GREE

Change for life

Service Manual

VERSATI III Split Type Air To Water Heat Pump



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1 Product Data

1.1 Lineup

Series	Model	Product Code	Cooling Capacity (kW)	Heating Capacity (kW)	Power Supply	Refri-gerant	Appearance	
VERSATI III	GRS-CQ4.0Pd/NhH-E	ER01001510	3.8	4	230VAC, 50Hz	R32		
	GRS-CQ4.0Pd/NhH2-E	ER01002490	3.8	4				
	GRS-CQ6.0Pd/NhH-E	ER01001500	5.8	6				
	GRS-CQ6.0Pd/NhH2-E	ER01002480	5.8	6				
	GRS-CQ8.0Pd/NhH-E	ER01001480	7	8				
	GRS-CQ8.0Pd/NhH2-E	ER01002500	7.7	8				
	GRS-CQ8.0Pd/NhH5-E	ER01002230	7	8				
	GRS-CQ10.0Pd/NhH-E	ER01001750	8.5	9.5				
	GRS-CQ10Pd/NhH2-E	ER01002510	9.4	10				
	GRS-CQ10.0Pd/NhH5-E	ER01002200	8.5	9.5				
	GRS-CQ12Pd/NhH-E	ER01002000	11	12				
	GRS-CQ14Pd/NhH-E	ER01002020	12.6	14				
	GRS-CQ16Pd/NhH-E	ER01002010	13	15.5				
	GRS-CQ8Pd/NhH-M	ER01001810	8.5	8	400VAC, 50Hz			
	GRS-CQ10Pd/NhH-M	ER01001840	10	10				
	GRS-CQ12Pd/NhH-M	ER01001980	11	12				
	GRS-CQ14Pd/NhH-M	ER01001990	12.6	14				
	GRS-CQ16Pd/NhH-M	ER01002030	13	15.5				

1.2 Nomenclature

G	RS	-	C	Q	10	Pd	/	Nh	H	-	E	(O)
1	2		3	4	5	6		7	8		9	10

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

NO.	Description	Options
4	Function	Q=Multi-function; Omit=Single-function
5	Nominal Heating Capacity	6.0=6.0kW; 8.0=8.0kW;10=10kW;
6	Compressor Type	Pd=DC Inverter; Omit=On/Off
7	Refrigerant	Nh=R32
8	Design Serial Number	B,C,D.....
9	Power Supply	E=230V,~,50Hz
10	Indoor and Outdoor Unit Code	I=Indoor unit; O=Outdoor unit

1.3 Product Features

1.3.1 General

It's a kind of integrated DC inverter unit that comprises cooling, heating and water heating functions, and up to 5.0 energy efficiency. It adopts R32 refrigerant and two-stage compressor. For heating, ambient temperature range is -25~35°C while the leaving water temperature range is 20~60°C.

The Versati III 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 60°C. The whole series of products strictly comply with EN14511,EUROVENT energy efficiency Class A and SCOP class A+++(35°C), SCOP class A++(55°C) with EN14825. Their COP can reach up to 5.0. This 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 R32 is adopted for the unit, with ODP of 0 and quite low GWP (=675). Besides, the adopted heat pump technologies will reduce consumption of coal and other energy source and lower greatly CO_2 emission. Ranged from 4.0kW~9.5kW, it is widely applicable to small and medium-sized apartment, large-sized villa etc.

1.3.2 Features

◆ Wide Operation Range

Heating: -25~35°C; Cooling: 10~48°C; Water Heating: -25~45°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.

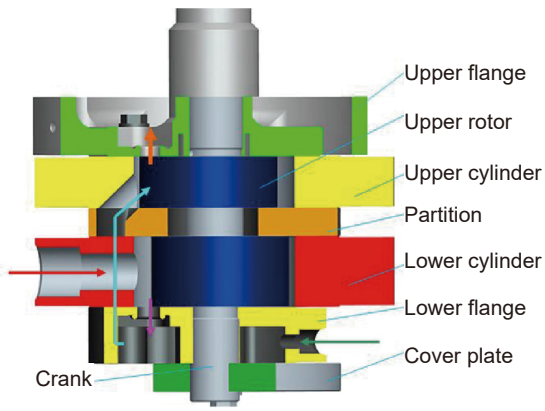
(3) Dual-stage compression, dual-stage throttling and intermediate enthalpy adding through gas injection will raise the leaving water temperature and improve the control accuracy.

