

 Air-to-water Heat Pump Monobloc Versati 

Engineering Data



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1 Product Data

1.1 Lineup

1.1.1 Main Unit

Series	Model	Product Code	Cooling Capacity (kW)	Heating Capacity (kW)	Power Supply	Refrigerant	Appearance
VERSATI II ⁺	GRS-CQ14Pd/NaC-M	ER01000110	14.5	14.2	380-415V 3Ph 50HZ	R410A	
	GRS-CQ12Pd/NaC-M	ER01000120	13.6	13.0			
	GRS-CQ10Pd/NaC-K	ER01000140	9.8	9.5	210-230V ~ 50HZ		
	GRS-CQ8.0Pd/NaC-K	ER01000130	8.6	8.2			

1.1.2 Water Tank

Model	Product Code	Nominal Cubage(L)	Appearance
SXVD200LCJ/A-K	ER20000160	200	
SXVD200LCJ/A-M	ER20000240	200	
SXVD300LCJ/A-K	ER20000180	300	
SXVD300LCJ/A-M	ER20000250	300	
SXVD200LCJ2/A-K	ER20000170	200	
SXVD200LCJ2/A-M	ER20000260	200	
SXVD300LCJ2/A-K	ER20000190	300	
SXVD300LCJ2/A-M	ER20000270	300	

1.2 Nomenclature

1.2.1 Main Unit

G	RS	-	C	Q	14	Pd	/	Na	C	-	M
1	2		3	4	5	6		7	8		9

NO.	Description	Options
1	GREE	G-GREE Air to water heat pump
2	Heat Pump Water Heater	RS
3	Heating Mode	S= Static; C=Circulating
4	Function	Q=Multi-function; Omit=Single-function
5	Nominal Heating Capacity	6.0=6.0kW; 8.0=8.0kW; 10=10kW; 12=12kW; 14=14kW; 16=16kW
6	Compressor Style	Pd=DC Inverter; Omit=On/Off
7	Refrigerant	Na=R410A
8	Design Serial Number	B,C,D.....
9	Power Supply	K=220-240V,~,50Hz; M=380-415V,3N~,50Hz

1.2.2 Water Tank

SX	V	D	200	L	C	J2	/	A	-	K
1	2	3	4	5	6	7		8		9

NO.	Description	Options
1	Symbol of Heat Pump Water Tank	SX
2	Tank Type	Default-Common heat pump water tank; V-Heat pump water tank for multi VRF system
3	Function Code	Default-No electric heating function; D-Electric heating function available
4	Nominal Water Tank Volume	200=200L,300=300L
5	Structure Type	B-Wall mounted type; L-Floor standing type
6	Bearing	Default-Non-bearing water tank; C-Bearing water tank
7	Type of Heat Exchange Tube	Default-No heat exchanger; J-Inner coil static heating(J-Single coil; J2-Double coils); JW-Outer coil static heating
8	Serial Number	A,B,C,.....
9	Power Supply	K=220V-240V,~,50Hz; M=380V-410V,3ph,50Hz; H=380,3ph 60Hz

1.3 Product Features

1.3.1 General

The Versati II + monobloc unit is designed specially for the european market where there is a demand for high-temperature water. Thanks to the dual-stage compression and enthalpy gain through gas injection, the heating energy efficiency at low temperature will rise up greatly with the leaving water temperature up to 61°C. The whole series of products strictly comply with EN14511-2100 and EUROVENT energy efficiency Class A. Their COP can reach up to 4.5. This monobloc unit can realize space heating and sanitary hot water supply through terminal units, like the fan coil unit, floor coil and radiator. Environment-friendly refrigerant R410A is adopted for the monobloc unit, with ODP of 0 and quite low GWP. Besides, the adopted heat pump technologies will reduce consumption of coal and other energy source and lower greatly CO₂ emission. Ranged from 4kW~14kW, it is widely applicable to small and medium-sized apartment, large-sized villa etc.

