

Mini unitary chiller →
Fixed type





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Fixed type

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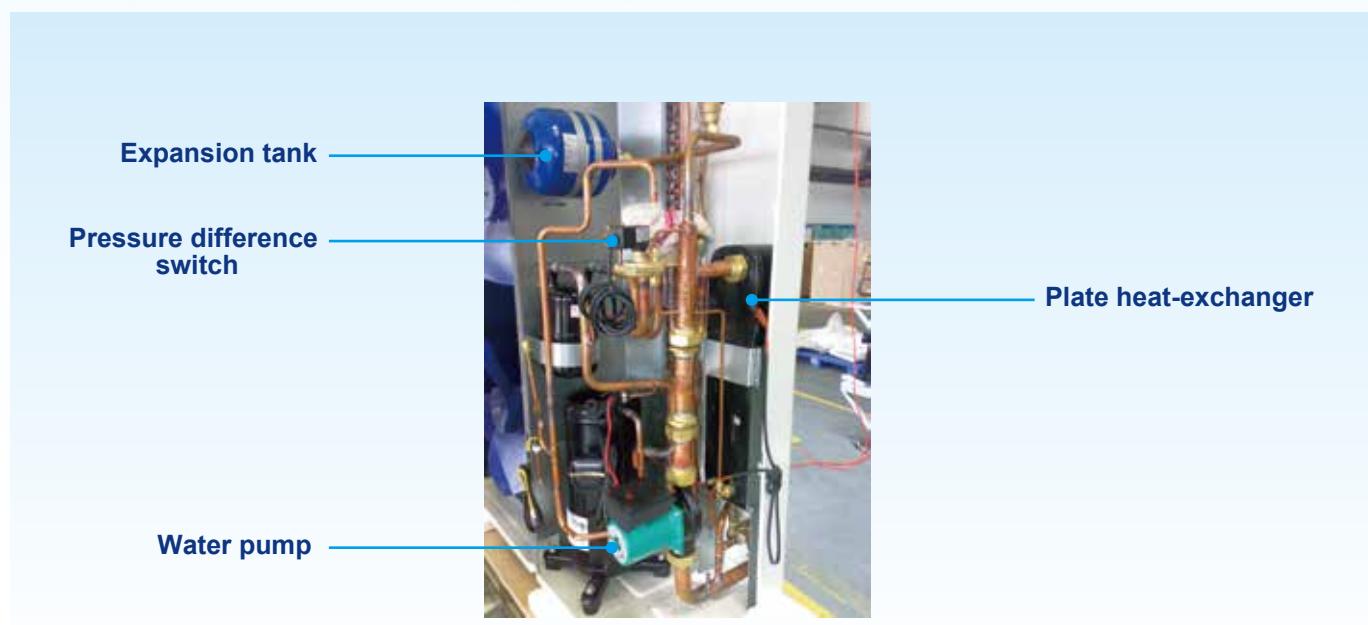
Features

R410A environment friendly refrigerant, no harm to ozone layer



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.



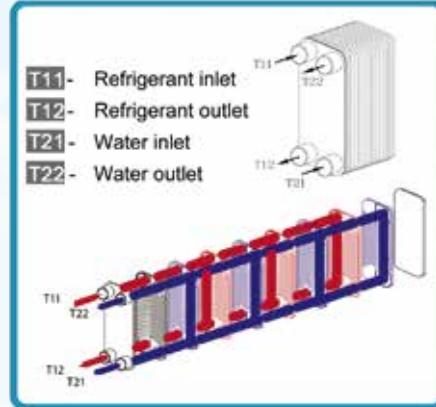
Air-cooled system, no need cooling water tower, packaged design, easy for installation.

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.

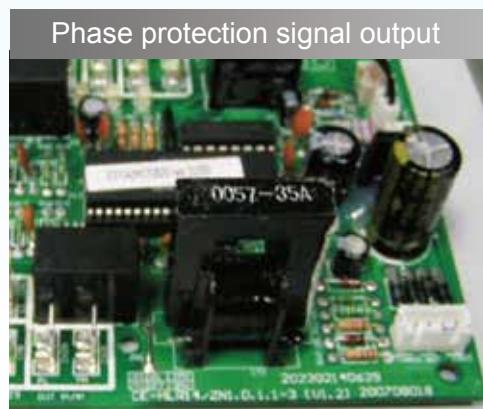


Energy saving and high reliability

- 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.



