heat source running icon(Reserved)	13	E-heater booting indicator icon (Reserved)
2	Cooling mode icon	14	Fan booting indicator icon
3	Heating mode icon	15	Water pump booting indicator icon
4	Water pump mode icon	16	Key freezing icon
5	Force cooling icon	17	Temperature unit icon
6	Power off icon	18	Current unit icon
7.1	Clock icon ":" flash every 1 second.	19	Time format icon
7.2	The last 2 digits of the nixie tube "88" icon.	20	Frequency unit icon
8	Clock icon	21	ON/OFF and OK button
9	Timing on function icon	22	Mode choice function/Function choice/Back function button
10	Timing off function icon	23	Up
11	Breakdown light icon	24	Down
12	Compressor booting indicator icon		

Wired controller KJR-120F/BMK-E (Optional, with weekly timer)

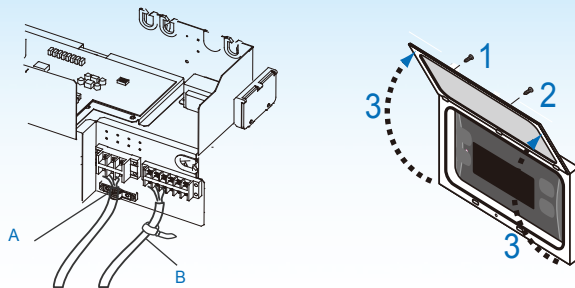
Characteristic

- 1) Touch key operation;
- 2) LCD displays operation parameters;
- 3) Multiple timer;
- 4) Real-time clock.



NO.	Description
1	Operation icon
2	Mode area
3	Setting temperature
4	Timing On/Off
5	Function Icon
6	Unit number
7	Water Level Indication(reserved)
8	Clock
9	Water temp.
10	ON/OFF Key
11	Left Right Key
12	Confirm Key
13	Function key
14	Add and Reduce key
15	Cancel key
16	Mode key

- Use grommet A for the electrical power cable and grommet B for the other external wires.



To access the control panel, open the door:
 1-Remove the screw 1 and screw 2;
 2-Lift the door 3.

Hydraulic connections

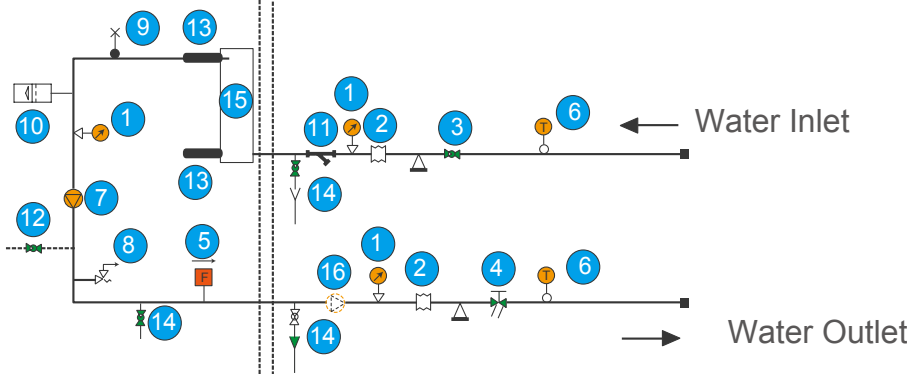
The choice and installation of components are the responsibility of the installer who should follow good working practice and current legislation.

It is recommended that the following devices are installed in the water circuit of the system.

5~7kW

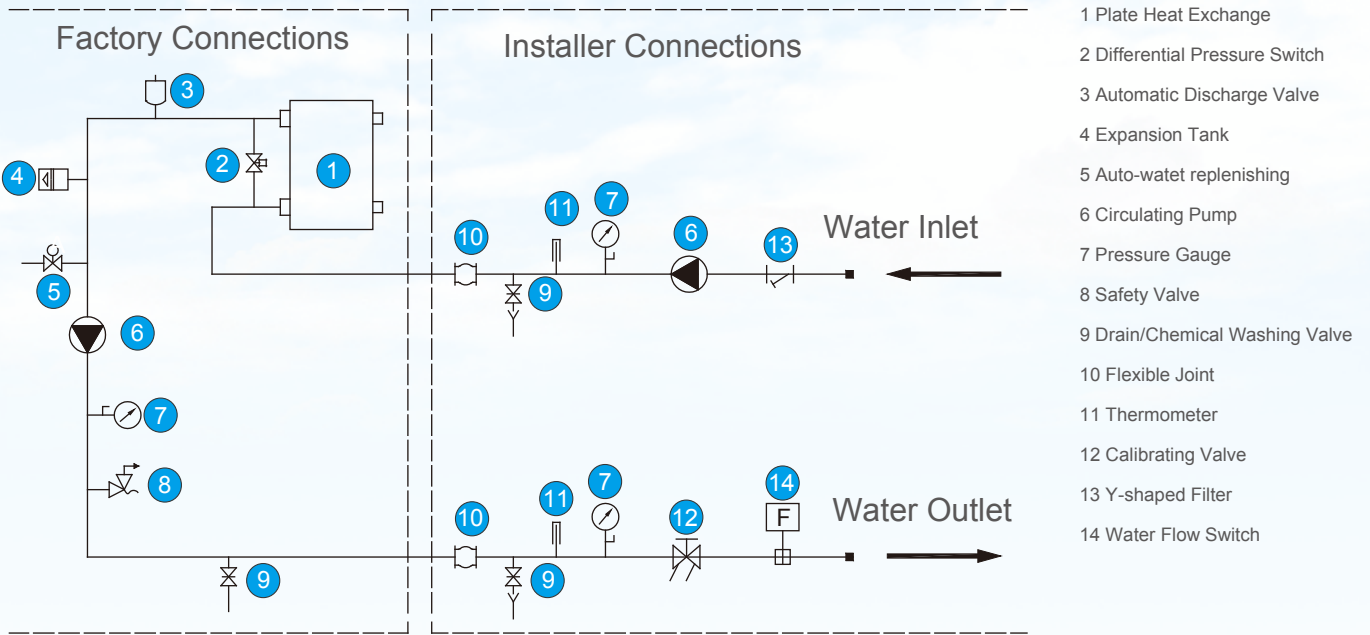
Factory Connections

Site Connections






- 1 Pressure gauge
- 2 Vibration damper joint
- 3 Gate valve
- 4 Calibrating valve
- 5 Water flow switch
- 6 Thermometer
- 7 Water pump
- 8 Safety valve
- 9 Air vent
- 10 Expansion tank
- 11 Mesh filter
- 12 Auto-water replenishing valve
- 13 Temperature sensor
- 14 Drain/chemical washing valve
- 15 Plate heat exchanger
- 16 Additional pump

10~18kW



Mini unitary chiller
(Full DC Inverter)

Accessories

Item	Name of accessory	Qty	Shape
1	Installation and operation manual	1	
2	Rubber sealed ring	2	
3	Outlet connection pipe	1	
4	Straight screwdriver	1	----

Mini unitary chiller →

Fixed type





Mini unitary chiller

Fixed type

- ▶ Features
- ▶ Description of main components
- ▶ Specifications
- ▶ Operation limits
- ▶ Hydraulic performance
- ▶ Dimensions
- ▶ Installation clearance
- ▶ Piping diagram
- ▶ Performance data
- ▶ Hydraulic connections
- ▶ Wiring specifications
- ▶ Accessory

Features

R410A environment friendly refrigerant, no harm to ozone layer

$ODP=0$ **R410A** $HGWP=0.28$
 No harm to Ozone layer Greenhouse effect is small

Integrated and compact design, simple installation and save space

Built-in water pump, expansion tank and plate heat-exchanger. It is very easy for installation.

Mini unitary chiller (Fixed type)

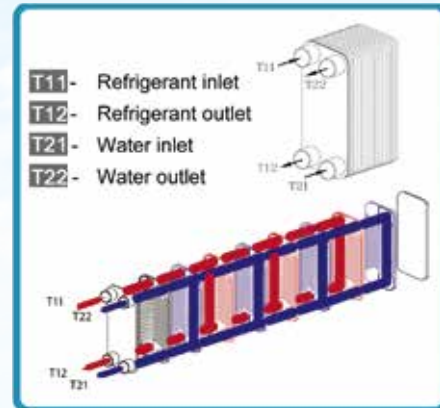
Air-cooled system, no need cooling water tower, packaged design, easy for installation.

All the components and accessories of the mini chiller (evaporator, compressor, air-cooled condenser, expansion device and Hydraulic module, such as expansion tank, water pump, water flow switch and so on.) have been manufactured, assembled, and tested as a complete package within the factory. The packaged systems can reduce field labor and increase reliability.



Energy saving and high reliability

- By adopting high efficiency plate heat exchanger, the energy consumption can be reduced.



- Metallic protective cabinet with rustproof polyester paint.
- Built-in with voltage protection, current protection, anti-freezing protection, water flow protection and etc., effectively guarantee the system to work safety.

Compressor current protection



Phase protection signal output



Flexible and convenient control

- Built-in with Eliwell ST542 electronic controller at factory. Compact devices with advanced function and friendly user interface.

The front panel of the device functions as the user interface and is used to perform all operations relating to the device.



- The chiller also can be controlled by the Eliwell remote control keyboard kit SKW210, which is LCD remote terminal with integrated room temperature control (optional).

- Reserved control port for electrical heater
Signal output: 230V/50Hz/3Ph
Electrical heater needs power supply separately.



- Reserved ON/OFF control port
Can be used to connect with an ON/OFF switch or a timer controller.
- Reserved alarm signal output port
Can be used to connect the alarm light to show the error of the chiller.
- Auto-restart function
Resume former running status automatically after power failure.
- Emergency switch
Stop the chiller directly by the switch in any urgent case.
- Built-in with water pressure gauge:
Inspect water pressure all the time.



- Water pressure gauge:**
inspect the water pressure any time
- Emergency switch:**
stop the chiller directly by the switch in any urgent case
- Controller:** control interface of the chiller

Description of main components

Structure

Panels and base are made from galvanized steel plate painted with epoxy powder to ensure total resistance to atmospheric pollution, condensate collection pan as standard.

Compressor

Hermetic rotary or scroll compressor with crankcase heater and thermal cut-out
MGC-F05W/N1 and MGC-F07W/N1 adopt Midea-Toshiba Rotary compressor, the other adopt Copeland or SANYO high efficiency scroll compressor.

Air cooled condenser

Coils

The coils are made from high performance and seamless copper tuber and high surface area aluminium fins to ensure optimum heat exchange capability. Condenser coil protection grill is standard.

Low noise fan and fan motor

To achieve high efficiency heat exchange, the unit is equipment with the high performance axial-flow fans. The fan is driven directly by weather proof motor to ensure reliable operation, the fan motor is six-pole electric motor with built-in thermal cut-out.

Evaporator

The heat exchanger is made of AISI 316 stainless steel to ensure high heat exchange efficiency, complete with electric heater and differential pressure switch. The complete heat exchanger is insulated with thermal insulation closed cell rubber foam to give optimum thermal insulation.

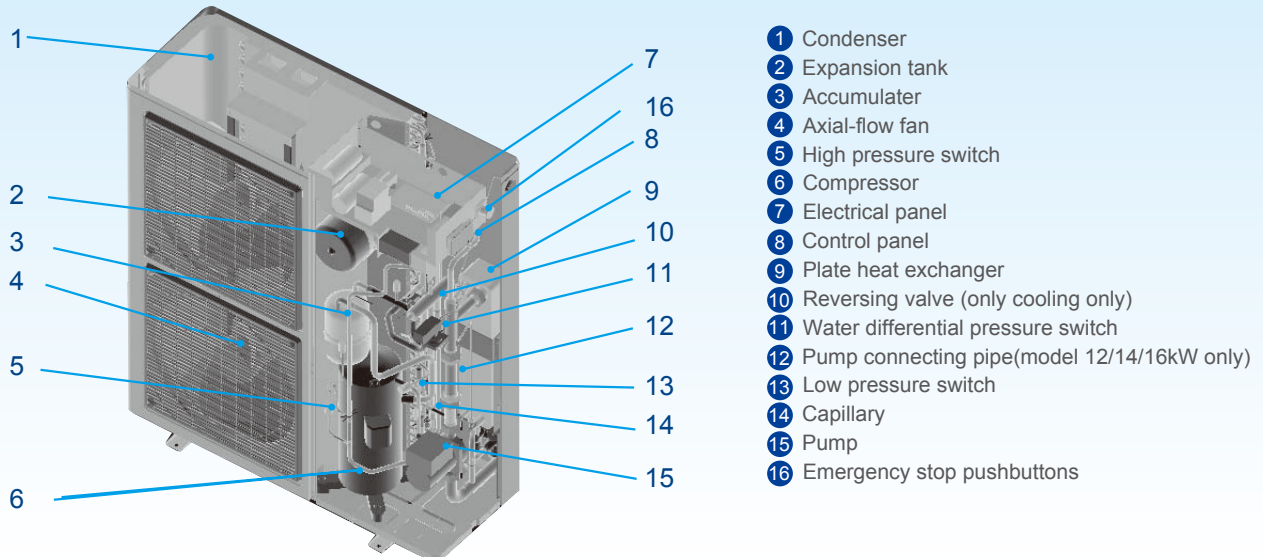
Hydraulic module

Midea mini unitary chillers are fully integrated and equipped with key hydraulic components such as expansion tank, plate type of heat-exchanger, water circulating pump.

The water pressure difference switch is provided in the units to protect against damage to the water pump.

Power and control electrical panel

Power and control electrical panel constructed in accordance with IEC 204-1/EN60335-2-40, complete with compressor contactor, control via "A2" control panel.



Mini unitary chiller
(Fixed type)



Specifications

Model			MGC-F05W/N1	MGC-F07W/N1	MGC-F10W/N1	
Power supply		V/Ph/Hz	220-240/1/50	220-240/1/50	220-240/1/50	
Cooling	Capacity	W	5000	7200	10500	
	Input	W	1938	2755	3614	
Heating	Capacity	W	5500	7700	12000	
	Input	W	1987	2834	4004	
Max. input consumption		W	2350	3200	5500	
Max. input current		A	11.7	16.7	25.7	
Starting current		A	36.8	55	110	
Refrigerant	Type		R410A	R410A	R410A	
	Weight	kg	1.6	2.1	3	
Throttle type			Capillary	Capillary	Capillary	
Compressor	Type		Rotary	Rotary	Fixed scroll	
	Brand		GMCC	GMCC	Copeland	
	Number of compressor		1	1	1	
	Thermal protector		Inner	Inner	Inner	
	Refrigerant oil	ml	750	1100	1656	
Outdoor fan motor	Type		AC motor	AC motor	AC motor	
	Brand		Welling	Welling	Welling	
	Quantity	Pieces	1	1	2	
	Input (Hi/Lo)	W	220	220	185/120	
	Speed (Hi/Lo)	r/min	660	660	860/610	
	Max. air flow	m ³ /h	5563	5624	6500	
Outdoor coil	Number of rows		1	1	3	
	Fin type		Hydrophilic aluminium	Hydrophilic aluminium	Hydrophilic aluminium	
	Tube outside diameter. and type	mm	Φ7.94 Inner grooved copper tube	Φ7.94 Inner grooved copper tube	Φ9.53 Inner grooved copper tube	
Hydraulic module	Water pump	Input (H/M/L)	W	93/67/46	93/67/46	210/175/120
		Pump head	m	5.5	5.5	8.5
	Expansion tank	Volume	L	2	2	3
		Heat exchanger	Type		Plate	Plate
	Rated water flow		m ³ /h	0.86	1.24	1.74
	Water pressure drop		kPa	21	35	44
Pressure difference switch			Standard	Standard	Standard	
The max. and min. water inlet pressure		kPa	500/150	500/150	500/150	
Outdoor noise level (sound pressure)		dB(A)	55	56	60/50	
Outdoor unit	Net size(D×H×W)	mm	990×966×354	990×966×354	940×1245×360	
	Packing size(D×H×W)	mm	1120×1015×435	1120×1015×435	1058×1300×438	
	Net/ Gross weight	kg	83/89	94/100	138/145	
Pipe diameter	Water inlet/outlet	inch	R1	R1	R5/4	
Control			Electronic controller	Electronic controller	Electronic controller	
Ambient temp.		°C	Cooling: 10°C~43°C; Heating: -15~24°C			
Water inlet setting temp. range (default)		°C	Cooling: 10°C~20°C; Heating mode: 30°C~50°C			

Note: Specifications are based on the following conditions:

1. Cooling: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
2. Heating: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB .
3. 1m away in semi-anechoic room(sound pressure).