(4) Values of resistance to compressor status:

4/6kW——UV/VW/UW:1.67±7%Ω

8/10kW——UV/VW/UW:0.99±7%Ω





◆ 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 accuratately 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.



(4) The high-efficiency water pump will also 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 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.

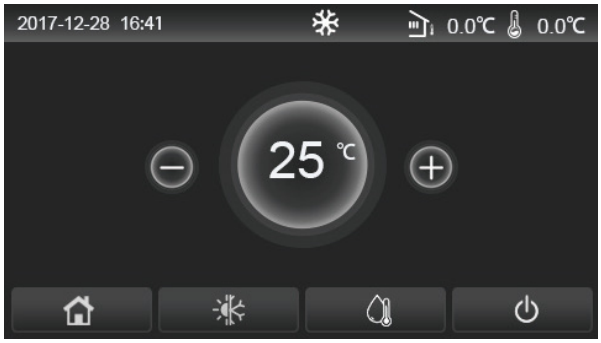
◆ Brand-new Controller

(1) White appearance, exquisite design, and the wall-mounted design that facilitates installation.

(2) Liquid crystal display and touch-screen operation.

(3) The 12V JACK interface can supply power to the control separately and lengthen the communication distance.

(4) The remote monitoring interface can monitor the unit through the Mobus interface and be integrated into the BMS system.



(Home page)



(Menu page)

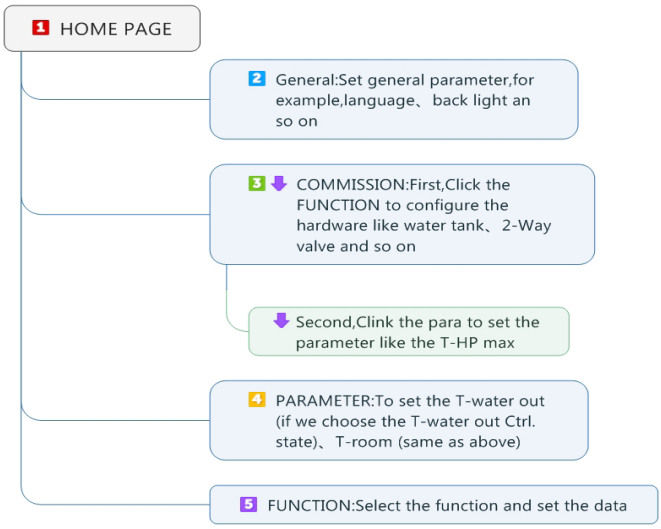
◆ Smart Control, Powerful Function

(1) The operating mode can be switched freely. Furthermore, based on different demands, the holiday mode, weather-dependent mode, quite timer, temperature timer and floor commissioning can activated.

(2) Multiple protections can make this product much safer. The added electric heater will prevent the plate heat exchanger from being frosted owing to too low water temperature and resultantly extend the service life of the product and enhance its safety and reliability.