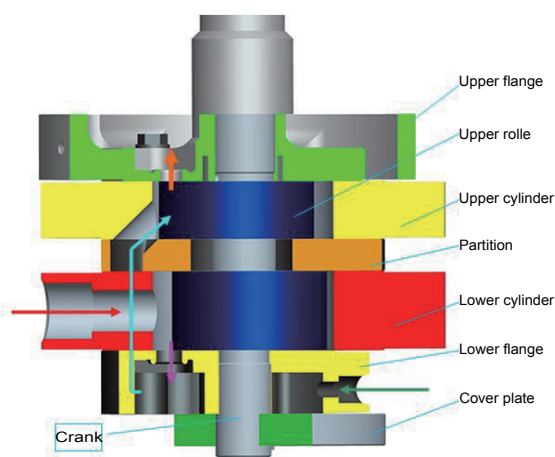
1.3.2 Features

◆ Wide Operation Range

Heating: -20~35°C; Cooling: 10~48°C; Water Heating: -20~45°C

◆ Unique Low-Temp Hi-heat Dual-stage Compressor

1. Under low-temperature conditions, compared with the conventional compressor, the dual-stage low-temp hi-heat compressor will generate less loss of heat capacity and get higher energy efficiency.
2. Floodback, high discharge temperature and other problems can be completely avoided under low-temp conditions and the compressor's reliability will be enhanced greatly.
3. Dual-stage compression, dual-stage throttling and intermediate enthalpy adding though gas injection will raise the leaving water temperature and improve the control accuracy.



◆ High-efficiency Component(Inverter pump, Inverter fan, Plate heat exchanger)

1. The A-class high-efficiency inverter water pump which complies with the European Erp directive, can control the running frequency based on the actual load. Therefore, it can enhance the operation efficiency and control the water temperature more accurately.
2. The DC inverter fan can control the air volume accurately and make the system run more stably and save more energy.
3. The high-efficiency plate heat exchanger will improve the unit's performance largely.



◆ All-in-one Design

1. The unit can integrate with terminal units, like the radiator, floor heating device, FCU, water heating device, solar kit, gas furnace and swimming pool etc. Versatile functions can meet various kinds of demands from different users and enhance applicability of this product.
2. The all-in-one structure design can save more installation cost, reduce risks of refrigerant leak, and improve safety and reliability of the system.

◆ Brand-new Controller

1. White appearance, exquisite design, and the wall-mounted design will facilitate installation;
2. The dot-matrix display can show in both English and Chinese to show information in a more direct and convenient way.
3. The six-lattice display pattern will accommodate more information.
4. The 12V JACK interface can supply power to the control separately and lengthen the communication distance.
5. The remote monitoring interface can monitor the unit through the Modbus interface and be integrated into the BMS system