Model			MGC-F10W/SN1	MGC-F12W/SN1	MGC-F14W/SN1	MGC-F16W/SN1	
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	
Cooling	Capacity	W	10500	12000	14000	1600	
	Input	W	3930	4410	4859	6430	
Heating	Capacity	W	12000	14000	16120	18	
	Input	W	4240	4643	5218	6444	
Max. input consumption		W	4400	5000	6550	7700	
Max. input current		A	8.3	9.1	10.5	14.3	
Starting current		A	45	66	60	92	
Refrigerant	Type		R410A	R410A	R410A	R410A	
	Weight	kg	2.7	3	3.6	4.2	
Throttle			Capillary	Capillary	Capillary	Capillary	
Compressor	Type		Fixed scroll	Fixed scroll	Fixed scroll	Fixed scroll	
	Brand		Copeland	Sanyo	Sanyo	Sanyo	
	Number of compressor		1	1	1	1	
	Thermal protector		Inner	Inner	Inner	Inner	
	Refrigerant oil	ml	1952	1700	1600	1700	
Outdoor fan motor	Type		AC motor	AC motor	AC motor	AC motor	
	Brand		Welling	Welling	Welling	Welling	
	Quantity	Pieces	2	2	2	2	
	Input (Hi/Lo)	W	185/120	185/120	185/120	185/120	
	Speed (Hi/Lo)	r/min	860/610	860/610	860/610	860/610	
	Max. air flow	m ³ /h	6465	6470	6500	6550	
Outdoor coil	Number of rows		2	2	3	3	
	Fin type		Hydrophilic aluminium	Hydrophilic aluminium	Hydrophilic aluminium	Hydrophilic aluminium	
	Tube outside diameter. and type	mm	Φ7.94	Φ7.94	Φ9.53	Φ7.94	
			Inner grooved copper tube	Inner grooved copper tube	Inner grooved copper tube	Inner grooved copper tube	
Hydraulic module	Water pump	Input (H/M/L)	W	210/175/120	210/175/120	210/175/120	
		Pump head	m	8.5	8.5	8.5	8.5
	Expansion tank	Volume	L	3	3	3	3
		Heat exchanger	Type		Plate	Plate	Plate
	Rated water flow		m ³ /h	1.72	2	2.4	2.8
	Water pressure drop		kPa	44	40	34	38
Pressure difference switch			Standard	Standard	Standard	Standard	
The max. and min. water inlet pressure		kPa	500/150	500/150	500/150	500/150	
Outdoor noise level (sound pressure)		dB(A)	58/48	59/49	60/50	60/51	
Outdoor unit	Net size(D×H×W)	mm	940×1245×360	1070×1249×420	1070×1249×420	1070×1249×420	
	Packing size(D×H×W)	mm	1058×1300×438	1188×1385×498	1188×1315×498	1188×1315×498	
	Net/ Gross weight	kg	131/139	137/145	145/160	151/165	
Pipe diameter	Water inlet/outlet	inch	R5/4	R5/4	R5/4	R5/4	
Control			Electronic controller	Electronic controller	Electronic controller	Electronic controller	
Ambient temp.		°C	Cooling: 10°C~43°C; Heating: -15~24°C				
Water inlet setting temp. range (default)		°C	Cooling: 10°C~20°C; Heating mode: 30°C~50°C				

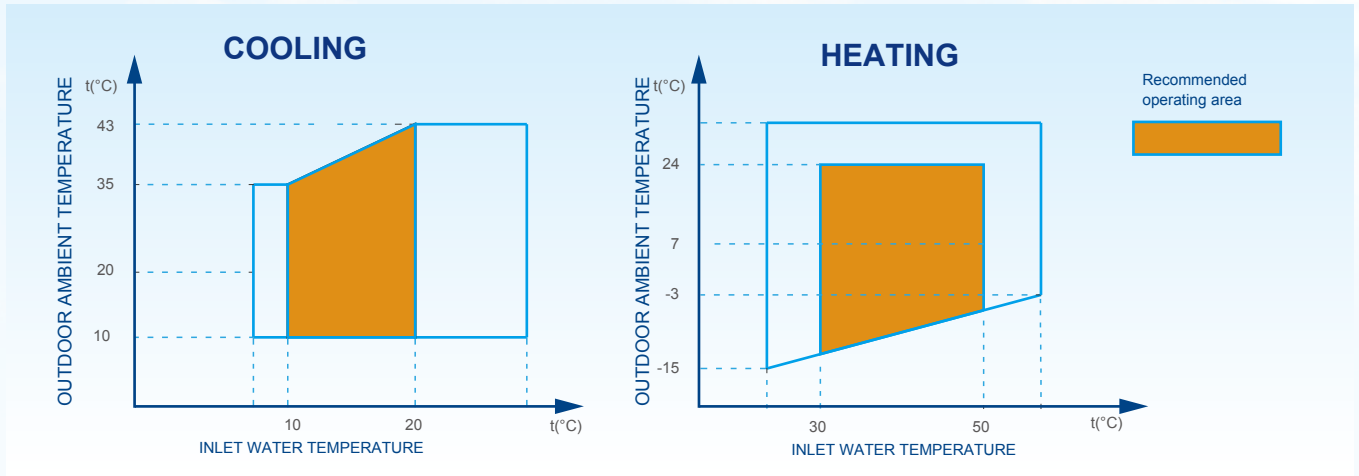
Note: Specifications are based on the following conditions:

1. Cooling: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
2. Heating: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
3. 1m away in semi-anechoic room (sound pressure).

Operation limits

Cooling and heating operation temperature range

Cooling operation	Outdoor ambient temperature: 10°C~43°C
	Inlet water temperature: 10°C~20°C
Heating operation	Outdoor ambient temperature: -15°C~24°C
	Inlet water temperature: 30°C~50°C



Ethylene glycol solutions

Water and ethylene glycol solutions used as a thermal vector in the place of water reduce the performance of the unit. Multiply the performance figures by the values given in the following table.

	Freezing point (°C)					
	0	-5	-10	-15	-20	-25
	Percentage of ethylene glycol in weight					
	0	12%	20%	28%	35%	40%
cPf	1	0.98	0.97	0.965	0.96	0.955
cQ	1	1.02	1.04	1.075	1.11	1.14
cdp	1	1.07	1.11	1.18	1.22	1.24

cPf: correction factor refrigerating capacity cQ: correction factor flow rate cdp: correction factor pressure drop

Notes:

- During winter leaving the unit unused, please drain water out completely from unit if no antifreeze were charged into pipeline, or keep power on (at standby or off status) and ensure that water is contained inside of unit.
- When ambient temperature lower 5°C, running cooling mode must be charged antifreeze. Refer to upper parameters for the charged volume.

Fouling factors

The performance data given refer to conditions with clean evaporator plates (fouling factor=1). For different fouling factors, multiply the figures in the performance tables by the coefficient given in the following table.

Fouling factors (m ² °C/W)	Evaporator		
	f1	fk1	fx1
4.4×10 ⁻⁵	-	-	-
0.86×10 ⁻⁴	0.96	0.99	0.99
1.72×10 ⁻⁴	0.93	0.98	0.98

f1: Capacity correction factor fk1: Compressor power input correction factor fx1: Total power input correction factor

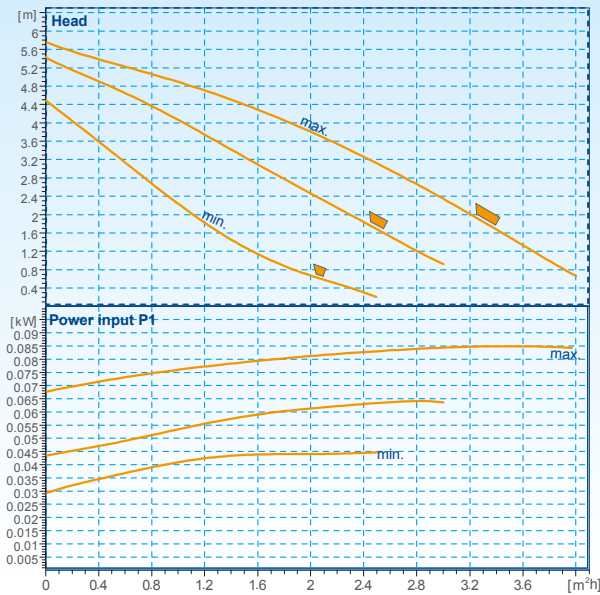
Minimum water volume

Model	MGC-F05W/N1	MGC-F07W/N1	MGC-F10W/(S)N1
Minimum water volume (L)	21	30	43

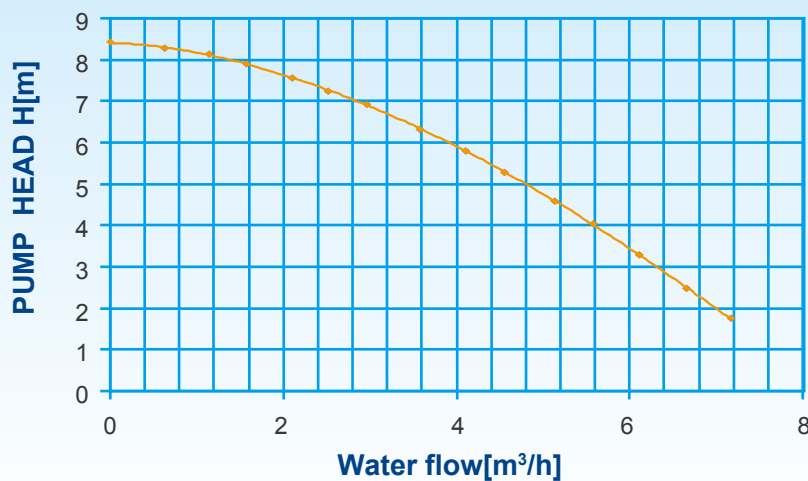
Model	MGC-F12W/SN1	MGC-F14W/SN1	MGC-F16W/SN1
Minimum water volume (L)	50	60	68

Hydraulic performance

Pump head curve(5/7.2kW)



Pump head curve(10.5/12/14/16kW)



Note:

(*) To obtain the useful head of the installation, subtract the pressure drop of the plate heat exchanger.

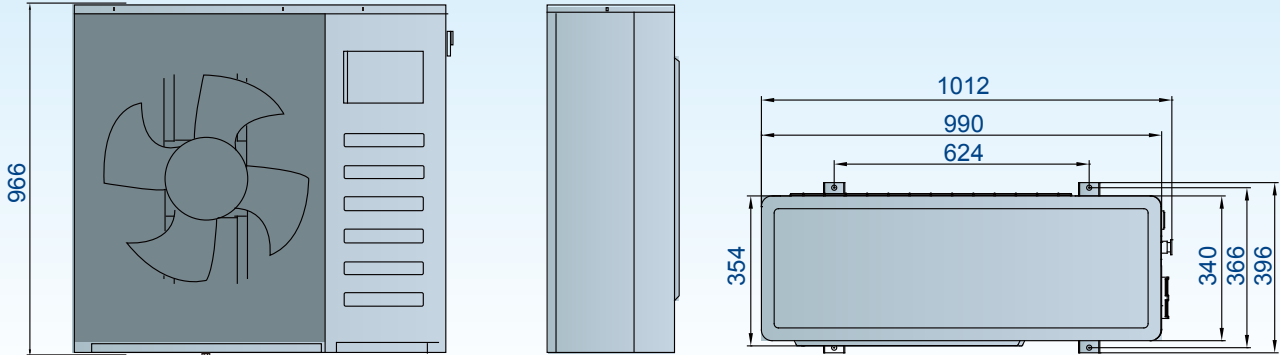
Heat exchanger pressure drop (water side)

Model	Water flow	m ³ /h	0.8	1.0	1.2	1.4	1.6	1.8	2.0
		l/sec	0.222	0.278	0.333	0.389	0.444	0.500	0.556
5 kW	Pressure drop	kPa	13	23	36	52	-	-	-
7.2 kW		kPa	12	21	33	47	65	-	-

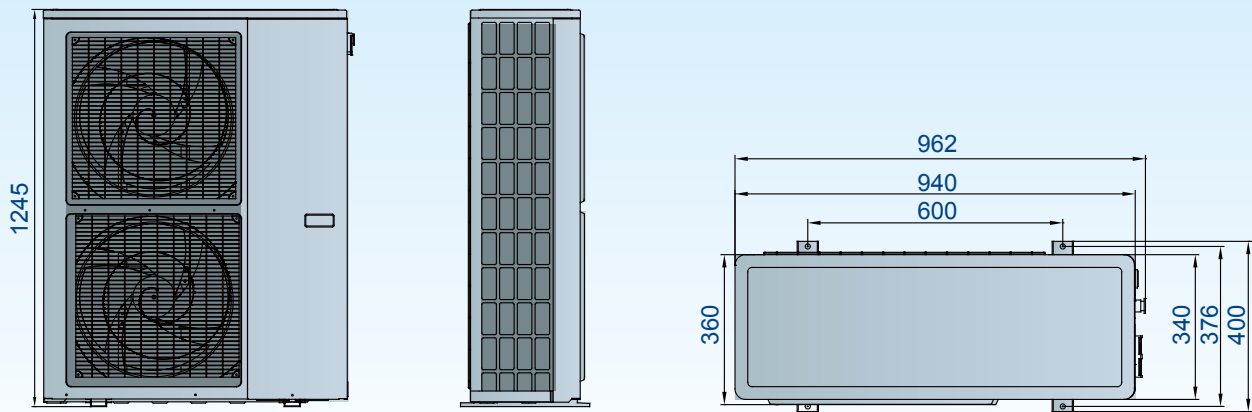
Model	Water flow	m ³ /h	1.2	1.4	1.6	1.8	2.0	2.2	2.4
		l/sec	0.333	0.389	0.444	0.500	0.556	0.611	0.667
10.5kW	Pressure drop	kPa	8	11	15	19	24	30	37
12 kW		kPa	7	10	14	18	23	29	36
14 kW		kPa	6	8	10	14	17	21	26
16 kW		kPa	6	7	9	13	16	20	24

Dimensions (unit: mm)