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Flexible and convenient control

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

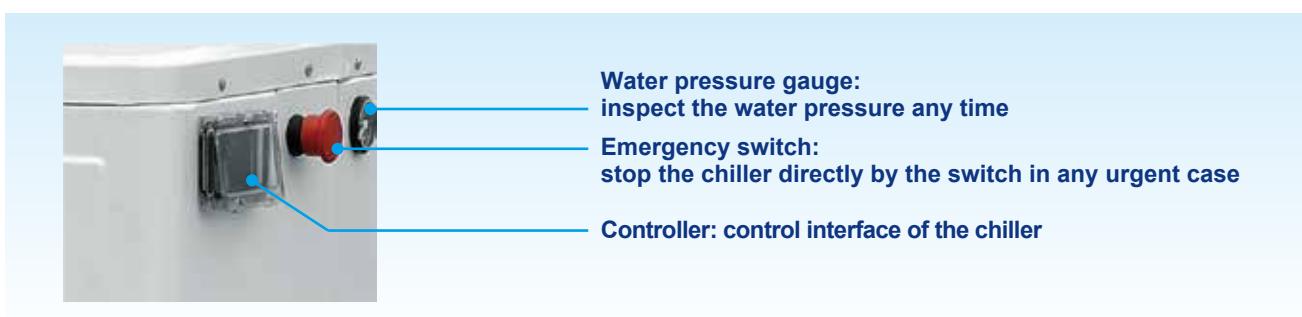
The front panel of the device functions as the user interface and is used to perform all operations relating to the device.



- 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.



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 tube 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 equipped 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.

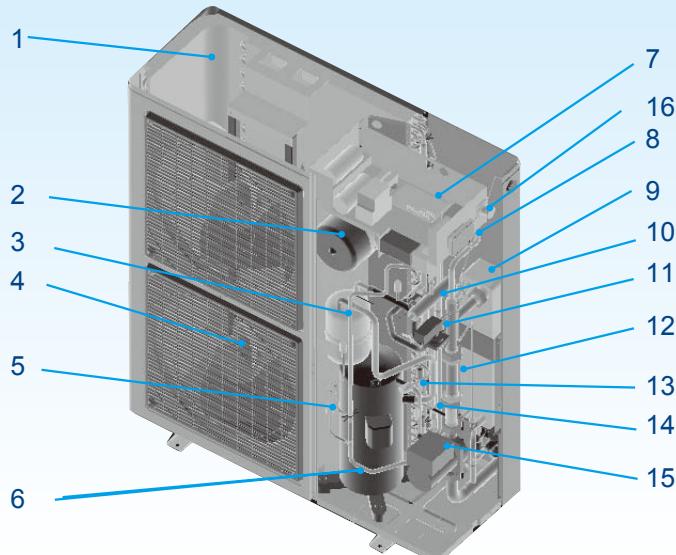
Hydraulic module

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.



- 1 Condenser
- 2 Expansion tank
- 3 Accumulator
- 4 Axial-flow fan
- 5 High pressure switch
- 6 Compressor
- 7 Electrical panel
- 8 Control panel
- 9 Plate heat exchanger
- 10 Reversing valve (only cooling only)
- 11 Water differential pressure switch
- 12 Pump connecting pipe(model 12/14/16kW only)
- 13 Low pressure switch
- 14 Capillary
- 15 Pump
- 16 Emergency stop pushbuttons

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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	m³/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	Φ7.94	Φ9.53
			Inner grooved copper tube	Inner grooved copper tube	Inner grooved copper tube
Hydraulic module	Water pump	W	93/67/46	93/67/46	210/175/120
	Pump head	m	5.5	5.5	8.5
	Expansion tank	L	2	2	3
	Heat exchanger	Type	Plate	Plate	Plate
		m³/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	m³/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
	Expansion tank	Volume	L	3	3	3
	Heat exchanger	Type		Plate	Plate	Plate
		Rated water flow	m³/h	1.72	2	2.4
		Water pressure drop	kPa	44	40	34
	Pressure difference switch			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
	Packing size(D×H×W)		mm	1058×1300×438	1188×1385×498	1188×1315×498
	Net/ Gross weight		kg	131/139	137/145	145/160
Pipe diameter		Water inlet/outlet	inch	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			