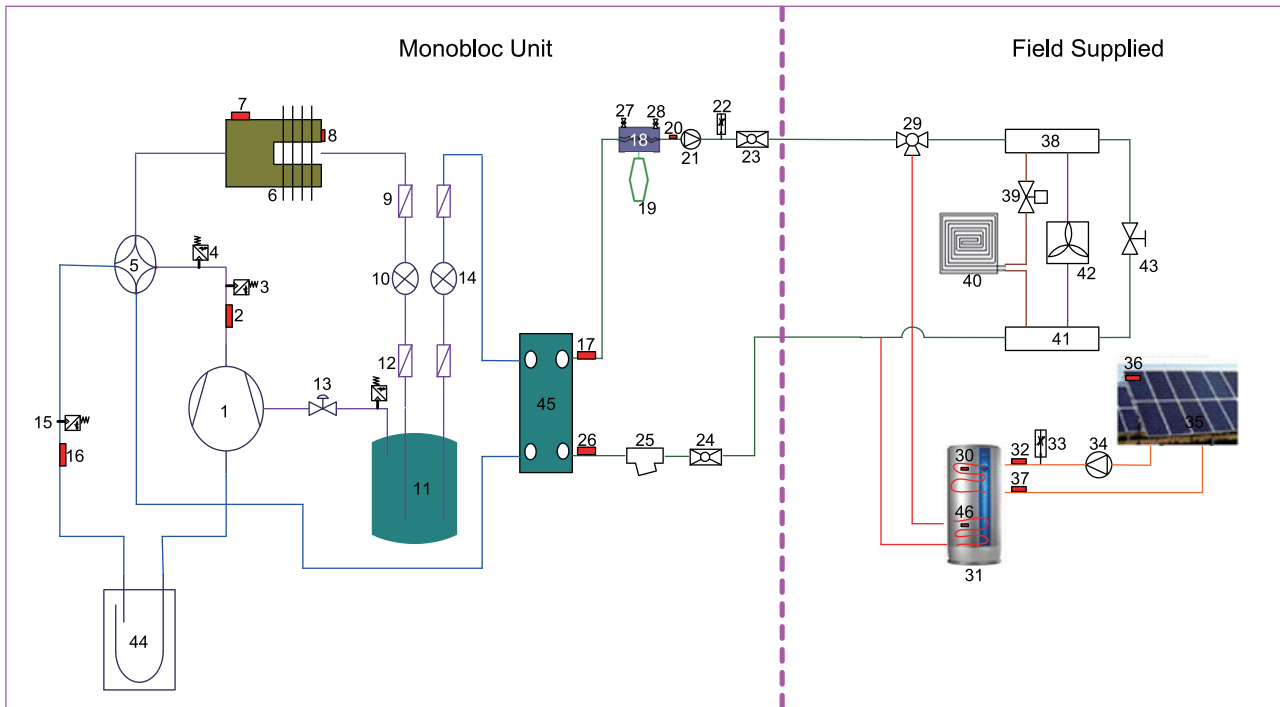


◆ Smart Control, Powerful Function

1. The running mode can be switched freely. Furthermore, based on different demands, the holiday mode, environment-dependent mode, quiet timer, temperature timer and floor commingling can be activated.
2. Multiple protections can make this product much safer. The added electric heater will prevent the plate heat exchanger from being frostbitten owing to too low water temperature and resultantly extend the service life of the product and enhance its safety and reliability.
3. The newly developed smart defrosting control program, “do defrost when necessary; do not defrost when unnecessary; defrost more when it frosts heavily; defrost less when it frosts lightly” , can bring more comfortability, avoid inadequacy of heat supply and ensure sustainable heat supply for the users.

1.4 Operating Principle

1.4.1 Schematic Diagram



No.	Name	No.	Name	No.	Name	No.	Name
1	Inverter compressor	13	Solenoid valve	25	Water filter	37	Solar system inlet temperature sensor
2	Discharge temperature sensor	14	EXV 2	26	Inlet temperature sensor (plate heat exchanger)	38	Water separator
3	High-pressure switch	15	Low pressure sensor	27	Safety valve	39	2-way Valve 1
4	High pressure sensor	16	Suction temperature sensor	28	Exhaust valve	40	Floor radiator
5	4-way Valve	17	Outlet water temperature sensor (plate heat exchanger)	29	3-way valve 2	41	Water collector
6	Finned heat exchanger	18	Auxiliary electric heater	30	Water tank temperature sensor 1	42	FCU
7	Environment temperature sensor	19	Expansion tank	31	Water tank	43	By-pass valve
8	Defrosting temperature sensor	20	Main outlet temperature sensor	32	Solar system outlet temperature sensor	44	Vapor liquid separator
9	Filter	21	Main water pump	33	Solar system flow switch	45	Main plate heat exchanger
10	EXV 1	22	Main flow switch	34	Solar system water pump	46	Water tank temperature sensor 2
11	Flasher	23	Outlet pipe connector	35	Solar panel		
12	Pressure sensor	24	Inlet pipe connector	36	Solar panel temperature sensor		