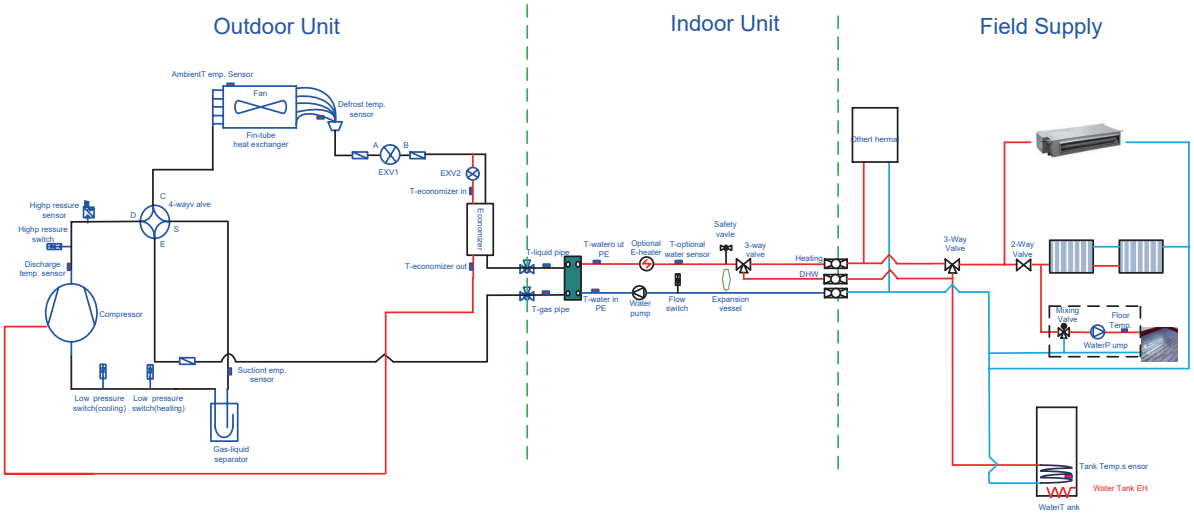
(3) The newly developed smart defrosting control program, “do defrost when necessary; do not defrost when unnecessary; defrost more when it frosts heavily; defrost less when it frosts lightly”, can bring more comfortability, avoid inadequacy of heat supply and ensure sustainable heat supply for the users.

The flowchart with parameters to be set.