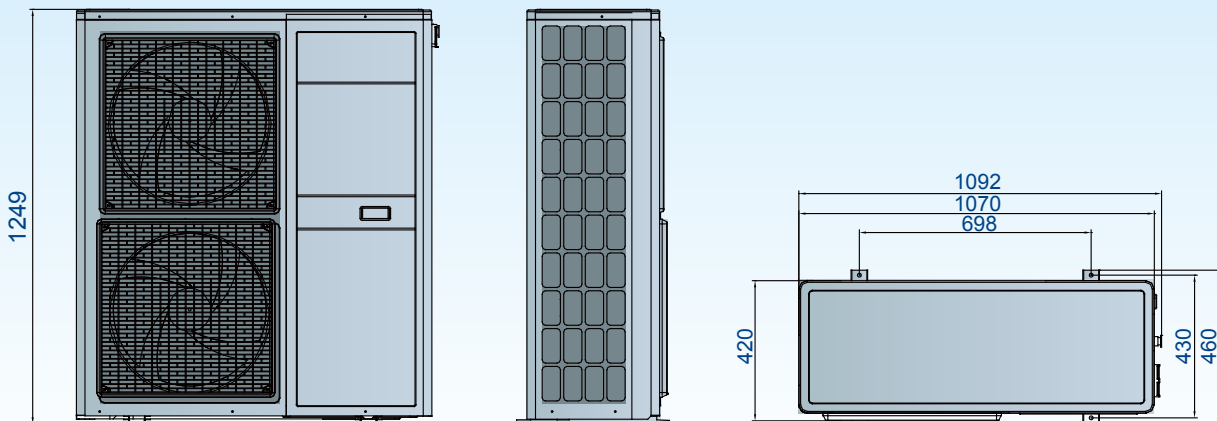
MGC-F05W/N1 MGC-F07W/N1



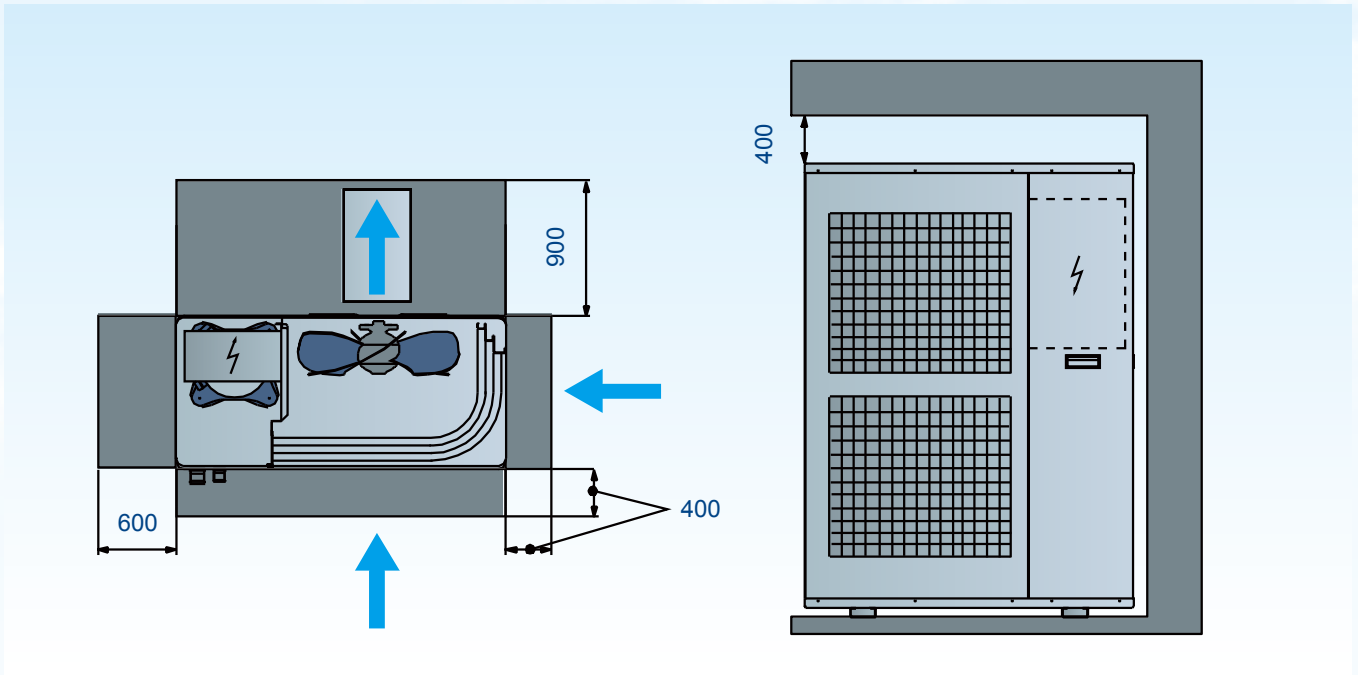
MGC-F10W/N1 MGC-F10W/SN1



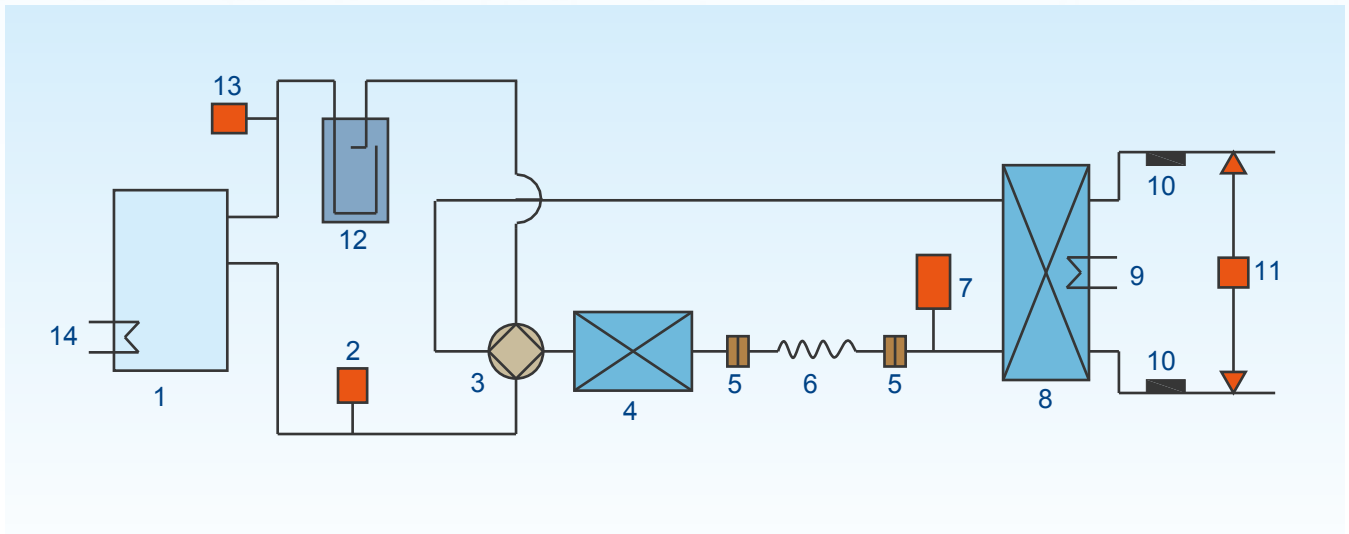
MGC-F12W/SN1 MGC-F14W/SN1 MGC-F16W/SN1



Installation clearance



Piping diagram



Remark:

No.	Name	No.	Name	No.	Name
1	Compressor	6	Capillary	11	Water differential pressure switch
2	High pressure switch	7	Liquid receiver	12	Accumulator
3	4-way valve	8	Plate heat exchanger	13	Low pressure switch
4	Condenser	9	Defrost heater	14	Crankcase heater
5	Filter	10	Water temperature sensor		

Performance data

Cooling

Model		MGC-F05W/N1					
Ta	Tw	5.0	6.0	7.0	8.0	9.0	10.0
25	Pf	5.1	5.2	5.4	5.5	5.6	5.8
	Pa	1.5	1.5	1.5	1.5	1.6	1.6
	Pat	1.8	1.8	1.8	1.8	1.9	1.9
	Qev	0.88	0.89	0.93	0.95	0.96	1.00
	ΔPev	21.6	23.0	24.6	26.3	27.8	29.5
30	Pf	4.9	5.0	5.1	5.3	5.4	5.5
	Pa	1.8	1.8	1.8	1.8	1.9	1.9
	Pat	2.1	2.1	2.1	2.1	2.2	2.2
	Qev	0.84	0.86	0.88	0.91	0.93	0.95
	ΔPev	18.4	19.7	22.1	23.6	25.1	26.6
35	Pf	4.8	4.9	5.0	5.1	5.2	5.3
	Pa	1.8	1.8	1.8	1.9	1.9	1.9
	Pat	2.1	2.1	2.1	2.2	2.2	2.2
	Qev	0.83	0.84	0.86	0.88	0.89	0.91
	ΔPev	18.5	19.8	21.0	22.5	24.0	25.5
40	Pf	4.6	4.7	4.9	5.0	5.1	5.2
	Pa	1.9	1.9	1.9	2.0	2.0	2.0
	Pat	2.2	2.2	2.2	2.3	2.3	2.3
	Qev	0.79	0.81	0.84	0.86	0.88	0.89
	ΔPev	17.1	18.3	19.6	20.9	22.3	23.7
43	Pf	4.3	4.5	4.6	4.7	4.9	5.0
	Pa	2.1	2.1	2.1	2.2	2.2	2.2
	Pat	2.4	2.4	2.4	2.5	2.5	2.5
	Qev	0.74	0.77	0.79	0.81	0.84	0.86
	ΔPev	14.8	15.9	17.1	18.3	19.5	20.8

Model		MGC-F07W/N1					
Ta	Tw	5.0	6.0	7.0	8.0	9.0	10.0
25	Pf	7.3	7.4	7.6	7.7	7.8	8.0
	Pa	2.3	2.3	2.3	2.3	2.4	2.4
	Pat	2.6	2.6	2.6	2.6	2.7	2.7
	Qev	1.26	1.27	1.31	1.32	1.34	1.38
	ΔPev	35.6	37.0	38.6	40.3	41.8	43.5
30	Pf	7.1	7.2	7.3	7.5	7.6	7.7
	Pa	2.6	2.6	2.6	2.6	2.7	2.7
	Pat	2.9	2.9	2.9	2.9	3.0	3.0
	Qev	1.22	1.24	1.26	1.29	1.31	1.32
	ΔPev	32.4	33.7	36.1	37.6	39.1	40.6
35	Pf	7.0	7.1	7.2	7.3	7.4	7.5
	Pa	2.6	2.6	2.6	2.7	2.7	2.7
	Pat	2.9	2.9	2.9	3.0	3.0	3.0
	Qev	1.20	1.22	1.24	1.26	1.27	1.29
	ΔPev	32.5	33.8	35.0	36.5	38.0	39.5
40	Pf	6.8	6.9	7.1	7.2	7.3	7.4
	Pa	2.7	2.7	2.7	2.8	2.8	2.8
	Pat	3.0	3.0	3.0	3.1	3.1	3.1
	Qev	1.17	1.19	1.22	1.24	1.26	1.27
	ΔPev	31.1	32.3	33.6	34.9	36.3	37.7
43	Pf	6.5	6.7	6.8	6.9	7.1	7.2
	Pa	2.9	2.9	2.9	3.0	3.0	3.0
	Pat	3.2	3.2	3.2	3.3	3.3	3.3
	Qev	1.12	1.15	1.17	1.19	1.22	1.24
	ΔPev	28.8	29.9	31.1	32.3	33.5	34.8

Note:

Ta: outside air temperature (°C)
 Tw : evaporator water outlet temperature (°C)
 Pf: cooling capacity (kW)
 ΔPev: evaporator pressure drop (kPa)

Pa: compressor power input (kW)
 Pat: total power input (kW)
 Qev: evaporator water flow (m³/h)

Model		MGC-F10W/N1					
Ta	Tw	5	6	7	8	9	10
25	Pf	10.9	11.2	11.5	11.8	12.1	12.4
	Pa	2.6	2.6	2.7	2.7	2.7	2.8
	Pat	3.1	3.1	3.2	3.2	3.2	3.3
	Qev	1.9	1.9	2.0	2.0	2.1	2.2
	ΔPev	31.5	31.7	33.0	33.5	36.0	38.0
30	Pf	10.4	10.8	11.1	11.5	11.8	12.1
	Pa	2.9	2.9	3.0	3.1	3.1	3.1
	Pat	3.4	3.4	3.5	3.6	3.6	3.6
	Qev	1.8	1.8	1.9	2.0	2.0	2.0
	ΔPev	29.8	30.4	31.8	33.2	33.6	33.9
35	Pf	9.9	10.2	10.5	10.7	11.0	11.3
	Pa	3.3	3.3	3.4	3.4	3.5	3.5
	Pat	3.8	3.8	3.9	3.9	4.0	4.0
	Qev	1.7	1.7	1.8	1.9	1.9	2.0
	ΔPev	27.0	27.5	30.0	32.0	32.4	34.0
40	Pf	9.4	9.7	10.0	10.3	10.6	11.0
	Pa	3.6	3.6	3.7	3.7	3.8	3.8
	Pat	4.1	4.1	4.2	4.2	4.3	4.3
	Qev	1.6	1.6	1.7	1.7	1.8	1.8
	ΔPev	24.0	24.4	27.2	27.6	30.3	30.5
43	Pf	9.0	9.3	9.5	9.8	10.0	10.3
	Pa	3.8	3.8	3.9	3.9	4.0	4.0
	Pat	4.3	4.3	4.4	4.4	4.5	4.5
	Qev	1.5	1.6	1.6	1.7	1.7	1.8
	ΔPev	21.0	23.8	24.4	27.0	27.5	31.0

Model		MGC-F10W/SN1					
Ta	Tw	5	6	7	8	9	10
25	Pf	10.9	11.2	11.5	11.8	12.1	12.4
	Pa	2.6	2.6	2.7	2.7	2.7	2.8
	Pat	3.1	3.1	3.2	3.2	3.2	3.3
	Qev	1.9	1.9	2.0	2.0	2.1	2.2
	ΔPev	31.5	31.7	33.0	33.5	36.0	38.0
30	Pf	10.4	10.8	11.1	11.5	11.8	12.1
	Pa	2.9	2.9	3.0	3.1	3.1	3.1
	Pat	3.4	3.4	3.5	3.6	3.6	3.6
	Qev	1.8	1.8	1.9	2.0	2.0	2.0
	ΔPev	29.8	30.4	31.8	33.2	33.6	33.9
35	Pf	9.9	10.2	10.5	10.7	11.0	11.3
	Pa	3.3	3.3	3.4	3.4	3.5	3.5
	Pat	3.8	3.8	3.9	3.9	4.0	4.0
	Qev	1.7	1.7	1.8	1.9	1.9	2.0
	ΔPev	27.0	27.5	30.0	32.0	32.4	34.0
40	Pf	9.4	9.7	10.0	10.3	10.6	11.0
	Pa	3.6	3.6	3.7	3.7	3.8	3.8
	Pat	4.1	4.1	4.2	4.2	4.3	4.3
	Qev	1.6	1.6	1.7	1.7	1.8	1.8
	ΔPev	24.0	24.4	27.2	27.6	30.3	30.5
43	Pf	9.0	9.3	9.5	9.8	10.0	10.3
	Pa	3.8	3.8	3.9	3.9	4.0	4.0
	Pat	4.3	4.3	4.4	4.4	4.5	4.5
	Qev	1.5	1.6	1.6	1.7	1.7	1.8
	ΔPev	21.0	23.8	24.4	27.0	27.5	31.0

Note:

Ta: outside air temperature (°C)

Tw : evaporator water outlet temperature (°C)

Pf: cooling capacity (kW)

ΔPev: evaporator pressure drop (kPa)

Pa: compressor power input (kW)

Pat: total power input (kW)

 Qev: evaporator water flow (m³/h)

Model		MGC-F12W/SN1					
Ta	Tw	5	6	7	8	9	10
25	Pf	12.4	12.7	13.0	13.3	13.9	
	Pa	3.5	3.5	3.5	3.6	3.6	3.6
	Pat	4.1	4.1	4.1	4.2	4.2	4.2
	Qev	2.2	2.2	2.3	2.3	2.3	2.4
	ΔPev	29.1	29.9	31.0	32.4	34.1	37.5
30	Pf	11.9	12.2	12.5	12.8	13.1	13.4
	Pa	3.8	3.8	3.8	3.9	3.9	3.9
	Pat	4.4	4.4	4.4	4.5	4.5	4.5
	Qev	2.0	2.1	2.1	2.2	2.2	2.3
	ΔPev	23.1	23.2	25.4	27.0	28.8	30.0
35	Pf	11.4	11.7	12.0	12.3	12.6	12.9
	Pa	4.2	4.2	4.2	4.3	4.3	4.3
	Pat	4.8	4.8	4.8	4.9	4.9	4.9
	Qev	2.0	2.0	2.1	2.1	2.2	2.2
	ΔPev	21.1	23.2	25.4	27.0	28.8	30.0
40	Pf	10.9	11.2	11.5	11.8	12.1	12.4
	Pa	4.5	4.5	4.5	4.6	4.6	4.6
	Pat	5.1	5.1	5.1	5.2	5.2	5.2
	Qev	1.9	2.0	2.0	2.0	2.1	2.1
	ΔPev	20.2	21.9	22.7	24.0	25.6	28.2
43	Pf	10.5	10.8	11.1	11.4	11.7	12.0
	Pa	4.7	4.7	4.7	4.8	4.8	4.8
	Pat	5.3	5.3	5.3	5.4	5.4	5.4
	Qev	1.8	1.9	1.9	2.0	2.0	2.0
	ΔPev	17.5	18.8	21.1	23.4	24.1	25.3