1.5 Technical Data

1.5.1 Parameter List

Model			GRS-CQ8.0Pd/ NaC-K	GRS-CQ10Pd/ NaC-K	GRS-CQ12Pd/ NaC-M	GRS-CQ14Pd/ NaC-M
Product Code			ER01000130	ER01000140	ER01000120	ER01000110
Capacity* ¹	Cooling(floor cooling)	kW	8.6	9.8	13.6	14.5
	Heating(floor heating)	kW	8.2	9.5	13.0	14.2
Power Input* ¹	Cooling(floor cooling)	kW	2	2.5	3.45	3.70
	Heating(floor heating)	kW	1.82	2.2	2.85	3.35
EER* ¹ (floor heating)		W/W	4.3	3.92	3.94	3.92
COP* ¹ (floor heating)		W/W	4.51	4.3	4.56	4.24
Capacity* ²	Cooling(for Fan coil)	kW	6.2	7.4	9.55	10.30
	Heating(Fan coil or Radiator)	kW	7.8	9.5	12.5	13.0
Power Input* ²	Cooling(for Fan coil)	kW	1.9	2.38	3	3.3
	Heating(Fan coil or Radiator)	kW	2.3	2.69	3.35	3.60
EER* ² (for Fan coil)		W/W	3.26	3.11	3.18	3.12
COP* ² (Fan coil or Radiator)		W/W	3.39	3.53	3.73	3.61
Refrigerant charge volume		kg	3.5	3.5	4	4
Sanitary water Temperature		°C	40~80	40~80	40~80	40~80
Sound Pressure Level	cooling	dB(A)	53	53	54	54
	heating	dB(A)	56	56	57	57
Dimensions (W × D × H)	Outline	mm	1390 × 412 × 890		1350 × 384 × 1438	
	Packaged	mm	1463 × 428 × 1020		1440 × 430 × 1500	
Net weight/Gross weight		kg	148/161		205/220	

Notes

“*1” indicates the capacity and power input are tested based on the conditions below.

①Cooling

Indoor Water Temperature: 23°C/18°C; Outdoor Temperature: 35°CDB/24°CWB

②Heating

Indoor Water Temperature: 30°C/35°C; Outdoor Temperature: 7°CDB/6°CWB

“*2” indicates the capacity and power input are tested based on the conditions below.

①Cooling

Indoor Water Temperature: 12°C/7°C; Outdoor Temperature: 35°CDB/24°CWB

②Heating

Indoor Water Temperature: 40°C/45°C; Outdoor Temperature: 7°CDB/6°CWB

1.5.2 Nominal Working Conditions

Item	Water Side		Heat Source/User Side	
	Entering Water Temp (°C)	Leaving Water Temperature (°C)	Dry Bulb Temperature (°C)	Wet Bulb Temperature (°C)
FCU Cooling	12	7	35	—
FCU Heating	40	45	7	6
Floor Cooling	23	18	35	—
Floor Heating	30	35	7	6
Water Heating	53	-	7	6

1.5.3 Operation Range

Item	Water Side	Heat Source/User Side
	Leaving Water Temperature (°C)	Environment Dry Bulb Temperature (°C)
Cooling	7 ~ 25	10~48
Heating	25 ~ 60	-20~35
Water Heating	40~80 (Water Tank Temperature)	-20~45

Note: when operating conditions are out of the range listed above, please contact GREE.

1.5.4 Electric Data

Model	Power Supply	Leakage Switch	Minimum Sectional Area of Earth Wire	Minimum Sectional Area of Power Supply Wire
	V,Ph,Hz	(A)	(mm ²)	(mm ²)
GRS-CQ8.0Pd/NaC-K	220-240V,~,50Hz	63	16	3×16
GRS-CQ10Pd/NaC-K		63	16	3×16
GRS-CQ12Pd/NaC-M	380-415V,3Ph,50Hz	40	10	5×10
GRS-CQ14Pd/NaC-M		40	10	5×10

Notes

①Leakage Switch is necessary for additional installation. If circuit breakers with leakage protection are in use, action response time must be less than 0.1 second, leakage circuit must be 30mA.

②The above selected power cable diameters are determined based on assumption of distance from the distribution cabinet to the unit less than 75m. If cables are laid out in a distance of 75m to 150m, diameter of power cable must be increased to a further grade.

③The power supply must be of rated voltage of the unit and special electrical line for air-conditioning.

④All electrical installation shall be carried out by professional technicians in accordance with the local laws and regulations.