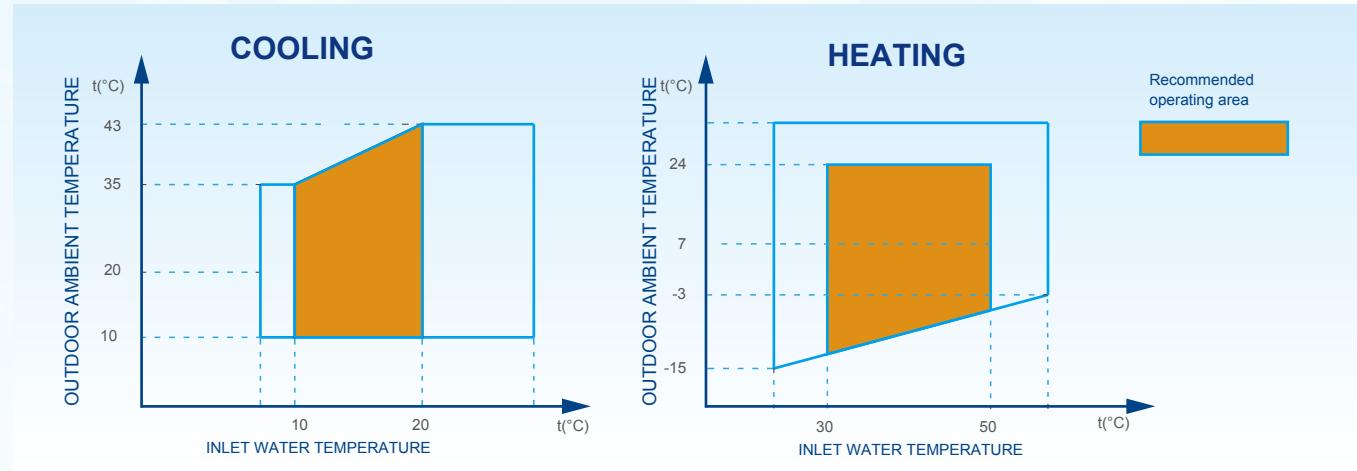
Note:Specifications are based on the following conditions:

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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

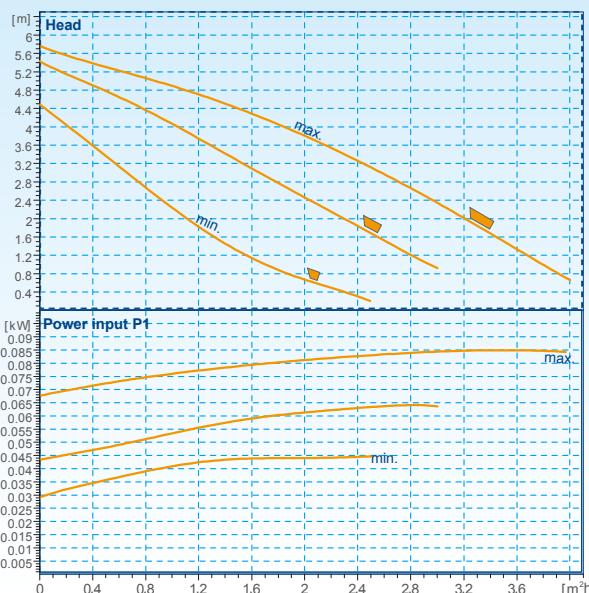
fx1: Total power input correction factor