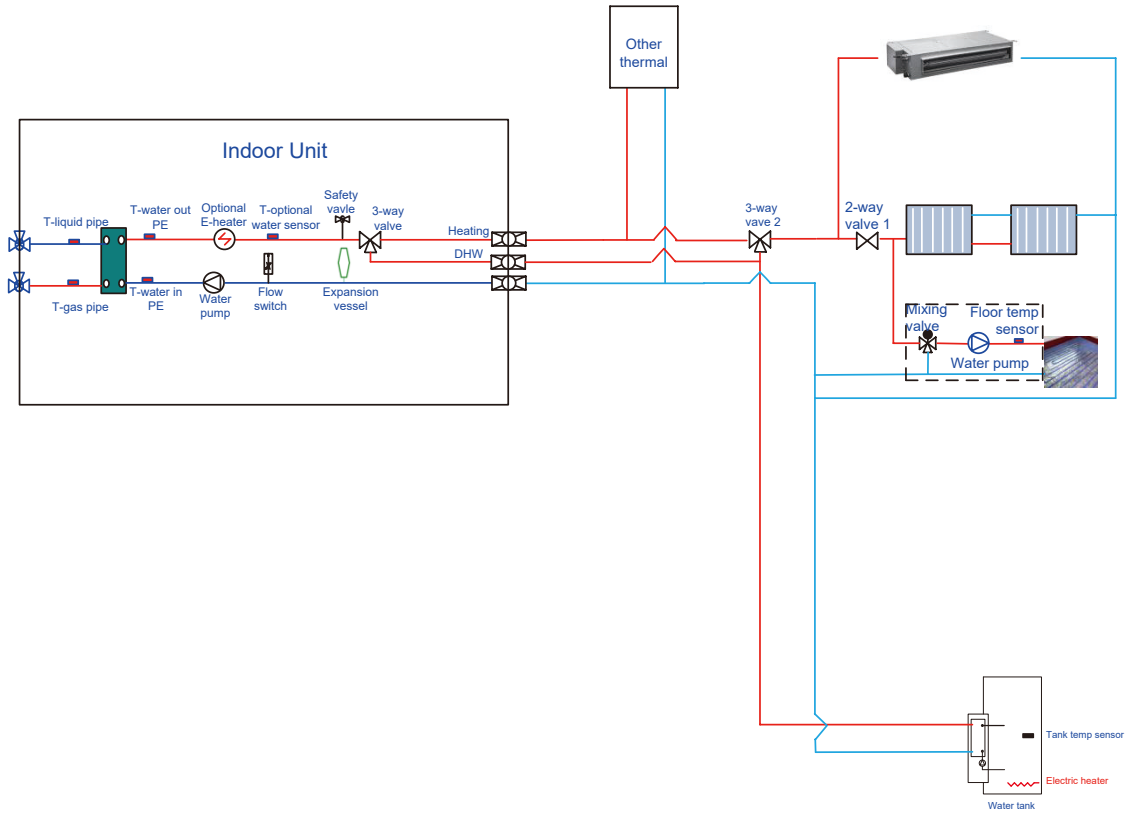


1.4 Operating Principle

(1) GRS-CQ4Pd/NhH-E, GRS-CQ6Pd/NhH-E, GRS-CQ8Pd/NhH-E, GRS-CQ10Pd/NhH-E, GRS-CQ8Pd/NhH5-E, GRS-CQ10Pd/NhH5-E



(2) GRS-CQ12Pd/NhH-E, GRS-CQ14Pd/NhH-E, GRS-CQ16Pd/NhH-E, GRS-CQ8.0Pd/NhH-M, GRS-CQ10Pd/NhH-M, GRS-CQ12Pd/NhH-M, GRS-CQ14Pd/NhH-M, GRS-CQ16Pd/NhH-M



1.5 Technical Data

1.5.1 Parameter List

GRS-CQ_Pd/NhH(5)-E			4.0	4.0(H2)	6.0	6.0(H2)	8.0	8.0(H2)	8.0(H5)
Product Code (ER010__)			01510	02490	01500	02480	01480	02500	02230
Capacity*1	Cooling (floor cooling)	kW	3.8	3.9	5.8	5.8	7.0	7.7	7.0
	Heating (floor heating)	kW	4.0	4.0	6.0	6.0	8.0	8.0	8.0
Power Input*1	Cooling (floor cooling)	kW	0.82	0.68	1.32	1.13	1.75	1.72	1.75
	Heating (floor heating)	kW	0.78	0.77	1.20	1.20	1.70	1.61	1.70
EER*1(floor cooling)		W/W	4.63	5.74	4.4	5.15	4.0	4.48	4.0
COP*1(floor heating)		W/W	5.1	5.2	5.0	5.0	4.71	4.97	4.71
Capacity*2	Cooling (for Fan coil)	kW	3.15	3.4	4.09	4.0	5.3	7.15	5.3
	Heating (Fan coil or Radiator)	kW	4	4.1	5.9	5.8	8.0	8.0	8.0
Power Input*2	Cooling (for Fan coil)	kW	0.92	0.92	1.28	1.16	1.73	2.49	1.73
	Heating (Fan coil or Radiator)	kW	1.02	1.04	1.51	1.52	2.14	2.07	2.14
EER*2(for Fan coil)		W/W	3.42	3.69	3.20	3.45	3.06	2.87	3.06
COP*2(Fan coil or Radiator)		W/W	3.92	3.94	3.91	3.82	3.74	3.86	3.74
Refrigerant charge volume		kg	1.0	1.1	1.0	1.1	1.6	1.84	1.6
Sanitary water temperature		°C	40~80°C						

GRS-CQ_Pd/NhH-E			10	10(H2)	10 (H5)	12	14	16
Product Code (ER010 ___)			01750	02510	02200	02000	02020	02010
Capacity*1	Cooling (floor cooling)	kW	8.5	9.35	8.5	11	12.6	13
	Heating (floor heating)	kW	9.5	10	9.5	12	14	15.5
Power Input*1	Cooling (floor cooling)	kW	2.24	2.36	2.24	2.5	3.41	3.60
	Heating (floor heating)	kW	2.07	2.10	2.07	2.4	2.98	3.44
EER*1(floor cooling)		W/W	3.79	3.96	3.79	4.4	3.7	3.61
COP*1(floor heating)		W/W	4.59	4.76	4.59	5	4.7	4.5
Capacity*2	Cooling(for Fan coil)	kW	6.5	7.6	6.5	10.59	11.07	11.51
	Heating (Fan coil or Radiator)	kW	9.5	9.85	9.5	12.4	14.48	16.09
Power Input*2	Cooling(for Fan coil)	kW	2.27	2.77	2.27	3.79	4.18	4.49
	Heating (Fan coil or Radiator)	kW	2.64	2.69	2.64	3.29	3.93	4.44
EER*2(for Fan coil)		W/W	2.86	2.74	2.86	2.79	2.65	2.56
COP*2(Fan coil or Radiator)		W/W	3.6	3.67	3.6	3.77	3.68	3.62
Refrigerant charge volume		kg	1.6	1.84	1.6	1.84	1.84	1.84
Sanitary water Temperature		°C	40~80					