⑤Ensure safe grounding and the grounding wire shall be connected with the special grounding equipment of the building and must be installed by professional technicians.

⑥The specifications of the breaker and power cable listed in the table above are determined based on the maximum power (maximum amps) of the unit.

⑦The specifications of the power cable listed in the table above are applied to the conduit-guarded multi-wire copper cable (like, YJV XLPE insulated power cable) used at 40°C and resistible to 90°C(see IEC 60364-5-52). If the working condition changes, they should be modified according to the related national standard.

⑧The specifications of the breaker listed in the table above are applied to the breaker with the working temperature at 40°C. If the working condition changes, they should be modified according to the related national standard.

1.5.5 Capacity Correction

◆ Cooling Capacity Correction

GRS-CQ8.0Pd/NaC-K, GRS-CQ10Pd/NaC-K, GRS-CQ12Pd/NaC-M, GRS-CQ14Pd/NaC-M

Performance correction					
Leaving Chilled Water °C (°F)	Ambient Temperature °C (°F)				
	25(77)	30(86)	35(95)	40(104)	45(113)
5(41.0)	0.995	0.955	0.905	0.855	0.805
6(42.8)	1.045	1.005	0.955	0.905	0.855
7(44.6)	1.090	1.050	1.000	0.950	0.900
8(46.4)	1.145	1.102	1.052	1.000	0.950
9(48.2)	1.190	1.150	1.100	1.050	1.002
10(50.0)	1.245	1.200	1.150	1.100	1.050
11(51.8)	1.290	1.250	1.202	1.152	1.102
12(53.6)	1.340	1.300	1.252	1.200	1.152
13(55.4)	1.390	1.350	1.302	1.252	1.202
14(57.2)	1.442	1.402	1.350	1.302	1.252
15(59.0)	1.490	1.450	1.400	1.350	1.302
18(64.4)	1.539	1.502	1.451	1.402	1.350

Computer of actual cooling capacity: actual cooling capacity = nominal cooling capacity x cooling capacity

correction coefficient.

◆ Heating Capacity Correction

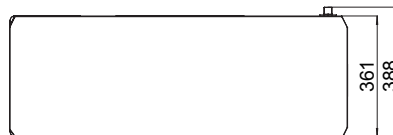
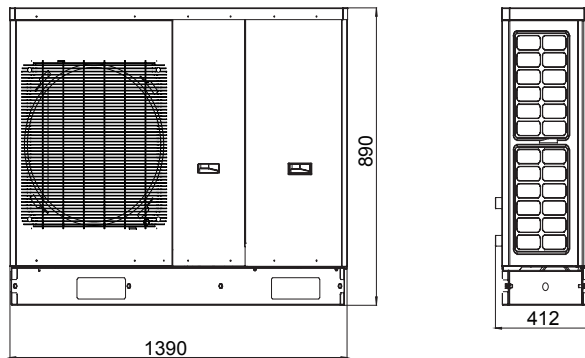
GRS-CQ8.0Pd/NaC-K, GRS-CQ10Pd/NaC-K, GRS-CQ12Pd/NaC-M, GRS-CQ14Pd/NaC-M

Performance Correction									
Outflow Heated Water °C (°F)	Ambient Temperature °C (°F)								
	-15(5)	-10(14)	-5(23)	0(32)	5(41.0)	10(50)	15(59.0)	20(68.0)	25(77.4)
30(86)	0.81	0.91	1.00	1.10	1.18	1.26	1.35	1.41	1.45
35(95)	0.74	0.84	0.93	1.03	1.11	1.19	1.28	1.36	1.41
40(104)	0.67	0.77	0.87	0.96	1.04	1.12	1.20	1.25	1.31
45(113)	0.60	0.70	0.80	0.89	0.97	1.05	1.13	1.19	1.25
50(122)	0.53	0.63	0.73	0.82	0.90	0.98	1.06	1.11	1.18
55(131)	0.46	0.56	0.66	0.74	0.83	0.90	0.98	1.05	1.10