Minimum water volume

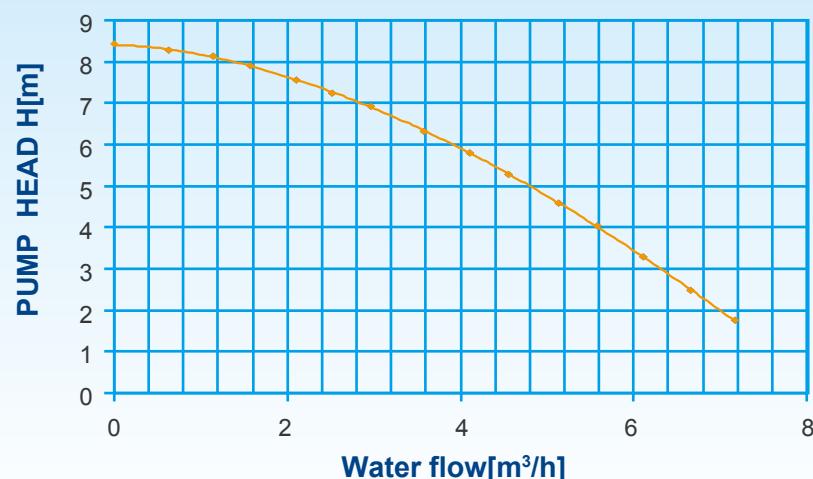
Model	MGC-F05W/N1	MGC-F07W/N1	MGC-F10W/(S)N1
Minimum water volume (L)	21	30	43
Model	MGC-F12W/SN1	MGC-F14W/SN1	MGC-F16W/SN1
Minimum water volume (L)	50	60	68

Hydraulic performance

Pump head curve(5/7.2kW)



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



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Note:

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

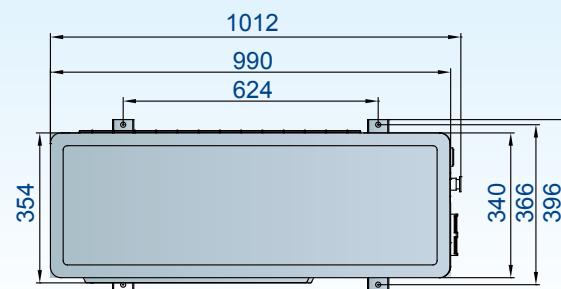
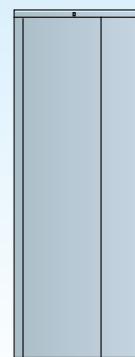
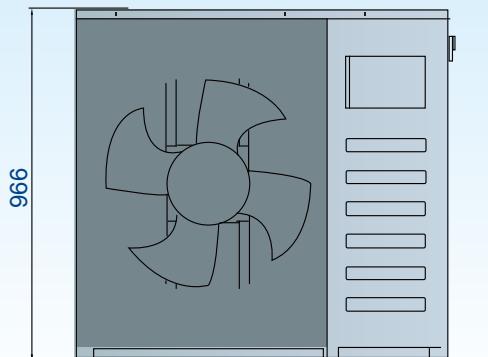
Heat exchanger pressure drop (water side)

Model	Water flow	m³/ 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		kPa	13	23	36	52	-	-	-
7.2 kW		kPa	12	21	33	47	65	-	-

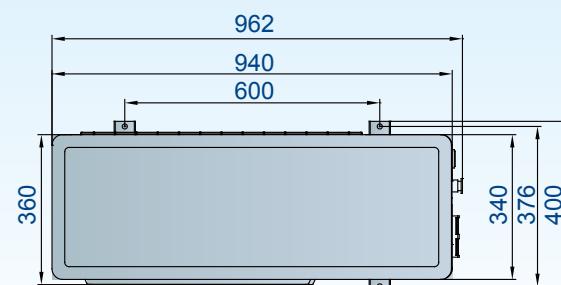
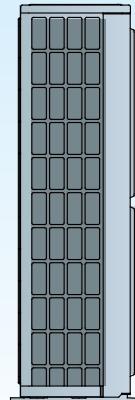
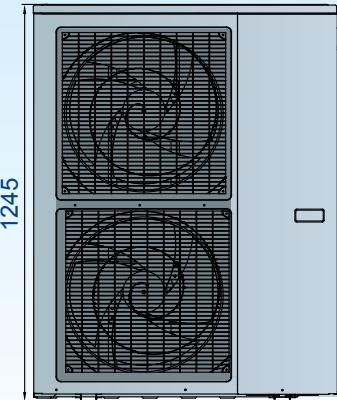
Model	Water flow	m³/ h	1.2	1.4	1.6	1.8	2.0	2.2	2.4
		l/sec	0.333	0.389	0.444	0.500	0.556	0.611	0.667
10.5kW		kPa	8	11	15	19	24	30	37
12 kW		kPa	7	10	14	18	23	29	36
14 kW		kPa	6	8	10	14	17	21	26
16 kW		kPa	6	7	9	13	16	20	24