GRS-CQ_Pd/NhH-M			12	14	16	8.0	10
Product Code (ER010 ___)			01980	01990	02030	01810	01840
Capacity*1	Cooling (floor cooling)	kW	11	12.6	13	8.5	10
	Heating (floor heating)	kW	12	14	15.5	8	10
Power Input*1	Cooling (floor cooling)	kW	2.5	3.41	3.6	1.74	2.33
	Heating (floor heating)	kW	2.4	2.98	3.44	1.63	2.15
EER*1(floor cooling)		W/W	4.4	3.7	3.6	4.89	4.29
COP*1(floor heating)		W/W	5	4.7	4.51	4.91	4.65
Capacity*2	Cooling(for Fan coil)	kW	10.65	11.24	11.52	7.6	8.2
	Heating (Fan coil or Radiator)	kW	12.29	14.44	16.13	8.0	10.2
Power Input*2	Cooling(for Fan coil)	kW	3.74	4.13	4.38	2.48	2.61
	Heating (Fan coil or Radiator)	kW	3.09	3.63	4.16	1.92	2.55
EER*2(for Fan coil)		W/W	2.85	2.72	2.63	3.07	3.14
COP*2(Fan coil or Radiator)		W/W	3.98	3.98	3.88	4.17	4
Refrigerant charge volume		kg	1.84	1.84	1.84	1.84	1.84
Sanitary water Temperature		°C	40~80				

GRS-CQ_Pd/NhH-E(0)			4.0	4.0(H2)	6.0	6.0(H2)
Product Code (ER010__)			W1510	W2350	W1500	W2370
Sound Pressure Level	Cooling	dB(A)	52	52	52	52
	Heating	dB(A)	52	52	52	52
Dimensions (W×D×H)	Outline	mm	975×396×702	975×396×702	975×396×702	975×396×702
	Packaged	mm	1029×458×845	1029×458×845	1029×458×845	1029×458×845
Net weight/Gross weight		kg	55/65	55/63	55/65	55/63

GRS-CQ_Pd/NhH-E(0)			8.0	8.0(H2)	10	10(H2)
Product Code (ER010__)			W1480	W2340	W1730	W2360
Sound Pressure Level	Cooling	dB(A)	55	55	55	55
	Heating	dB(A)	55	55	55	55
Dimensions (W×D×H)	Outline	mm	982×427×787	982×427×787	982×427×787	982×427×787
	Packaged	mm	1097×478×937	1097×478×937	1094×478×937	1097×478×937
Net weight/Gross weight		kg	82/92	82/92	82/92	82/92

GRS-CQ_Pd/NhH-M(0)			12	14	16	12
Product Code (ER010__)			W2000	W2020	W2010	W1980
Sound Pressure Level	Cooling	dB(A)	68	68	68	68
	Heating	dB(A)	68	68	68	68
Dimensions (W×D×H)	Outline	mm	940×460×820	940×460×820	940×460×820	940×460×820
	Packaged	mm	1103×573×973	1103×573×973	1103×573×973	1103×573×973
Net weight/Gross weight		kg	58/67	58/67	58/67	58/67

GRS-CQ_Pd/NhH-M(0)			14	16	8.0	10
Product Code (ER010__)			W1990	W2030	W1810	W1840
Sound Pressure Level	Cooling	dB(A)	68	68	55	55
	Heating	dB(A)	68	68	55	55
Dimensions (W×D×H)	Outline	mm	940×460×820	940×460×820	982×395×787	982×395×787
	Packaged	mm	1103×573×973	1103×573×973	1097×478×937	1097×478×937
Net weight/Gross weight		kg	58/67	58/67	88/98	88/98

GRS-CQ_Pd/NhH(5)-E(I)			4.0	4.0(H2)	6.0	6.0(H2)	8.0	8.0(H2)
Product Code (ER010__)			N1510	N2490	N1500	N2480	N1480	N2500
Sound Pressure Level	Cooling	dB(A)	29	29	29	29	29	29
	Heating	dB(A)	29	29	29	29	29	29
Dimensions (W×D×H)	Outline	mm	860×460×318	860×460×318	860×460×318	860×460×318	860×460×318	860×460×318
	Packaged	mm	1133×568×390	1133×568×390	1133×568×390	1133×568×390	1133×568×390	1133×568×390
Net weight/Gross weight		kg	62/71	62/71	62/71	62/71	62/71	62/71