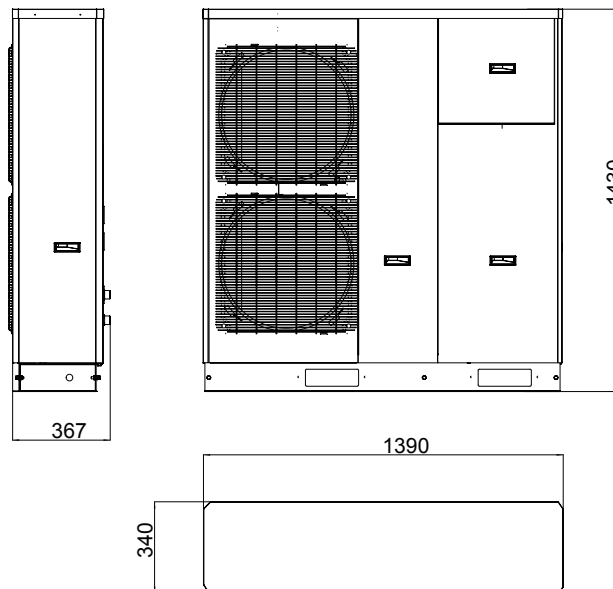
Computer of actual heating capacity: actual heating capacity = nominal heating capacity x heating capacity correction coefficient.