Dimensions (unit: mm)

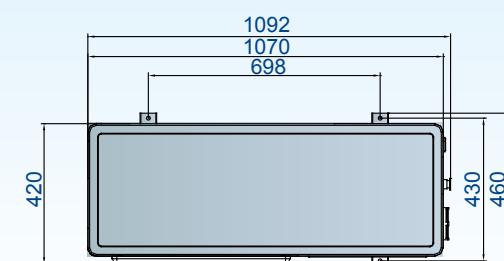
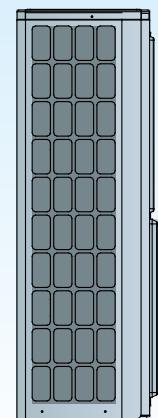
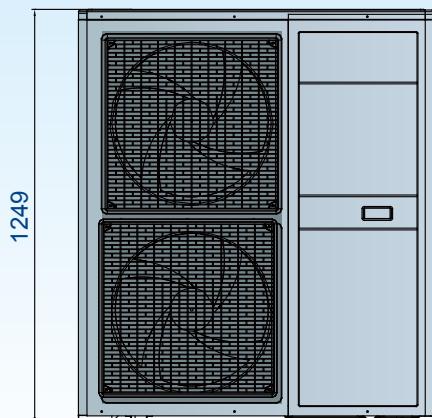
MGC-F05W/N1 MGC-F07W/N1