Model		MGC-F14W/SN1					
Ta	Tw	5	6	7	8	9	10
25	Pf	14.8	15.1	15.4	15.7	16.1	16.4
	Pa	3.6	3.6	3.6	3.7	3.7	3.7
	Pat	4.1	4.1	4.1	4.2	4.2	4.2
	Qev	2.6	2.6	2.7	2.7	2.8	2.8
	ΔPev	29.0	29.4	30.4	31.2	33.0	34.0
30	Pf	14.1	14.4	14.7	15.0	15.3	15.6
	Pa	4.1	4.1	4.1	4.2	4.2	4.2
	Pat	4.6	4.6	4.7	4.7	4.7	4.7
	Qev	2.4	2.5	2.5	2.6	2.6	2.7
	ΔPev	25.8	28.2	28.4	28.9	29.5	31.0
35	Pf	13.4	13.7	14.0	14.3	14.6	14.9
	Pa	4.6	4.6	4.6	4.7	4.7	4.7
	Pat	5.1	5.1	5.1	5.2	5.2	5.2
	Qev	2.3	2.4	2.4	2.5	2.5	2.5
	ΔPev	24.0	25.6	26.0	27.6	28.1	28.4
40	Pf	12.5	12.8	13.1	13.4	13.7	14.0
	Pa	5.1	5.1	5.1	5.2	5.2	5.2
	Pat	5.6	5.6	5.6	5.7	5.7	5.7
	Qev	2.2	2.2	2.3	2.3	2.4	2.4
	ΔPev	19.6	20.3	21.6	23.4	25.7	26.4
43	Pf	12.0	12.3	12.6	12.9	13.2	13.5
	Pa	5.5	5.5	5.5	5.6	5.6	5.6
	Pat	6.0	6.0	6.0	6.1	6.1	6.1
	Qev	2.1	2.1	2.2	2.2	2.3	2.3
	ΔPev	18.0	19.1	20.7	21.3	23.0	23.8

Note:

Ta: outside air temperature (°C)

Tw : evaporator water outlet temperature (°C)

Pf: cooling capacity (kW)

ΔPev: evaporator pressure drop (kPa)

Pa: compressor power input (kW)

Pat: total power input (kW)

Qev: evaporator water flow (m³/h)

Model		MGC-F16W/SN1					
Ta	Tw	5	6	7	8	9	10
25	Pf	15.5	15.7	16.0	16.3	16.5	16.8
	Pa	5.0	5.0	5.0	5.1	5.1	5.1
	Pat	5.5	5.5	5.5	5.6	5.6	5.6
	Qev	2.7	2.7	2.8	2.8	2.9	2.9
	ΔPev	30.5	32.0	33.0	34.5	36.2	37.6
30	Pf	14.8	15.0	15.3	15.6	15.8	16.1
	Pa	4.5	4.5	4.5	4.6	4.6	4.6
	Pat	5.0	5.0	5.0	5.1	5.1	5.1
	Qev	2.6	2.6	2.7	2.7	2.8	2.8
	ΔPev	28.3	29.4	28.3	30.4	33.3	35.0
35	Pf	14.9	15.2	15.5	15.8	16.1	16.4
	Pa	6.0	6.0	6.0	6.1	6.1	6.1
	Pat	6.5	6.5	6.5	6.6	6.6	6.6
	Qev	2.6	2.6	2.7	2.7	2.8	2.8
	ΔPev	28.2	29.5	31.0	32.3	34.0	35.1
40	Pf	14.2	14.5	14.8	15.1	15.4	15.7
	Pa	5.5	5.5	5.5	5.6	5.6	5.6
	Pat	6.0	6.0	6.0	6.1	6.1	6.1
	Qev	2.5	2.5	2.6	2.6	2.7	2.7
	ΔPev	26.0	27.3	28.6	29.5	31.0	33.0
43	Pf	13.5	13.8	14.1	14.4	14.7	15.0
	Pa	5.0	5.0	5.0	5.1	5.1	5.1
	Pat	5.5	5.5	5.5	5.6	5.6	5.6
	Qev	2.4	2.4	2.5	2.5	2.6	2.6
	ΔPev	23.0	24.6	26.1	27.3	28.6	30.0

Note:

Ta: outside air temperature (°C)
 Tw : evaporator water outlet temperature (°C)
 Pf: cooling capacity (kW)
 ΔPev: evaporator pressure drop (kPa)

Pa: compressor power input (kW)
 Pat: total power input (kW)
 Qev: evaporator water flow (m³/h)

Heating

Model		MGC-F05W/N1			
Ta(U.R.87%)	Tw	35	40	45	50
-5	Pt	4.2	4.2	4.1	-
	Pa	1.3	1.5	1.6	-
	Pat	1.5	1.7	1.8	-
	Qc	0.72	0.72	0.71	-
	ΔPc	14.6	14.5	14.1	-
0	Pt	4.8	4.8	4.7	4.7
	Pa	1.3	1.5	1.7	1.9
	Pat	1.6	1.8	2	2.2
	Qc	0.83	0.83	0.81	0.81
	ΔPc	18.5	18.4	18.1	18.1
7	Pt	5.6	5.5	5.5	5.4
	Pa	1.4	1.5	1.7	1.9
	Pat	1.7	1.8	2	2.2
	Qc	0.96	0.95	0.95	0.93
	ΔPc	23.9	23.4	23	22.9
10	Pt	6.1	6.1	6	6
	Pa	1.4	1.5	1.7	1.9
	Pat	1.7	1.8	2	2.2
	Qc	1.05	1.05	1.03	1.03
	ΔPc	27.8	27.5	27.1	27
15	Pt	6.5	6.5	6.5	6.4
	Pa	1.4	1.6	1.7	1.9
	Pat	1.7	1.9	2	2.2
	Qc	1.12	1.12	1.12	1.10
	ΔPc	33.2	33	32.9	32.5

Note:

Ta: outside air temperature (°C)
 Pt: heating capacity (kW)
 Pat: total power input (kW)
 ΔPc: evaporator pressure drop (kPa)

Tw : evaporator water outlet temperature (°C)
 Pa: compressor power input (kW)
 Qc: condenser water flow (m3/h)
 - : Exceed operating limits

Model		MGC-F07W/N1			
Ta(U.R.87%)	Tw	35	40	45	50
-5	Pt	6.4	6.4	6.3	-
	Pa	2.2	2.4	2.5	-
	Pat	2.5	2.7	2.8	-
	Qc	1.10	1.10	1.08	-
	ΔPc	27.6	27.5	27.1	-
0	Pt	7	7	6.9	6.9
	Pa	2.2	2.4	2.6	2.8
	Pat	2.5	2.7	2.9	3.1
	Qc	1.20	1.20	1.19	1.19
	ΔPc	31.5	31.4	31.1	31.1
7	Pt	7.8	7.7	7.7	7.6
	Pa	2.3	2.4	2.6	2.8
	Pat	2.6	2.7	2.9	3.1
	Qc	1.34	1.32	1.32	1.31
	ΔPc	36.9	36.4	36	35.9
10	Pt	8.3	8.3	8.2	8.2
	Pa	2.3	2.4	2.6	2.8
	Pat	2.6	2.7	2.9	3.1
	Qc	1.43	1.43	1.41	1.41
	ΔPc	40.8	40.5	40.1	40
15	Pt	8.7	8.7	8.7	8.6
	Pa	2.3	2.5	2.6	2.8
	Pat	2.6	2.8	2.9	3.1
	Qc	1.50	1.50	1.50	1.48
	ΔPc	46.2	46	45.9	45.5

Model		MGC-F10W/N1			
Ta(U.R.87%)	Tw	35	40	45	50
-5	Pt	8.3	8.3	8.3	-
	Pa	3.0	3.2	3.5	-
	Pat	3.5	3.7	4.0	-
	Qc	1.4	1.4	1.4	-
	ΔPc	19.6	18.9	18.0	-
0	Pt	9.4	9.4	9.4	9.2
	Pa	3.1	3.3	3.6	3.8
	Pat	3.6	3.8	4.1	4.3
	Qc	1.7	1.6	1.6	1.6
	ΔPc	27.5	25.6	24.8	23.2
7	Pt	11.4	11.3	11.2	11.1
	Pa	3.3	3.6	3.8	4.1
	Pat	3.8	4.1	4.3	4.6
	Qc	2.0	2.0	2.0	1.9
	ΔPc	37.2	35.8	34.5	33.1
10	Pt	12.3	12.2	12.1	12.0
	Pa	3.4	3.7	3.9	4.2
	Pat	3.9	4.2	4.4	4.7
	Qc	2.1	2.1	2.1	2.1
	ΔPc	40.5	40.0	39.2	38.8
15	Pt	13.8	13.7	13.6	13.5
	Pa	3.5	3.8	4.0	4.3
	Pat	4.0	4.3	4.5	4.8
	Qc	2.4	2.4	2.3	2.3
	ΔPc	45.8	45.1	43.6	42.9

Note:

Ta: outside air temperature (°C) Tw : evaporator water outlet temperature (°C)
 Pt: heating capacity (kW) Pa: compressor power input (kW)
 Pat: total power input (kW) Qc: condenser water flow (m³/h)
 ΔPc: evaporator pressure drop (kPa) - : Exceed operating limits

Model		MGC-F10W/SN1			
Ta(U.R.87%)	Tw	35	40	45	50
-5	Pt	8.3	8.3	8.3	-
	Pa	3.0	3.2	3.5	-
	Pat	3.5	3.7	4.0	-
	Qc	1.4	1.4	1.4	-
	ΔP_c	19.6	18.9	18.0	-
0	Pt	9.4	9.4	9.4	9.2
	Pa	3.1	3.3	3.6	3.8
	Pat	3.6	3.8	4.1	4.3
	Qc	1.7	1.6	1.6	1.6
	ΔP_c	27.5	25.6	24.8	23.2
7	Pt	11.4	11.3	11.2	11.1
	Pa	3.3	3.6	3.8	4.1
	Pat	3.8	4.1	4.3	4.6
	Qc	2.0	2.0	2.0	1.9
	ΔP_c	37.2	35.8	34.5	33.1
10	Pt	12.3	12.2	12.1	12.0
	Pa	3.4	3.7	3.9	4.2
	Pat	3.9	4.2	4.4	4.7
	Qc	2.1	2.1	2.1	2.1
	ΔP_c	40.5	40.0	39.2	38.8
15	Pt	13.8	13.7	13.6	13.5
	Pa	3.5	3.8	4.0	4.3
	Pat	4.0	4.3	4.5	4.8
	Qc	2.4	2.4	2.3	2.3
	ΔP_c	45.8	45.1	43.6	42.9

Model		MGC-F12W/SN1			
Ta(U.R.87%)	Tw	35	40	45	50
-5	Pt	9.9	9.8	9.8	-
	Pa	3.7	4.0	4.3	-
	Pat	4.3	4.6	4.9	-
	Qc	1.7	1.7	1.7	-
	ΔP_c	26.0	25.6	25.2	-
0	Pt	11.1	11.0	11.0	11.0
	Pa	3.8	4.1	4.4	4.6
	Pat	4.4	4.7	5.0	5.2
	Qc	1.9	1.9	1.9	1.9
	ΔP_c	33.0	32.6	32.1	31.8
7	Pt	13.4	13.3	13.2	13.1
	Pa	3.9	4.2	4.5	4.8
	Pat	4.5	4.8	5.1	5.4
	Qc	2.3	2.3	2.3	2.3
	ΔP_c	44.0	43.6	43.1	42.8
10	Pt	14.4	14.3	14.2	14.1
	Pa	4.0	4.3	4.6	4.9
	Pat	4.6	4.9	5.2	5.5
	Qc	2.5	2.5	2.5	2.5
	ΔP_c	38.0	37.6	37.2	37.0
15	Pt	15.9	15.8	15.7	15.6
	Pa	4.1	4.4	4.7	5.0
	Pat	4.7	5.0	5.3	5.6
	Qc	2.8	2.8	2.8	2.8
	ΔP_c	45.0	44.8	44.6	44.2

Note:

Ta : outside air temperature (°C) Tw : evaporator water outlet temperature (°C)
Pt: heating capacity (kW) Pa: compressor power input (kW)
Pat: total power input (kW) Qc: condenser water flow (m³/h)
 ΔP_c : evaporator pressure drop (kPa) - : Exceed operating limits

Model		MGC-F14W/SN1			
Ta(U.R.87%)	Tw	35	40	45	50
-5	Pt	10.4	10.5	10.6	-
	Pa	4.0	4.4	4.9	-
	Pat	4.5	4.9	5.4	-
	Qc	1.9	1.9	1.9	-
	ΔPc	15.2	15.1	15.0	-
0	Pt	13.1	13.0	13.0	12.9
	Pa	4.0	4.4	4.9	5.4
	Pat	4.5	4.9	5.4	5.9
	Qc	2.3	2.3	2.3	2.3
	ΔPc	21.1	21.1	21.0	20.9
7	Pt	16.2	16.2	16.1	16.0
	Pa	4.1	4.5	5.0	5.5
	Pat	4.6	5.0	5.5	6.0
	Qc	2.8	2.8	2.8	2.8
	ΔPc	31.2	31.1	31.0	31.0
10	Pt	17.6	17.5	17.4	17.4
	Pa	17.6	17.5	17.4	17.4
	Pat	17.6	17.5	17.4	17.4
	Qc	3.1	3.1	3.1	3.1
	ΔPc	36.4	36.2	36.0	35.9
15	Pt	19.8	19.7	19.6	19.4
	Pa	4.3	4.5	5.2	5.7
	Pat	4.8	5.0	5.7	6.2
	Qc	3.5	3.5	3.5	3.5
	ΔPc	45.4	45.2	45.0	44.9

Model		MGC-F16W/SN1			
Ta(U.R.87%)	Tw	35	40	45	50
-5	Pt	10.5	10.4	10.3	-
	Pa	3.6	4.0	4.5	-
	Pat	3.9	4.3	4.8	-
	Qc	1.8	1.8	1.8	-
	ΔPc	13.9	13.9	13.8	-
0	Pt	12.8	12.7	12.6	12.5
	Pa	3.7	4.1	4.6	5.1
	Pat	4.0	4.4	4.9	5.4
	Qc	2.2	2.2	2.2	2.2
	ΔPc	20.2	20.1	20	19.9
7	Pt	15.6	15.5	15.5	15.4
	Pa	3.8	4.2	4.7	5.3
	Pat	4.1	4.5	5.0	5.6
	Qc	2.7	2.7	2.7	2.7
	ΔPc	30.2	30.1	30	30
10	Pt	16.9	16.8	16.7	16.6
	Pa	3.9	4.3	4.8	5.3
	Pat	4.2	4.6	5.1	5.6
	Qc	3.0	3.0	3.0	3.0
	ΔPc	35.4	35.2	35	34.8
15	Pt	19	18.9	18.8	18.7
	Pa	4.0	4.4	4.9	5.5
	Pat	4.3	4.7	5.2	5.7
	Qc	3.2	3.2	3.2	3.2
	ΔPc	46.2	45.6	45	44.4

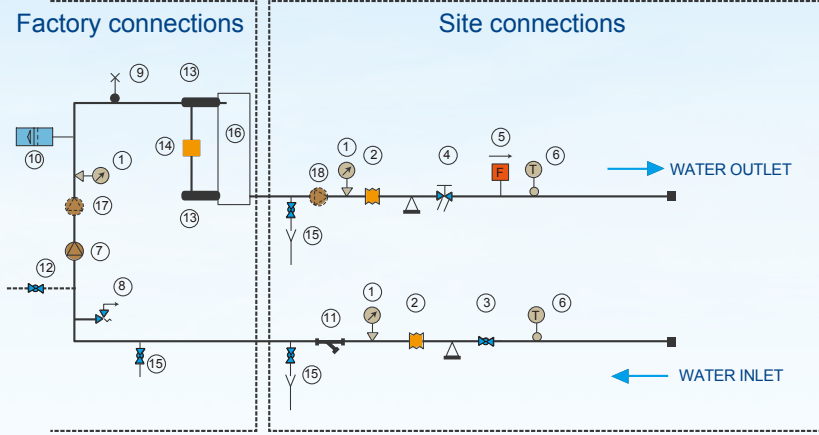
Note:

Ta: outside air temperature (°C) Tw : evaporator water outlet temperature (°C)
 Pt: heating capacity (kW) Pa: compressor power input (kW)
 Pat: total power input (kW) Qc: condenser water flow (m³/h)
 ΔPc: evaporator pressure drop (kPa) - : Exceed operating limits

Hydraulic connections

The choice and installation of components are the responsibility of the installer who should follow good working practice and current legislation.