2 Outline Dimensions

◆ GRS-CQ8.0Pd/NaC-K, GRS-CQ10Pd/NaC-K

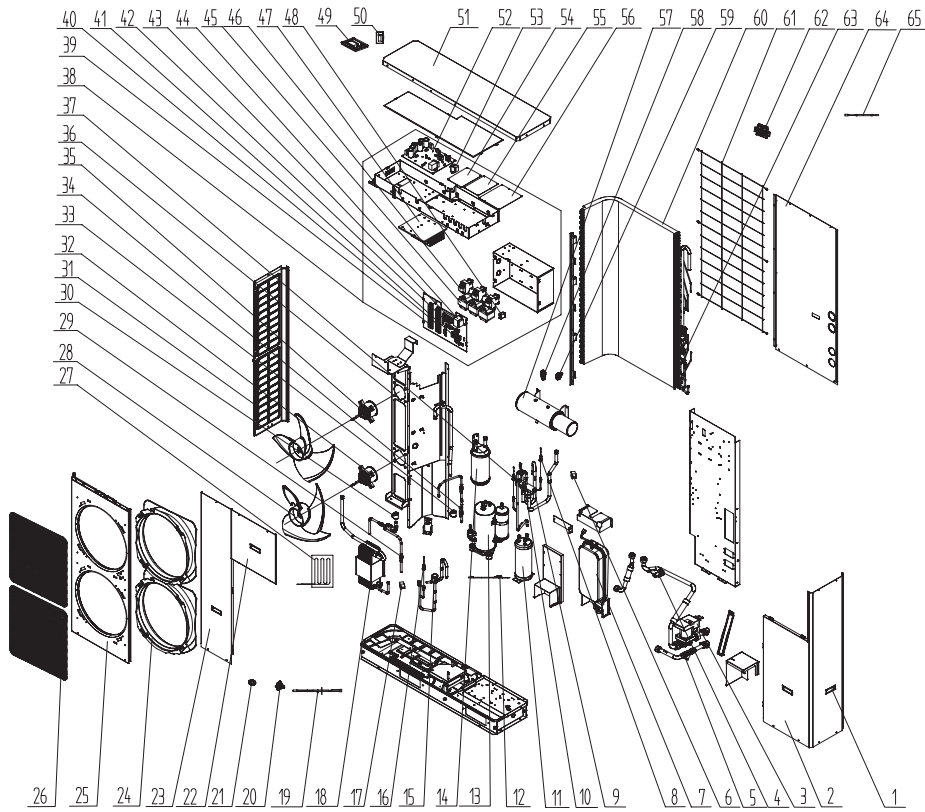


◆ GRS-CQ12Pd/NaC-M, GRS-CQ14Pd/NaC-M



3 Explosive Views and Part Lists

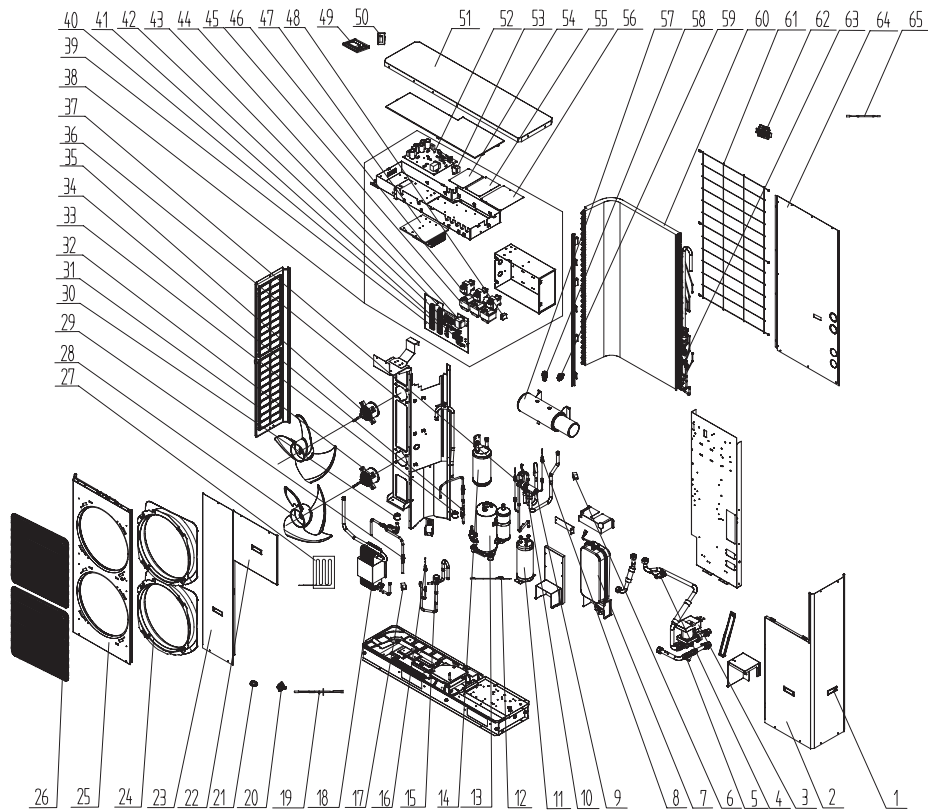
◆ GRS-CQ8.0Pd/NaC-K, GRS-CQ10Pd/NaC-K



No	Name	Code
1	Handle	26235253
2	Front Side Plate 3	01312800031P
3	Water Pump	43138223
4	Steam Current Switch Sub-assy	45028062
5	Filter	07412808
6	Magnet Coil	4300040029
7	Expansion Drum	07422800004
8	Sensing Device	322101002
9	4-way Valve	43040000002
10	Pressure Protect Switch	460200062
11	Accumulator	07424100031
12	Electrical Heater(Compressor)	7651521216
13	Compressor and Fittings	00202800017
14	Gas-liquid Separator Sub-Assy	0722501801
15	Electromagnetic Valve	43044107
16	Pressure Sensor(High Pressure)	322101037
17	Magnet Coil	4300040062
18	Plate-type Heat Exchanger	00902800030
19	Electrical Heater	765100047
20	Drainage Connector	06123401
21	Drainage Hole Cap	06813401
22	Front Side Plate 2	01312800030P
23	Front Side Plate Sub-Assy	01312800037P
24	Diversion Circle	10474100001
25	Cabinet	01514100002P
26	Front Grill	01574100009
27	Heater	32112800008
28	Axial Flow Fan	10338731
29	Strainer	07212121