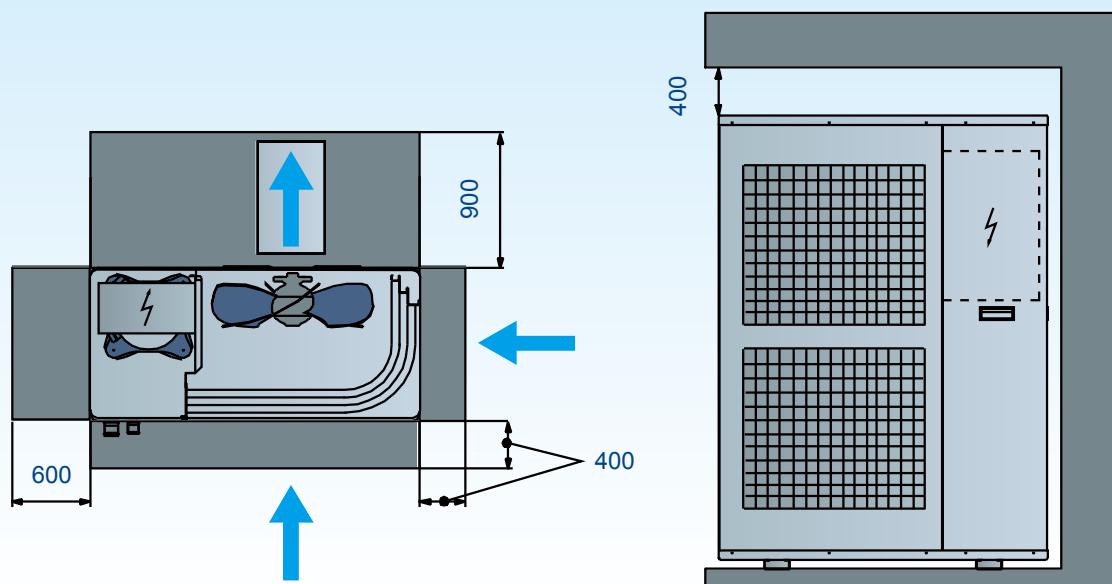
MGC-F10W/N1 MGC-F10W/SN1



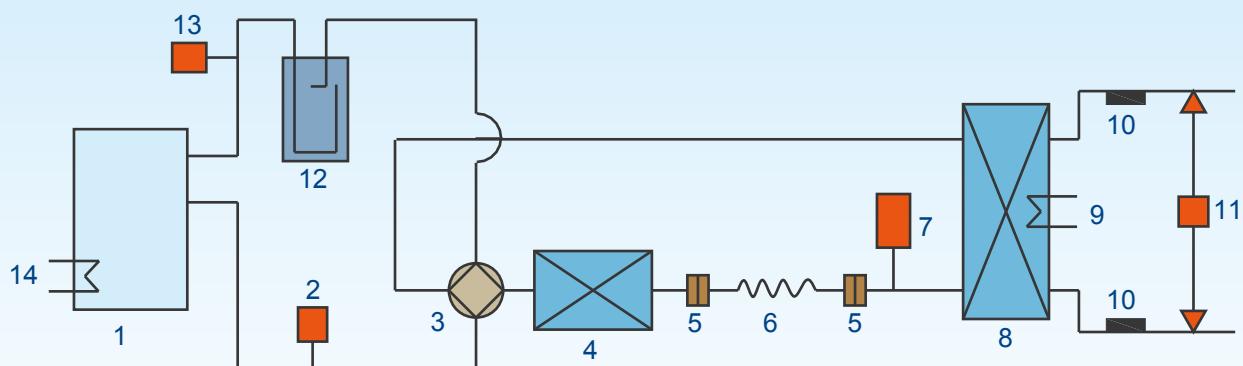
MGC-F12W/SN1 MGC-F14W/SN1 MGC-F16W/SN1



Installation clearance



Piping diagram



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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	-	
	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	

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	-	
	ΔPc	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	
	ΔPc	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	
	ΔPc	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	
	ΔPc	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	
	ΔPc	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)

ΔPc: 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)

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)

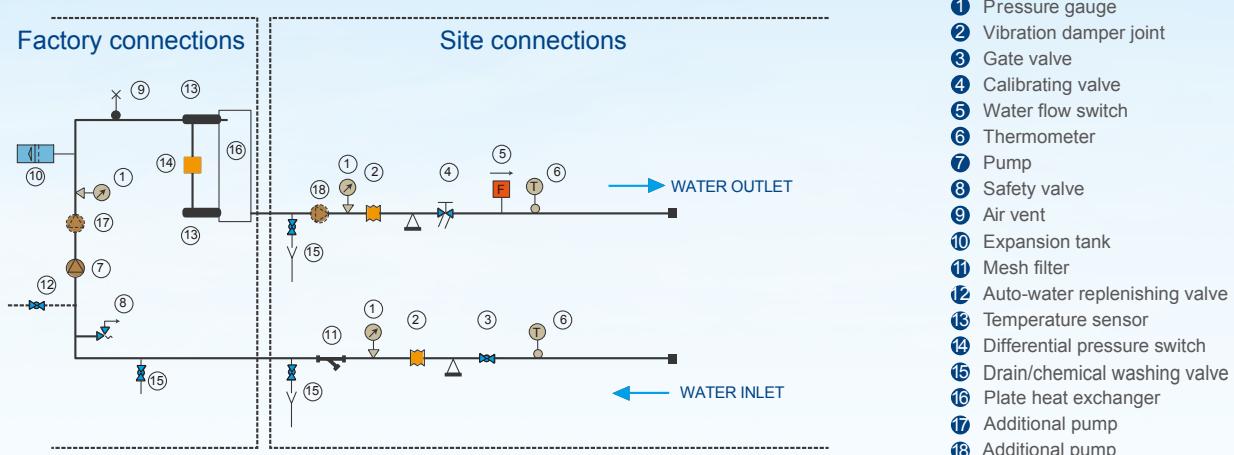
Qc: condenser water flow (m³/h)

- : Exceed operating limits

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

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
Power wire	(mm ²)	3×2.5	3×2.5	3×4.0	5×2.5	5×2.5
Ground wire	(mm ²)	2.5	2.5	4.0	2.5	2.5
Outdoor/indoor connecting		1.0	1.0	1.0	1.0	1.0

- The power core type designation is H07RN-F (H07RN-F:a flexible cabtyre 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