It is recommended that the following devices are installed in the water circuit of the system.




- ① Pressure gauge
- ② Vibration damper joint
- ③ Gate valve
- ④ Calibrating valve
- ⑤ Water flow switch
- ⑥ Thermometer
- ⑦ Pump
- ⑧ Safety valve
- ⑨ Air vent
- ⑩ Expansion tank
- ⑪ Mesh filter
- ⑫ Auto-water replenishing valve
- ⑬ Temperature sensor
- ⑭ Differential pressure switch
- ⑮ Drain/chemical washing valve
- ⑯ Plate heat exchanger
- ⑰ Additional pump
- ⑱ Additional pump

Wiring specifications

Type		5kW	7.2kW	10.5kW	12kW	14kW	16kW
Power supply		220-240V, 50Hz			380-415V 3Ph, 50Hz		
Circuit breaker/fuse	(A)	25/20	30/25	25/15	25/15	25/15	30/20
Power wire	(mm ²)	3×2.5	3×2.5	3×4.0	5×2.5	5×2.5	5×4.0
Ground wire	(mm ²)	2.5	2.5	4.0	2.5	2.5	4.0
Outdoor/indoor connecting		1.0	1.0	1.0	1.0	1.0	1.0

- The power core type designation is H07RN-F (H07RN-F:a flexible cable model).
- Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed flexible cord, type designation H07RN-F or heavier cord.
- The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

Accessory

Item	Model	Description	Appearance	Note
Remote controller	SKW210	LCD remote terminal with integrated room temperature control;		optional

Mini unitary chiller (Fixed type)

Mini split chiller →

Digital type





Mini split chiller

Digital type

- ▶ Features
- ▶ Description of main components
- ▶ Specifications
- ▶ Operation limits
- ▶ Hydraulic performance
- ▶ Dimensions
- ▶ Installation clearance
- ▶ Piping diagram
- ▶ Performance data
- ▶ Pipe connection information
- ▶ Hydraulic connections
- ▶ Wiring specifications

Features

R410A environment friendly refrigerant, no harm to ozone layer.



No harm to ozone layer



Greenhouse effect is small



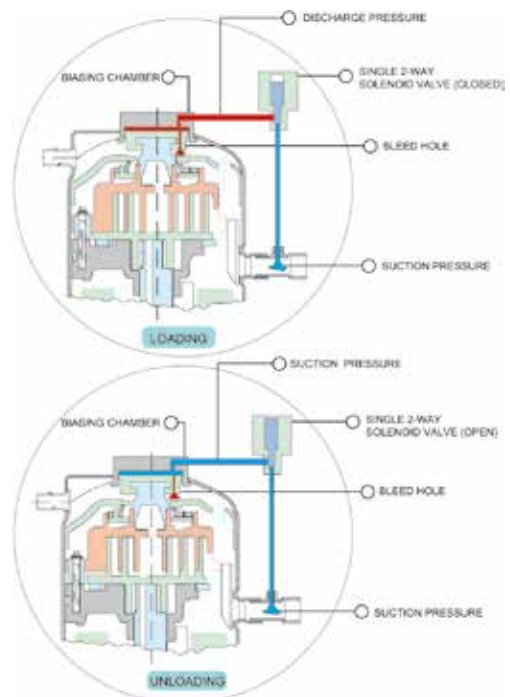
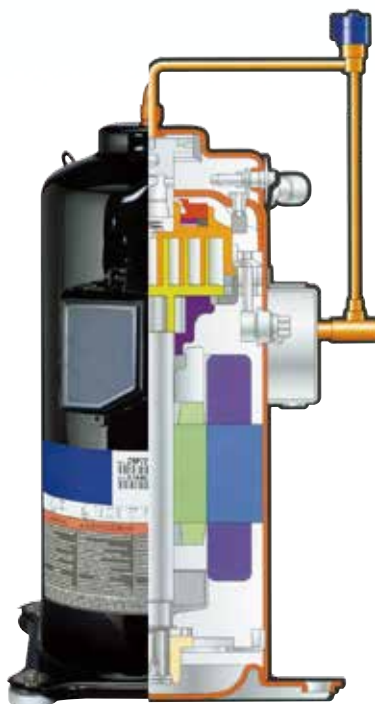
Easy for installation

Air-cooled system, no need cooling water tower, packaged design, easy for installation

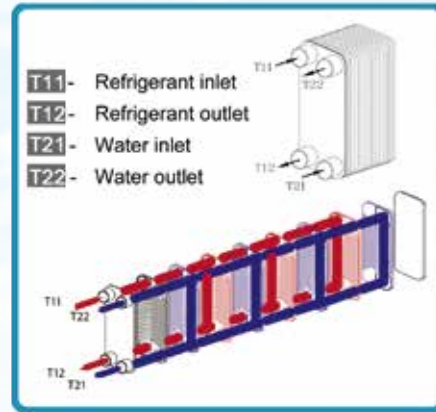


Energy saving and high reliability

- By adopting Copeland digital scroll compressor, the capacity can be stepless adjusted and the chiller can bring you more comfortable living conditions with less energy consumption. The system has no EMC problem.



- By adopting high efficiency plate heat exchanger, the energy consumption can be reduced.



- Metallic protective cabinet with rustproof polyester paint.
- Built-in with voltage protection, current protection, anti-freezing protection, differential water flow protection, compressor, water pump and fan motor overload protection and etc., effectively guarantee the system to work safety.

Compressor current protection

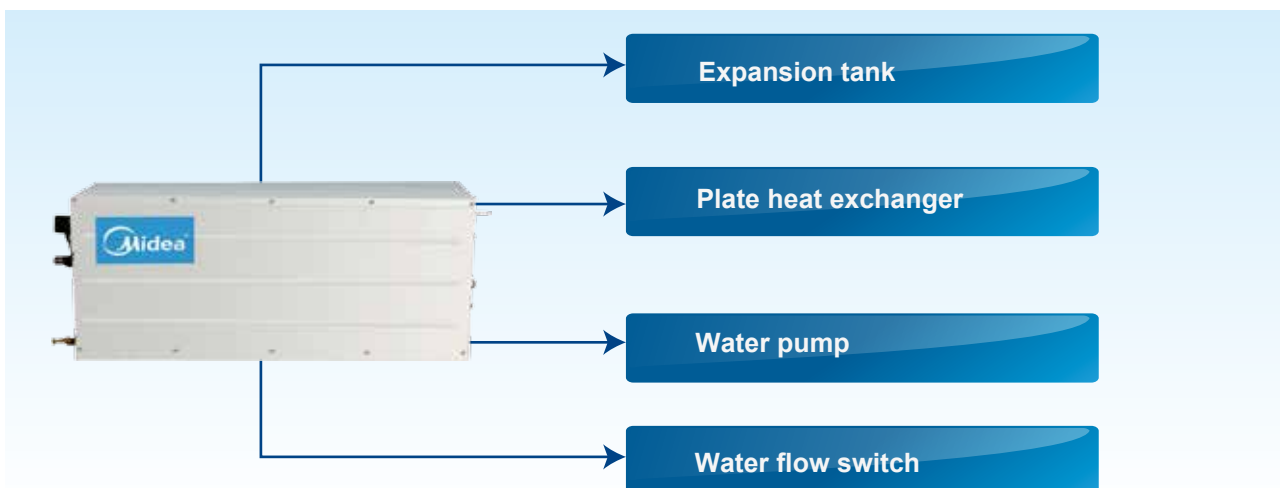


Phase protection signal output



Convenient and simple installation

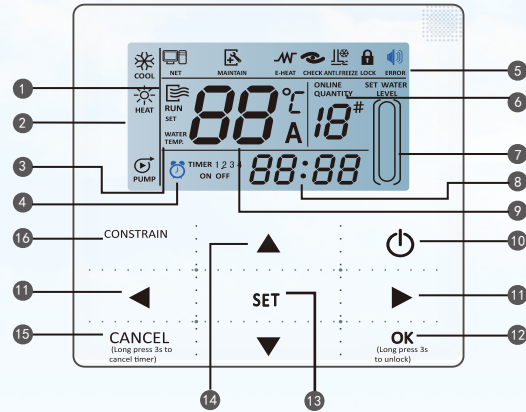
With international popular split design, the pump box can be installed inside the matched room and its outdoor unit is compact and light.



Wired controller KJRM-120D/BMK-E(Standard)

The setting and operation order can be send to the main board and the running condition can be displayed by the wired controller. It can connect max. 16PCBs. It is available for all Midea air cooled scroll chillers.

The MODBUS gateway can be customized, it is available by communication port X, Y and E in wired controller.



Item	Description	Item	Description
1	Operation icon	9	Water temp.
2	Mode area	10	ON/OFF Key
3	Setting temperature	11	Right, Left Key
4	Timing On/Off	12	OK key
5	Function Icon	13	Setting key
6	On-line Unit Qty. Indication	14	Add, Reduce key
7	Reserved	15	Cancel key
8	Clock	16	Reserved. key

Description of main components

Structure

Panels and base are made from galvanized steel plate painted with epoxy power to ensure total resistance to atmospheric pollution, condensate collection pan as standard.

Compressor

Midea mini split chillers are equipped with Copeland brand high efficiency, reliable and silence digital scroll compressor, the capacity can be stepless adjusted, the chiller can bring you more comfortable living condition with less energy consumption. The system has no EMC problem.

Air cooled condenser

Coils

The coils are made from high performance and seamless copper tuber and high surface area aluminium fins to ensure optimum heat exchange capability. Condenser coil protection grill is standard.

Low noise fan and fan motor

To achieve high efficiency heat exchange, the units are equipped with the high performance axial-flow fans. The fan is directly driven by weather proof motor to ensure reliable operation, the fan motor is six-pole electric motor with built-in thermal cut-out.

Evaporator (in the water pump box)

The heat exchanger is made of AISI 316 stainless steel to ensure high heat exchange efficiency, complete with electric heater and differential pressure switch. The complete heat exchanger is insulated with thermal insulation closed cell rubber foam to give optimum thermal insulation.

Water pump box

The mini split chillers water pump box are fully integrated and equipped with key hydraulic components such as expansion tank, water flow switch, plate type heat-exchanger, water circulating pump.

Refrigerant circuit

The refrigerant circuit is factory brazed and evacuated before accurately charged with R410A to ensure optimum operating requirement. To ensure flawless continuous operation, each refrigerant circuit is equipped with a carefully sized capillary tube.

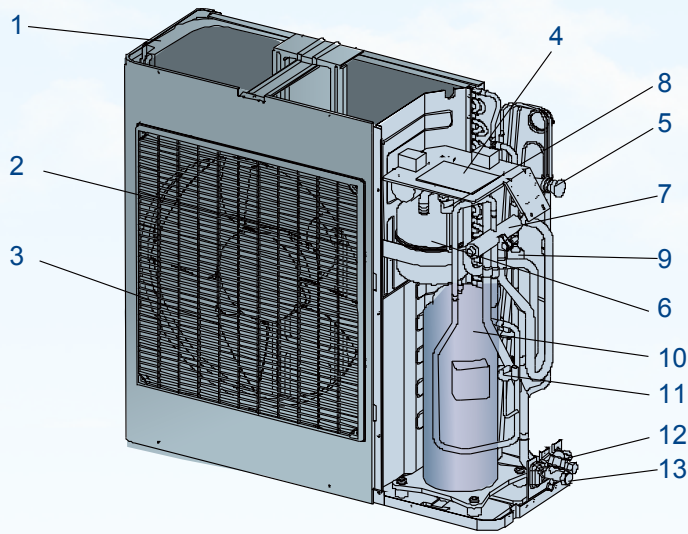
Power and control electrical panel

Power and control electrical panel constructed in accordance with IEC 204-1/EN60335-2-40, complete with compressor contactor, control via "HSW7" control panel.



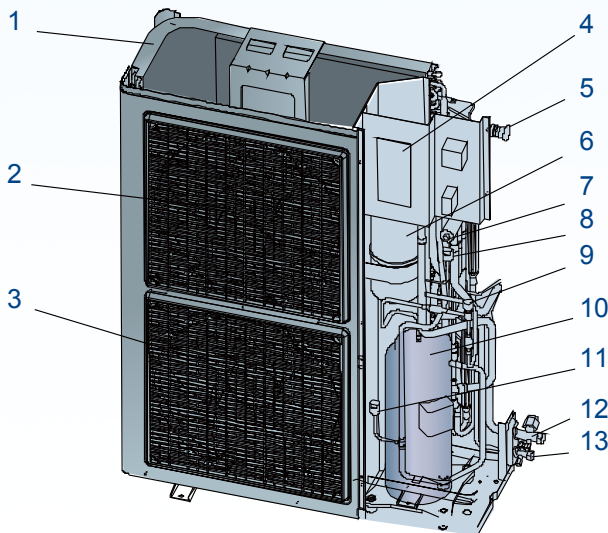
Outdoor unit

Model 10.5kW



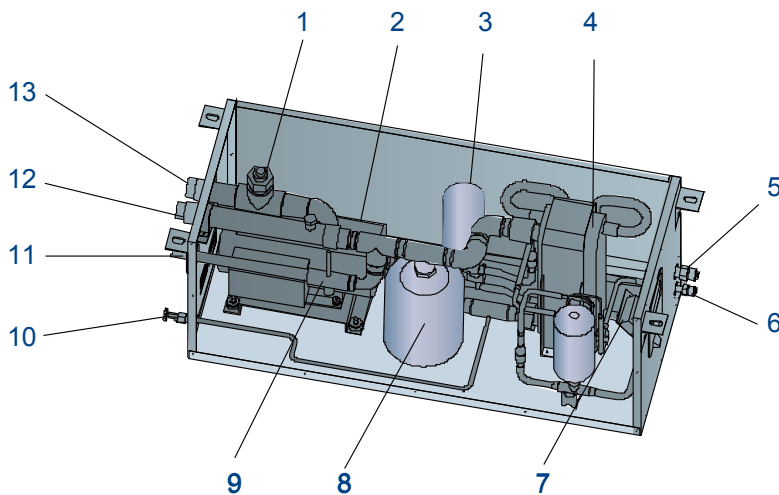
- ① Condenser
- ② Motor
- ③ Axial-flow fan
- ④ Electrical box
- ⑤ Emergency stop pushbuttons
- ⑥ Accumulator
- ⑦ 4-way valve
- ⑧ Low pressure switch
- ⑨ Solenoid valve
- ⑩ Compressor
- ⑪ High pressure switch
- ⑫ Liquid side
- ⑬ Gas side

Model 12, 14, 16kW



- ① Condenser
- ② Motor
- ③ Axial-flow fan
- ④ Electrical box
- ⑤ Emergency stop pushbuttons
- ⑥ Liquid receiver
- ⑦ 4-way valve
- ⑧ Low pressure switch
- ⑨ Solenoid valve
- ⑩ Compressor
- ⑪ High pressure switch
- ⑫ Gas side
- ⑬ Liquid side

Water pump box



- ① Flow switch
- ② Pump
- ③ Liquid receiver
- ④ Plate heat exchanger
- ⑤ Gas side
- ⑥ Liquid side
- ⑦ Electrical panel
- ⑧ Expansion tank
- ⑨ Auto-water replenishing
- ⑩ Water discharge
- ⑪ Auto-water pipe
- ⑫ Water inlet
- ⑬ Water outlet

Specifications

Model			MGA-D10/N1	MGA-D12/N1	
Power supply		V/Ph/Hz	220-240/1/50	220-240/1/50	
Cooling	Capacity	W	10500	12000	
	Input	W	3912	3978	
Heating	Capacity	W	13000	14000	
	Input	W	4216	4260	
Max. input consumption		W	6150	6200	
Max. input current		A	29.2	29.4	
Refrigerant	Type		R410A	R410A	
	Weight		kg	2.7	3.6
Throttle type			Capillary	Capillary	
Outdoor units	Compressor	Type	Digital Scroll	Digital Scroll	
		Brand	Copeland	Copeland	
		Number of compressor	1	1	
		Thermal protector	Inner	Inner	
		Refrigerant oil	ml	1892	1892
	Condenser fan motor	Type	AC motor	AC motor	
		Brand	Welling	Welling	
		Quantity	Pieces	1	1
		Input (Hi/Lo)	W	326/200	185/120(×2)
		Speed (Hi/Lo)	r/min	740/530	860/610
	Condenser coil	Max. air flow	m³/h	4500	5800
		Number of rows		2	2
		Fin type		Hydrophilic aluminium	Hydrophilic aluminium
		Tube outside dia. and type	mm	Φ9.53 Inner grooved copper tube	Φ9.53 Inner grooved copper tube
		Number of circuits		4	6
	Other information	Throttle type		Capillary	Capillary
		Noise level (sound pressure)	dB(A)	57	60
		Net size(D×H×W)	mm	990×966×340	940×1250×340
		Packing size(D×H×W)	mm	1120×1100×435	1077×1380×438
		Net/ Gross weight	kg	109/115	122/128
	Model			CE-SBX/N1-01	CE-SBX/N1-01A
	Water pump	Input	W	400	400
		Pump head	m	22	20
Expansion tank	Volume	L	3	3	
Heat exchanger	Type		Plate	Plate	
	Rated water flow	m³/h	1.80	2.06	
Water flow switch			Standard	Standard	
Other information	The max. and min. water inlet	m³/h	5.0/0.5	5.0/0.5	
	Noise level (sound pressure)	dB(A)	38.4	38.9	
	Net size(D×H×W)	mm	905×370×366	905×370×366	
	Packing size(D×H×W)	mm	1057×439×436	1057×439×436	
	Net/ Gross weight	kg	54/59	54/59	
Refrigerant pipe diameter	Liquid side	mm	Φ9.53	Φ9.53	
	Gas side	mm	Φ19	Φ19	
Pipe diameter	Water inlet/outlet	mm	DN32	DN32	
Control			Wired controller KJRM-120D/BMK-E(standard)		
Ambient temperature	°C	Cooling: 10°C~43°C	Cooling: 10°C~43°C	Cooling: 10°C~43°C	
		Heating: -15°C~24°C	Heating: -15°C~24°C	Heating: -15°C~24°C	

Note: Specifications are based on the following conditions:

1. Cooling: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
2. Heating: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB .
3. 1m away in semi-anechoic room(sound pressure).