30	Electric Expand Valve Fitting	4304413228
31	Left Side Plate	01314100013P
32	Fan Motor	1570411501
33	Electric Expand Valve Fitting	4304413227
34	Electronic Expansion Valve	07334468
35	Fan Motor	15704115
36	Motor Support Sub-Assy	01802800138
37	Sensor (High Pressure)	322101032
38	Electric Box Assy	01392800137
39	Terminal Board	42010249
40	Terminal Board	42011254
41	Terminal Board	42011135
42	Terminal Board	42011103
43	Terminal Board	42011051
44	Transformer	4311027001
45	Reactor	43130192
46	AC Contactor	44010232
47	Radiator	49018000074
48	Thermostat	4504800201
49	Display Board	30292000031
50	Receiver Board	30261014
51	Coping	01262800143P
52	Main Board	30223000013
53	Inductance	43128000014
54	Main Board	30224000070
55	Filter Board	30223000044
56	Main Board	30223000060
57	Electrical Heater	32112800002
58	Relief Valve	07382814
59	Auto Air Outlet Valve	07108208
60	Condenser Assy	01122800076
61	Rear Grill	01574100004
62	Sensor Support	26905202
63	Silencer	07245012
64	Rear Side Plate	01312800032P
65	Temperature Sensor	3900028316G

◆ GRS-CQ12Pd/NaC-M, GRS-CQ14Pd/NaC-M



No	Name	Code
1	Handle	26235253
2	Front Side Plate 3	01312800031P
3	Water Pump	43138223
4	Steam Current Switch Sub-assy	45028062
5	Filter	07412808
6	Magnet Coil	4300040029
7	Expansion Drum	07422800004
8	Sensing Device	322101002
9	4-way Valve	43040000002
10	Pressure Protect Switch	460200062
11	Accumulator	07424100031
12	Electrical Heater(Compressor)	7651521216
13	Compressor and Fittings	00202800017
14	Gas-liquid Separator Sub-Assy	0722501801
15	Electromagnetic Valve	43044107
16	Pressure Sensor(High Pressure)	322101037
17	Magnet Coil	4300040062
18	Plate-type Heat Exchanger	00902800030
19	Electrical Heater	765100047
20	Drainage Connector	06123401
21	Drainage Hole Cap	06813401
22	Front Side Plate 2	01312800030P
23	Front Side Plate Sub-Assy	01312800037P
24	Diversion Circle	10474100001
25	Cabinet	01514100002P
26	Front Grill	01574100009
27	Heater	32112800008
28	Axial Flow Fan	10338731
29	Strainer	07212121

30	Electric Expand Valve Fitting	4304413228
31	Left Side Plate	01314100013P
32	Fan Motor	1570411501
33	Electric Expand Valve Fitting	4304413227
34	Electronic Expansion Valve	07334468
35	Fan Motor	15704115
36	Motor Support Sub-Assy	01802800138
37	Sensor (High Pressure)	322101032
38	Electric Box Assy	01392800137
39	Terminal Board	42010249
40	Terminal Board	42011254
41	Terminal Board	42011135
42	Terminal Board	42011103
43	Terminal Board	42011051
44	Transformer	4311027001
45	Reactor	43130192
46	AC Contactor	44010232
47	Radiator	49018000074
48	Thermostat	4504800201
49	Display Board	30292000031
50	Receiver Board	30261014
51	Coping	01262800143P
52	Main Board	30223000013
53	Inductance	43128000014
54	Main Board	30224000070
55	Filter Board	30223000044
56	Main Board	30223000060
57	Electrical Heater	32112800002
58	Relief Valve	07382814
59	Auto Air Outlet Valve	07108208
60	Condenser Assy	01122800076
61	Rear Grill	01574100004
62	Sensor Support	26905202
63	Silencer	07245012
64	Rear Side Plate	01312800032P
65	Temperature Sensor	3900028316G

4 Supply Scope

S= Standard O= Optional F= Field Supplied

Name	Standard	Optional	Field Supplied
Owner's Manual for the Main Unit	√	/	/
Owner's Manual for the Control	√	/	/
2-way Valve	/	/	√
3-way Valve	/	/	√
Remote Temperature Sensor	√	/	/
Wired Controller	√	/	/
Communication Cable	√	/	/
Water Tank Temperature Sensor	√	/	/
Expansion Bolt	√	/	/
Solar System Water Pump	/	√	/
Solar System Flow Switch	/	√	/

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