Model			MGA-D14/SN1	MGA-D16/SN1	
Power supply		V/Ph/Hz	380-415/3/50	380-415/ 3/50	
Cooling	Capacity	W	14000	15000	
	Input	W	4453	4904	
Heating	Capacity	W	16000	17000	
	Input	W	4828	4943	
Max. input consumption		W	6400	6600	
Max. input current		A	12.4	12.5	
Refrigerant	Type		R410A	R410A	
	Weight	kg	4.1	4.4	
Throttle type			Capillary	Capillary	
Outdoor units	Compressor	Type	Digital Scroll	Digital Scroll	
		Brand	Copeland	Copeland	
		Number of compressor	1	1	
		Thermal protector	Inner	Inner	
		Refrigerant oil	ml	1893	1893
	Condenser fan motor	Type	AC motor	AC motor	
		Brand	Welling	Welling	
		Quantity	Pieces	3	2
		Input (Hi/Lo)	W	185/120(×2)	185/120(×2)
		Speed (Hi/Lo)	r/min	860/610	860/610
		Max. air flow	m ³ /h	5600	5600
	Condenser coil	Number of rows		2	3
		Fin type		Hydrophilic aluminium	Hydrophilic aluminium
		Tube outside dia. and type	mm	Φ9.53 Inner grooved copper tube	Φ9.53 Inner grooved copper tube
		Number of circuits		12	8
	Other information	Noise level (sound pressure)	dB(A)	60	60
		Net size(D×H×W)	mm	940×1250×340	940×1250×340
		Packing size(D×H×W)	mm	1077×1380×438	1077×1380×438
		Net/ Gross weight	kg	123/130	126/133
	Model			CE-SBX/SN1-01	CE-SBX/SN1-01A
	Water pump	Input	W	450	450
		Pump head	m	18	17
	Expansion tank	Volume	L	3	3
	Heat exchanger	Type		Plate	Plate
Rated water flow		m ³ /h	2.4	2.58	
Water flow switch	Model		Standard	Standard	
Other information	The max. and min. water inlet	m ³ /h	5.0/0.5	5.0/0.5	
	Noise level (sound pressure)	dB(A)	41.2	37.8	
	Net size(D×H×W)	mm	905×370×366	905×370×366	
	Packing size(D×H×W)	mm	1057×439×436	1057×439×436	
	Net/ Gross weight	kg	54/59	55/56	
Refrigerant pipe diameter	Liquid side	mm	Φ9.53	Φ9.53	
	Gas side	mm	Φ19	Φ19	
Pipe diameter	Water inlet/outlet	mm	DN32	DN32	
Control			Wired controller KJRM-120D/BMK-E(standard)		
Ambient temperature		°C	Cooling: 10°C~43°C Heating: -15°C~24°C	Cooling: 10°C~43°C Heating: -15°C~24°C	

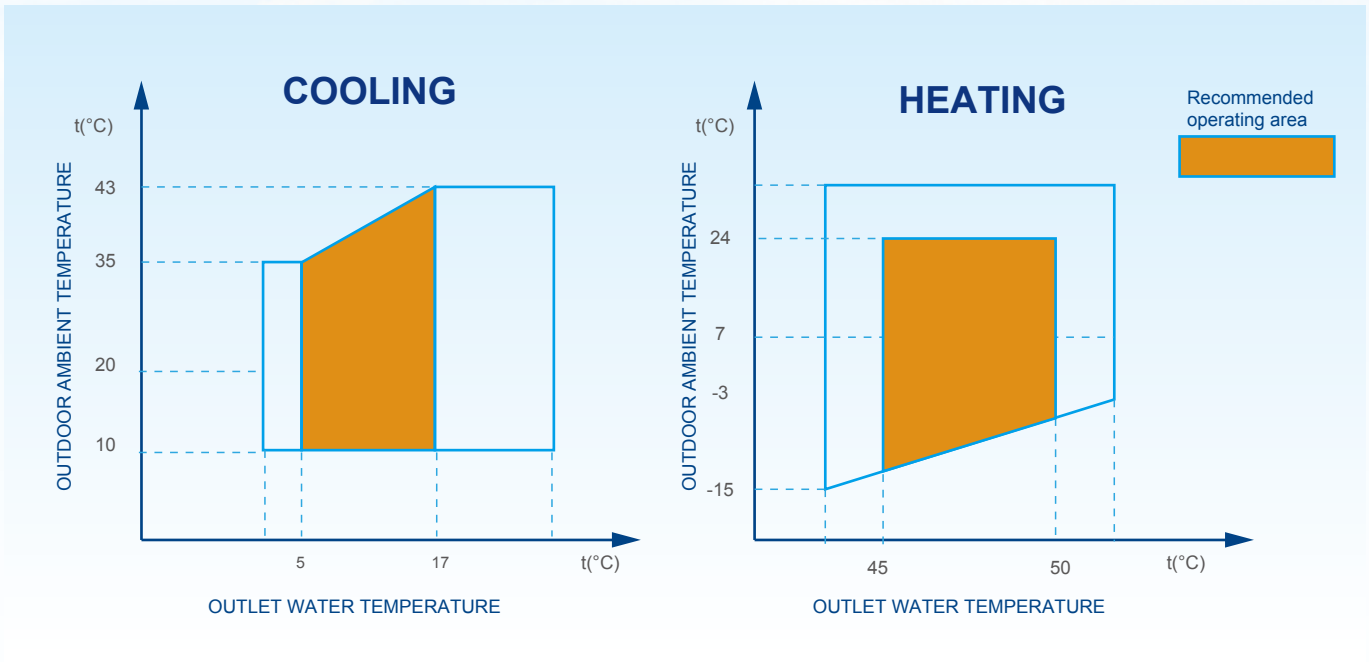
Note: Specifications are based on the following conditions:

1. Cooling: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
2. Heating: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB .
3. 1m away in semi-anechoic room(sound pressure).

Operation limits

Cooling and heating operation temperature range

Cooling operation	Outdoor ambient temperature: 10°C~43°C
	Outlet water temperature: 5°C~17°C
Heating operation	Outdoor ambient temperature: -15°C~24°C
	Outlet water temperature: 45°C~50°C



Ethylene glycol solutions

A glycol solution is required when the unit with condition as mentioned. The use of glycol will reduce the performance of the unit depending on concentration.

	Freezing point (°C)					
	0	-5	-10	-15	-20	-25
	Percentage of ethylene glycol in weight					
	0	12%	20%	28%	35%	40%
cPf	1	0.98	0.97	0.965	0.96	0.955
cQ	1	1.02	1.04	1.075	1.11	1.14
cdp	1	1.07	1.11	1.18	1.22	1.24

cPf: correction factor cooling capacity.

cQ: correction factor flow rate.

cdp: correction factor pressure drop.

Notes:

1. During winter leaving the unit unused, please drain water out completely from unit if no antifreeze were charged into pipeline, or keep power on (at standby or off status) and ensure that water is contained inside of unit.
2. When ambient temperature is lower than 5°C, running cooling mode must be charged antifreeze. Refer to upper parameters for the charged volume.

Fouling factors

The performance data given refer to conditions with clean evaporator plates (fouling factor=1). For different fouling factors, multiply the figures in the performance tables by the coefficient given in the following table.

Fouling factors (m ² °C/W)	Evaporator		
	f1	fk1	fx1
4.4×10 ⁻⁵	-	-	-
0.86×10 ⁻⁴	0.96	0.99	0.99
1.72×10 ⁻⁴	0.93	0.98	0.98

f1: capacity correction factor

fk1: compressor power input correction factor

fx1: total power input correction factor

Water volume for installation

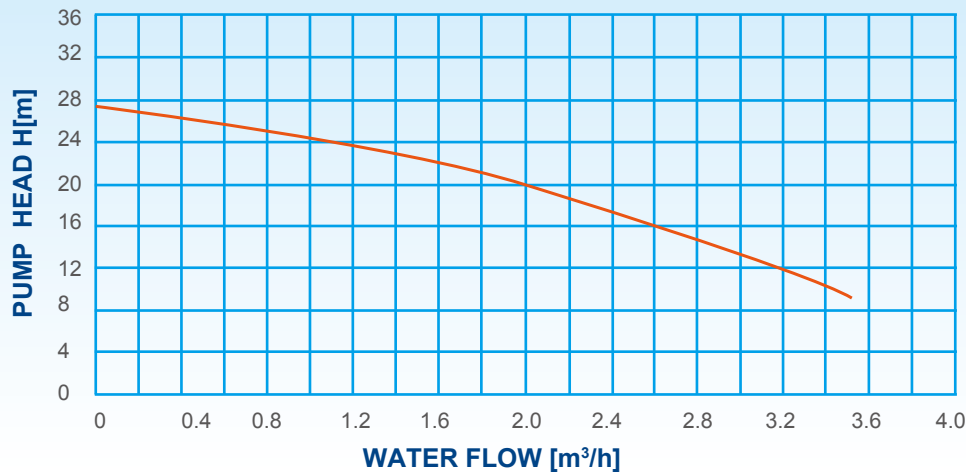
Model	MGA-D10/N1	MGA-D12/N1	MGA-D14/SN1	MGA-D16/SN1
Minimum water volume (L)	43	50	60	68

If the total water volume in the system is less than the value in the table above, the additional water tank is necessary in order to avoid the compressor On/Off frequently.

The minimum size of the water tank is calculated as: size of additional water tank(L)=Minimum water volume (L) –Actual water volume(L)

Hydraulic performance

Pump head curves(*)



Note:

(*) To obtain the useful head for installation, subtract the pressure drop of the plate heat exchanger.

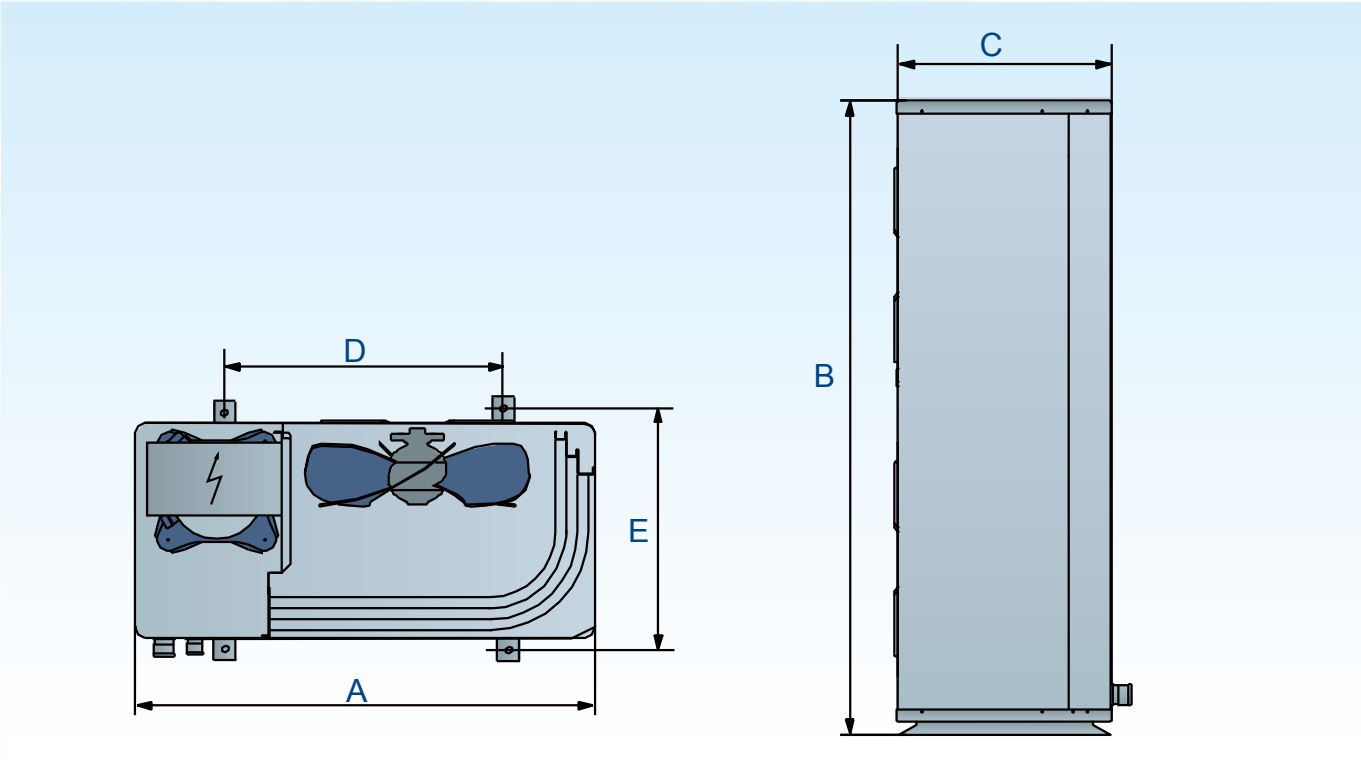
Heat exchanger pressure drop (water side)

Model	Water flow	m ³ /h	0.8	1.0	1.2	1.4	1.6	1.8	2.0
		l/sec	0.222	0.278	0.333	0.389	0.444	0.500	0.556
10.5kW	Pressure drop	kPa	26	29	33	37	42	46	50

Model	Water flow	m ³ /h	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6
		l/sec	0.333	0.389	0.444	0.500	0.556	0.611	0.667	0.722
12 kW	Pressure drop	kPa	35	39	44	47	50	53	58	
14 kW		kPa	28	31	36	40	43	46	50	54
16 kW		kPa	26	29	32	37	41	45	49	52

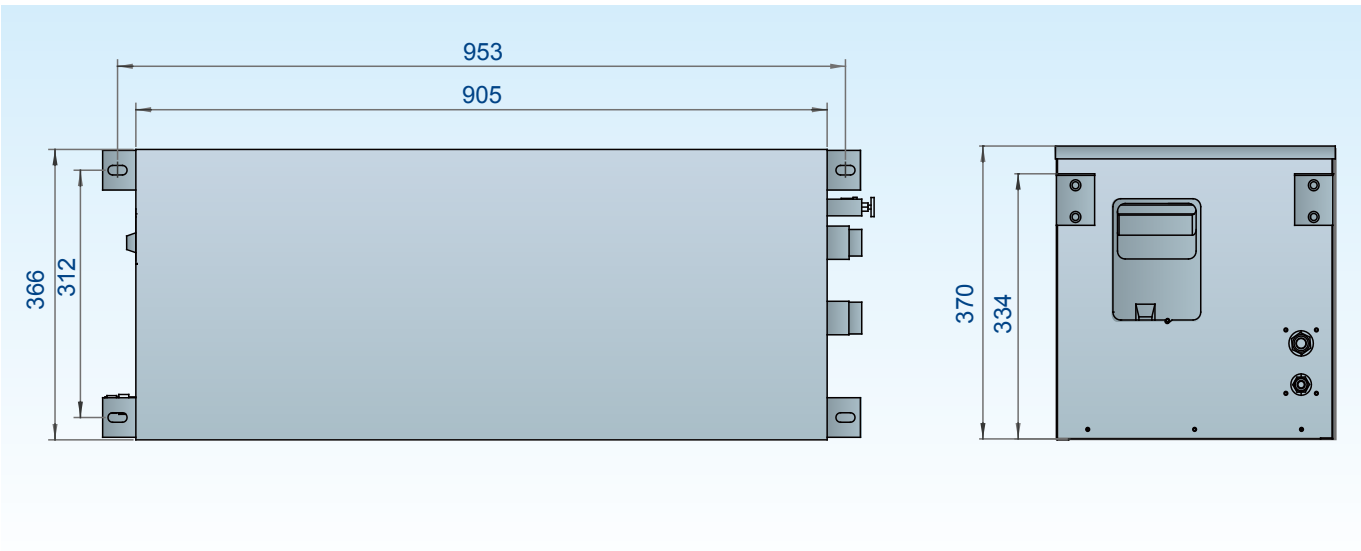
Dimensions

Outdoor unit



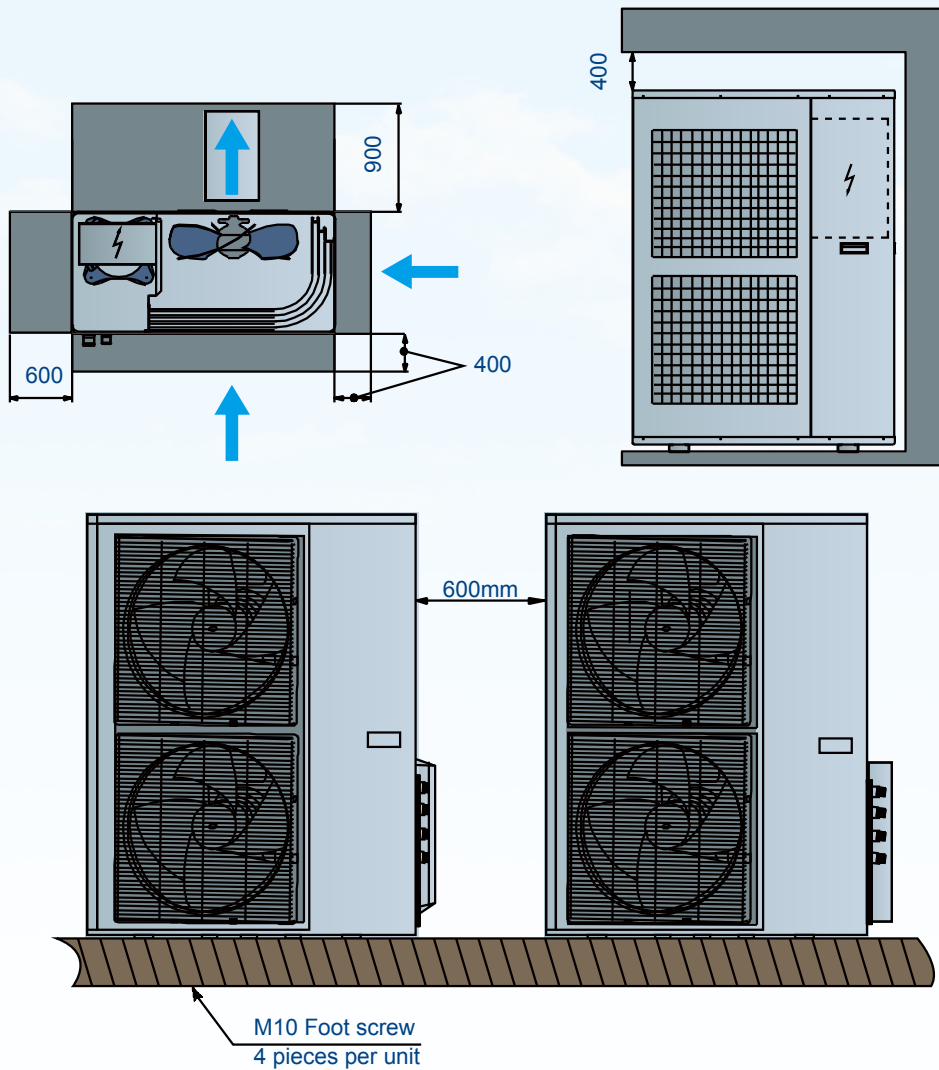
Dimensions	A	B	C	D	E
MGA-D10/N1	990	966	340	624	366
MGA-D12/N1	940	1250	340	600	376
MGA-D14/SN1	940	1250	340	600	376
MGA-D16/SN1	940	1250	340	600	376

Water pump box

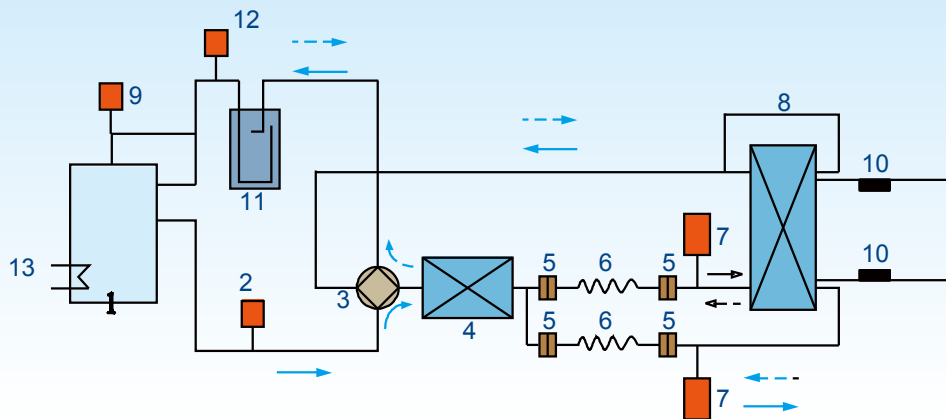


Mini split chiller
(Digital type)

Installation clearance



Piping diagram



Remark:

No	Name	No	Name	No	Name
1	Compressor	6	Capillary	11	Liquid receiver
2	High pressure switch	7	Liquid receiver	12	Low pressure switch
3	4 -way valve	8	Plate heat exchanger	13	Crankcase heater
4	Condenser	9	PWM valve		
5	Filter	10	Water temperature sensor		

Performance data

Cooling

Model		MGA-D10/N1					
Ta. (°C)	Tw (°C)	5	6	7	8	9	10
25	Pf (kW)	10.9	11.2	11.5	11.8	12.1	12.4
	Pa (kW)	3.3	3.3	3.4	3.4	3.4	3.5
	Pat (kW)	4.1	4.1	4.2	4.2	4.2	4.3
	Qev (m³/h)	1.9	1.9	2.0	2.0	2.1	2.2
	ΔPev (kPa)	47.3	47.6	50.0	50.3	54.0	57.0
30	Pf (kW)	10.4	10.8	11.1	11.5	11.8	12.1
	Pa (kW)	2.9	2.9	3.0	3.1	3.1	3.1
	Pat (kW)	3.4	3.4	3.5	3.6	3.6	3.6
	Qev (m³/h)	1.8	1.8	1.9	2.0	2.0	2.0
	ΔPev (kPa)	44.7	45.6	47.7	49.8	50.4	50.9
35	Pf (kW)	9.9	10.2	10.5	10.7	11.0	11.3
	Pa (kW)	3.3	3.3	3.4	3.4	3.5	3.5
	Pat (kW)	3.8	3.8	3.9	3.9	4.0	4.0
	Qev (m³/h)	1.7	1.7	1.8	1.9	1.9	2.0
	ΔPev (kPa)	40.5	41.3	45.0	48.0	48.6	51.0
40	Pf (kW)	9.4	9.7	10.0	10.3	10.6	11.0
	Pa (kW)	3.6	3.6	3.7	3.7	3.8	3.8
	Pat (kW)	4.1	4.1	4.2	4.2	4.3	4.3
	Qev (m³/h)	1.6	1.6	1.7	1.7	1.8	1.8
	ΔPev (kPa)	36.0	36.6	40.8	41.4	45.5	45.8
43	Pf (kW)	9.0	9.3	9.5	9.8	10.0	10.3
	Pa (kW)	3.8	3.8	3.9	3.9	4.0	4.0
	Pat (kW)	4.3	4.3	4.4	4.4	4.5	4.5
	Qev (m³/h)	1.5	1.6	1.6	1.7	1.7	1.8
	ΔPev (kPa)	31.5	35.7	36.6	40.5	41.3	46.5

Model		MGA-D12/N1					
Ta. (°C)	Tw (°C)	5	6	7	8	9	10
25	Pf (kW)	12.4	12.7	13.0	13.3	13.6	13.9
	Pa (kW)	3.5	3.5	3.5	3.6	3.6	3.6
	Pat (kW)	4.1	4.1	4.1	4.2	4.2	4.2
	Qev (m³/h)	2.2	2.2	2.3	2.3	2.3	2.4
	ΔPev (kPa)	46.6	47.8	49.6	51.8	54.6	60.0
30	Pf (kW)	11.9	12.2	12.5	12.8	13.1	13.4
	Pa (kW)	3.8	3.8	3.8	3.9	3.9	3.9
	Pat (kW)	4.4	4.4	4.4	4.5	4.5	4.5
	Qev (m³/h)	2.0	2.1	2.1	2.2	2.2	2.3
	ΔPev (kPa)	37.0	37.1	40.6	43.2	46.1	48.0
35	Pf (kW)	11.4	11.7	12.0	12.3	12.6	12.9
	Pa (kW)	4.2	4.2	4.2	4.3	4.3	4.3
	Pat (kW)	4.8	4.8	4.8	4.9	4.9	4.9
	Qev (m³/h)	2.0	2.0	2.1	2.1	2.2	2.2
	ΔPev (kPa)	33.8	37.1	40.6	43.2	46.1	48.0
40	Pf (kW)	10.9	11.2	11.5	11.8	12.1	12.4
	Pa (kW)	4.5	4.5	4.5	4.6	4.6	4.6
	Pat (kW)	5.1	5.1	5.1	5.2	5.2	5.2
	Qev (m³/h)	1.9	2.0	2.0	2.0	2.1	2.1
	ΔPev (kPa)	32.3	35.0	36.3	38.4	41.0	45.1
43	Pf (kW)	10.5	10.8	11.1	11.4	11.7	12.0
	Pa (kW)	4.7	4.7	4.7	4.8	4.8	4.8
	Pat (kW)	5.3	5.3	5.3	5.4	5.4	5.4
	Qev (m³/h)	1.8	1.9	1.9	2.0	2.0	2.0
	ΔPev (kPa)	28.0	30.1	33.8	37.4	38.6	40.5

Remark:

Ta: outside air temperature (°C)

Pf: cooling capacity (kW)

Pat: total power input (kW)

ΔPev: evaporator pressure drop (kPa)

Tw : evaporator water outlet temperature (°C)

Pa: compressor power input (kW)

Qev: evaporator water flow (m³/h)

Model		MGA-D14/SN1					
Ta. (°C)	Tw (°C)	5	6	7	8	9	10
25	Pf (kW)	14.8	15.1	15.4	15.7	16.1	16.4
	Pa (kW)	3.6	3.6	3.6	3.7	3.7	3.7
	Pat (kW)	4.1	4.1	4.1	4.2	4.2	4.2
	Qev (m³/h)	2.6	2.6	2.7	2.7	2.8	2.8
	ΔPev (kPa)	49.3	50.0	51.7	53.0	56.1	57.8
30	Pf (kW)	14.1	14.4	14.7	15.0	15.3	15.6
	Pa (kW)	4.1	4.1	4.1	4.2	4.2	4.2
	Pat (kW)	4.6	4.6	4.7	4.7	4.7	4.7
	Qev (m³/h)	2.4	2.5	2.5	2.6	2.6	2.7
	ΔPev (kPa)	43.9	47.9	48.3	49.1	50.2	52.7
35	Pf (kW)	13.4	13.7	14.0	14.3	14.6	14.9
	Pa (kW)	4.6	4.6	4.6	4.7	4.7	4.7
	Pat (kW)	5.1	5.1	5.1	5.2	5.2	5.2
	Qev (m³/h)	2.3	2.4	2.4	2.5	2.5	2.5
	ΔPev (kPa)	40.8	43.5	44.2	46.9	47.8	48.3
40	Pf (kW)	12.5	12.8	13.1	13.4	13.7	14.0
	Pa (kW)	5.1	5.1	5.1	5.2	5.2	5.2
	Pat (kW)	5.6	5.6	5.6	5.7	5.7	5.7
	Qev (m³/h)	2.2	2.2	2.3	2.3	2.4	2.4
	ΔPev (kPa)	33.3	34.5	36.7	39.8	43.7	44.9
43	Pf (kW)	12.0	12.3	12.6	12.9	13.2	13.5
	Pa (kW)	5.5	5.5	5.5	5.6	5.6	5.6
	Pat (kW)	6.0	6.0	6.0	6.1	6.1	6.1
	Qev (m³/h)	2.1	2.1	2.2	2.2	2.3	2.3
	ΔPev (kPa)	30.6	32.5	35.2	36.2	39.1	40.5

Model		MGA-D16/SN1					
Ta. (°C)	Tw (°C)	5	6	7	8	9	10
25	Pf (kW)	15.5	15.7	16.0	16.3	16.5	16.8
	Pa (kW)	3.9	3.9	3.9	4.0	4.0	4.0
	Pat (kW)	4.7	4.7	4.7	4.8	4.8	4.8
	Qev (m³/h)	2.7	2.7	2.8	2.8	2.9	2.9
	ΔPev (kPa)	54.9	57.6	59.4	62.1	65.2	67.7
30	Pf (kW)	14.9	15.2	15.5	15.8	16.1	16.4
	Pa (kW)	4.4	4.4	4.4	4.5	4.5	4.5
	Pat (kW)	5.2	5.2	5.2	5.4	5.4	5.4
	Qev (m³/h)	2.6	2.6	2.7	2.7	2.8	2.8
	ΔPev (kPa)	51.0	52.9	50.9	54.7	59.9	63.0
35	Pf (kW)	14.4	14.7	15.0	15.3	15.6	15.9
	Pa (kW)	4.9	4.9	4.9	5.0	5.0	5.0
	Pat (kW)	5.7	5.7	5.7	5.8	5.8	5.8
	Qev (m³/h)	2.6	2.6	2.7	2.7	2.8	2.8
	ΔPev (kPa)	50.8	53.1	55.8	58.1	61.2	63.2
40	Pf (kW)	13.9	14.2	14.5	14.8	15.1	15.2
	Pa (kW)	5.3	5.3	5.3	5.4	5.4	5.4
	Pat (kW)	6.1	6.1	6.1	6.2	6.2	6.2
	Qev (m³/h)	2.5	2.5	2.6	2.6	2.7	2.7
	ΔPev (kPa)	46.8	49.1	51.5	53.1	55.8	59.4
43	Pf (kW)	13.5	13.8	14.1	14.4	14.7	14.8
	Pa (kW)	5.7	5.7	5.7	5.8	5.8	5.8
	Pat (kW)	6.5	6.5	6.5	6.6	6.6	6.6
	Qev (m³/h)	2.4	2.4	2.5	2.5	2.6	2.6
	ΔPev (kPa)	41.4	44.3	47.0	49.1	51.5	59.4

Remark:

Ta: outside air temperature (°C)

Pf: cooling capacity (kW)

Pat: total power input (kW)

ΔPev: evaporator pressure drop (kPa)

Tw : evaporator water outlet temperature (°C)

Pa: compressor power input (kW)

Qev: evaporator water flow (m³/h)

Heating

Model		MGA-D10/N1			
Ta. U.R.87% (°C)	Tw (°C)	35	40	45	50
-5	Pt (kW)	8.3	8.3	8.3	-
	Pa (kW)	3.6	3.9	4.2	-
	Pat (kW)	4.4	4.7	5.0	-
	Qc (m³/h)	1.5	1.5	1.5	-
	ΔPc (kPa)	29.4	28.4	27.0	-
0	Pt (kW)	9.4	9.4	9.4	9.2
	Pa (kW)	3.7	4.0	4.3	4.5
	Pat (kW)	4.5	4.8	5.1	5.3
	Qc (m³/h)	1.8	1.8	1.8	1.8
	ΔPc (kPa)	27.5	25.6	24.8	23.2
7	Pt (kW)	13.2	13.1	13.0	12.9
	Pa (kW)	3.8	4.1	4.4	4.7
	Pat (kW)	4.6	4.9	5.2	5.5
	Qc (m³/h)	2.2	2.2	2.2	2.2
	ΔPc (kPa)	37.2	35.8	34.5	33.1
10	Pt (kW)	12.3	12.2	12.1	12.0
	Pa (kW)	3.9	4.2	4.5	4.8
	Pat (kW)	4.7	5.0	5.3	5.1
	Qc (m³/h)	2.3	2.3	2.3	2.3
	ΔPc (kPa)	40.5	40.0	39.2	38.8
15	Pt (kW)	13.8	13.7	13.6	13.5
	Pa (kW)	4.0	4.3	4.6	4.9
	Pat (kW)	4.8	5.1	5.4	5.7
	Qc (m³/h)	2.4	2.4	2.3	2.3
	ΔPc (kPa)	45.8	45.1	43.6	42.9

Model		MGA-D12/N1			
Ta. U.R.87% (°C)	Tw (°C)	35	40	45	50
-5	Pt (kW)	11.0	10.9	10.8	-
	Pa (kW)	3.7	4.0	4.3	-
	Pat (kW)	4.5	4.8	5.1	-
	Qc (m³/h)	1.7	1.7	1.7	-
	ΔPc (kPa)	41.6	41.0	40.3	-
0	Pt (kW)	12.2	12.1	12.0	11.9
	Pa (kW)	3.8	4.1	4.4	4.6
	Pat (kW)	4.6	4.9	5.2	5.4
	Qc (m³/h)	2.0	2.0	2.0	2.0
	ΔPc (kPa)	33.0	32.6	32.1	31.8
7	Pt (kW)	14.2	14.1	14.0	13.9
	Pa (kW)	3.9	4.2	4.5	4.8
	Pat (kW)	4.7	5.0	5.3	5.6
	Qc (m³/h)	2.4	2.4	2.4	2.4
	ΔPc (kPa)	44.0	43.6	43.1	42.8
10	Pt (kW)	15.2	15.1	15.0	14.9
	Pa (kW)	4.0	4.3	4.6	4.9
	Pat (kW)	4.8	5.1	5.4	5.7
	Qc (m³/h)	2.5	2.5	2.5	2.5
	ΔPc (kPa)	38.0	37.6	37.2	37.0
15	Pt (kW)	16.7	16.6	16.5	16.4
	Pa (kW)	4.1	4.4	4.7	5.0
	Pat (kW)	4.9	5.2	5.5	5.8
	Qc (m³/h)	2.8	2.8	2.8	2.8
	ΔPc (kPa)	45.0	44.8	44.6	44.2

Remark:

Ta: outside air temperature (°C)

Pt: heating capacity (kW)

Pat: total power input (kW)

ΔPc: evaporator pressure drop (kPa)

Tw : evaporator water outlet temperature (°C)

Pa: compressor power input (kW)

Qc: condenser water flow (m³/h)

- : conditions outside of operating limits

Model		MGA-D14/SN1			
Ta. U.R.87% (°C)	Tw (°C)	35	40	45	50
-5	Pt (kW)	10.4	10.5	10.6	-
	Pa (kW)	4.0	4.4	4.9	-
	Pat (kW)	4.8	5.2	5.7	-
	Qc (m ³ /h)	1.9	1.9	1.9	-
	ΔPc (kPa)	25.8	27.2	27.0	-
0	Pt (kW)	13.1	13.0	13.0	12.9
	Pa (kW)	4.0	4.4	4.9	5.4
	Pat (kW)	4.8	5.2	5.7	6.1
	Qc (m ³ /h)	2.3	2.3	2.3	2.3
	ΔPc (kPa)	21.1	21.1	21.0	21.0
7	Pt (kW)	16.2	16.1	16.0	15.9
	Pa (kW)	4.1	4.5	5.0	5.5
	Pat (kW)	4.9	5.3	5.8	6.3
	Qc (m ³ /h)	2.8	2.8	2.8	2.8
	ΔPc (kPa)	31.2	31.1	31.0	31.0
10	Pt (kW)	17.6	17.5	17.4	17.4
	Pa (kW)	4.2	4.6	5.1	5.6
	Pat (kW)	5.0	5.4	5.9	6.4
	Qc (m ³ /h)	3.1	3.1	3.1	3.1
	ΔPc (kPa)	36.4	36.2	36.0	35.9
15	Pt (kW)	19.8	19.7	19.6	19.4
	Pa (kW)	4.3	4.7	5.2	5.7
	Pat (kW)	5.1	5.5	6.0	6.5
	Qc (m ³ /h)	3.5	3.5	3.5	3.5
	ΔPc (kPa)	45.4	45.2	45.0	44.9

Model		MGA-D16/SN1			
Ta. U.R.87% (°C)	Tw (°C)	35	40	45	50
-5	Pt (kW)	11.5	11.4	11.3	-
	Pa (kW)	4.1	4.5	5.0	-
	Pat (kW)	4.9	5.3	5.8	-
	Qc (m ³ /h)	2.0	2.0	2.0	-
	ΔPc (kPa)	25.0	25.0	24.8	-
0	Pt (kW)	14.2	14.1	14.0	13.9
	Pa (kW)	4.2	4.6	5.1	5.6
	Pat (kW)	5.0	5.4	5.1	5.6
	Qc (m ³ /h)	5.0	5.4	5.9	6.4
	ΔPc (kPa)	20.2	20.1	20.0	19.9
7	Pt (kW)	17.2	17.1	17.0	16.9
	Pa (kW)	4.3	4.7	5.2	5.7
	Pat (kW)	5.1	5.5	6.0	6.5
	Qc (m ³ /h)	2.9	2.9	2.9	2.9
	ΔPc (kPa)	30.2	30.1	30.0	30.0
10	Pt (kW)	18.7	18.6	18.5	18.4
	Pa (kW)	4.4	4.8	5.3	5.8
	Pat (kW)	5.2	5.6	6.1	6.6
	Qc (m ³ /h)	3.2	3.2	3.2	3.2
	ΔPc (kPa)	35.4	35.2	35.0	34.8
15	Pt (kW)	21.0	20.9	20.8	20.7
	Pa (kW)	4.5	4.9	5.4	5.9
	Pat (kW)	5.3	5.7	6.2	6.7
	Qc (m ³ /h)	3.6	3.6	3.6	3.6
	ΔPc (kPa)	46.2	45.6	45.0	44.4

Remark:

Ta: outside air temperature (°C)

Pt: heating capacity (kW)

Pat: total power input (kW)

ΔPc: evaporator pressure drop (kPa)

Tw : evaporator water outlet temperature (°C)

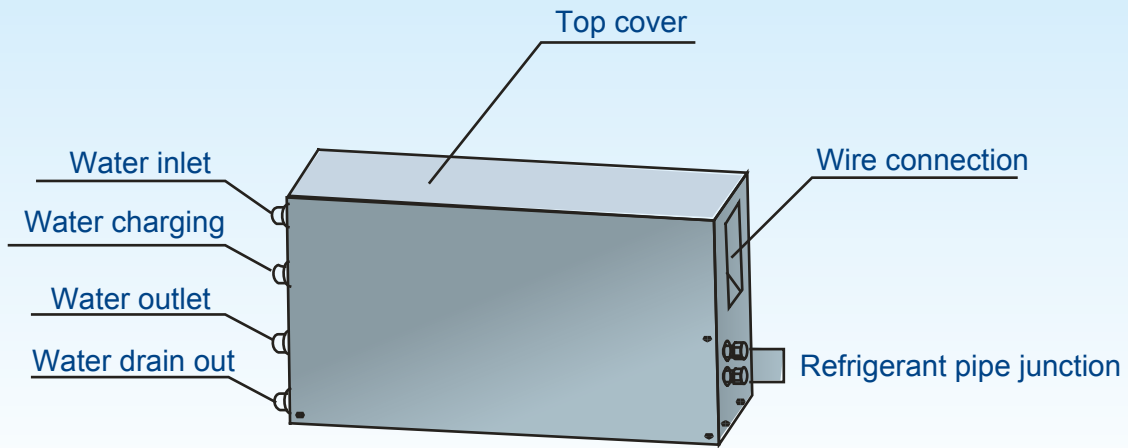
Pa: compressor power input (kW)

Qc: condenser water flow (m³/h)

- : conditions outside of operating limits

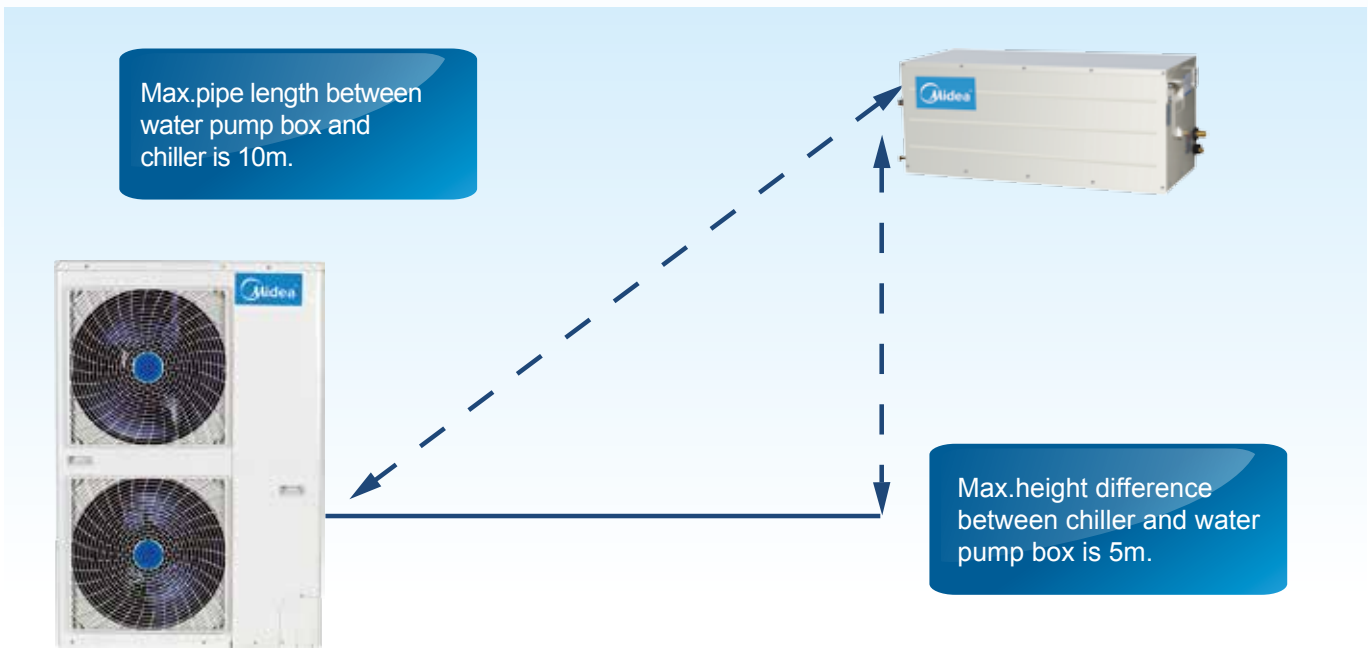
Pipe connection information

Pipe connection



Liquid side	Φ9.53
Gas side	Φ19
Water side	DN32 (1-1/4")

Pipe length and height difference between outdoor unit and water pump box



Mini split chiller
(Digital type)

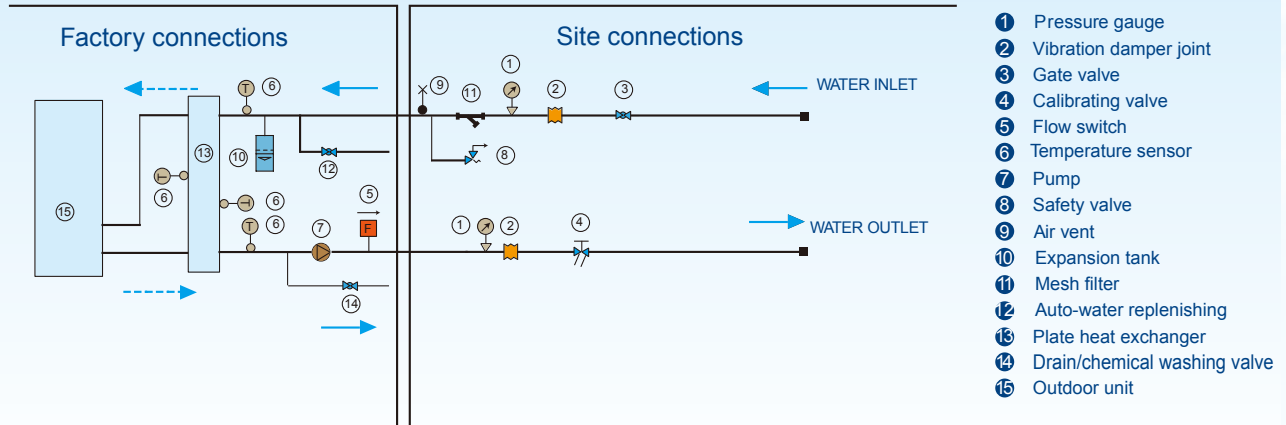
Additional refrigerant charge

Liquid pipe length	Additional refrigerant
Less than 5m	No need
5-10m	(Pipe length-5)×60g

Hydraulic connections

The choice and installation of components are the responsibility of the installer who should follow good working practice and current legislation.

It is recommended that the following devices are installed in the water circuit of the system.



Wiring specifications

Model	Name	Qty	Specifications (for reference)	Note (purchased by customers)
10.5/12kW	Overall power wire	1	3×6.0mm ²	For outdoor unit
14/16kW	Overall power wire	1	5×4.0mm ²	For outdoor unit
10.5/12/14/16kW	Water-flow controlling wire	1	7-core shielding wire	Between outdoor unit and water pump box
	Temp. sensor signal wire (shielding wire)	1	3×1.0mm ²	Between outdoor unit and Auxiliary heater
	Water pump power wire	1	3×1.0mm ²	Between outdoor unit and water pump box
	Auxiliary heater controlling wire	1	3×1.0mm ²	Between outdoor unit and Auxiliary heater
	Controlling wire for central & wired controller	1	2×0.5mm ² (2-cord shielding wire)	Between outdoor unit and central & wired controller(shorter than 120m)

- The power cord type designation is H07RN-F,(H07RN-F:a flexible cable model).
- Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed flexible cord, type designation H07RN-F or heavier cord.
- The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

Accessories

**Water pump box:
CE-SBX/(S)N1(A)**



**Wired controller:
KJRM-120D/ BMK-E**



Accessories table

	CE-SBX/N1-01	CE-SBX/N1-01A	CE-SBX/SN1-01	CE-SBX/SN1-01A	KJRM-120D/BMK-E
10.5kW	●				●
12kW		●			●
14kW			●		●
16kW				●	●

- The outdoor unit must use water pump box and wired controller.
- Water pump box and wired controller are standard with the units.
- One wired controller can control more than 1 chiller.





GD Midea Heating & Ventilating Equipment Co., Ltd.
Is certified under the ISO 14001 International standard
for environmental management.
Certificate No.15912E10020R0L



GD Midea Heating & Ventilating Equipment Co., Ltd.
Is certified under the ISO 9001 International standard
for quality assurance.
NO.01 100 019209



GD Midea Heating & Ventilating Equipment Co., Ltd.
Certificate of Occupational Health and Safety Management System
Certificate No. 15912S20006R0L-1.

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Note: The data in this book may be changed without notice for further improvement
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