GRS-CQ_Pd/NhH(5)-E(I)			8.0(H5)	10	10(H2)	10(H5)
Product Code (ER010__)			N2230	N1750	N2510	N2200
Sound Pressure Level	Cooling	dB(A)	29	29	29	29
	Heating	dB(A)	29	29	29	29
Dimensions (W×D×H)	Outline	mm	860×460×318	860×460×318	860×460×318	860×460×318
	Packaged	mm	1133×568×390	1133×568×390	1133×568×390	1133×568×390
Net weight/Gross weight		kg	62/71	62/71	62/71	62/71

GRS-CQ_Pd/NhH-E(I)			12	14	16
Product Code (ER010__)			N2000	N2020	N2010
Sound Pressure Level	Cooling	dB(A)	42	42	42
	Heating	dB(A)	42	42	42
Dimensions (W×D×H)	Outline	mm	860×460×318	860×460×318	860×460×318
	Packaged	mm	1133×568×390	1133×568×390	1133×568×390
Net weight/Gross weight		kg	62/71	62/71	62/71

GRS-CQ Pd/NhH-M(I)			8.0	10	12	14	16
Product Code (ER010)			N1810	N1840	N1980	N1990	N2030
Sound Pressure Level	Cooling	dB(A)	42	42	42	42	42
	Heating	dB(A)	42	42	42	42	42
Dimensions (W×D×H)	Outline	mm	860×460×318	860×460×318	860×460×318	860×460×318	860×460×318
	Packaged	mm	1133×568×390	1133×568×390	1133×568×390	1133×568×390	1133×568×390
Net weight/Gross weight		kg	60/69	60/69	62/71	62/71	62/71

Notes

(a) "*1" indicates the capacity and power input are tested based on the conditions below:

Cooling:

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

Heating:

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

(b) "*2" indicates the capacity and power input are tested based on the conditions below:

Cooling:

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

Heating:

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	20~60	-25~35
Water Heating	40~80 (Water Tank Temperature)	-25~45

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

1.5.4 Temperature sensor parameter

Displayed Name	Inspection range(°C)	Nominal working datas			Remark
		Cooling	Heating	Hot water	
T-outdoor	-30~150	8~50	-27~37	-27~45	temperature sensor resistance 15K
T-suction	-30~150	5~30	-25~20	-25~30	temperature sensor resistance 20K
T-discharge	-30~150	30~102	35~102	35~102	temperature sensor resistance 50K
T-defrost	-30~150	20~57	-25~30	-25~40	temperature sensor resistance 20K
T-water in PE	-30~150	10~30	20~55	20~55	temperature sensor resistance 20K
T-water out PE	-30~150	5~25	25~60	25~60	temperature sensor resistance 20K
T-optional water Sen.	-30~150	5~25	25~60	25~60	temperature sensor resistance 50K
T-tank ctrl.	-30~150	/	/	10~80	temperature sensor resistance 50K
T-floor debug	-30~150	/	25~45	/	/
Debug time	-30~150	/	12~72	/	/
T-liquid pipe	-30~150	5~25	20~57	20~57	temperature sensor resistance 20K
T-gas pipe	-30~150	30~102	35~102	35~102	temperature sensor resistance 20K
T-economizer in	-30~150	no EVI under cooling	-20~55	-20~55	temperature sensor resistance 20K
T-economizer out	-30~150	no EVI under cooling	-20~55	-20~55	temperature sensor resistance 20K
T-remote room	-30~150	18~30	18~30	18~30	/
Dis. Pressure	-40~70	25~60	25~62	25~62	/
T-weather depend	-30~150	7~25	25~60	/	based on calculation

1.5.5 Electric Data

Model	Power Supply Leakage	Leakage Switch	Minimum Sectional Area of Earth Wire	Minimum Sectional Area of Power Supply Wire
	V,Ph,Hz	(A)	(mm2)	(mm2)
GRS-CQ4.0Pd/NhH-E(O)	230VAC,1Ph,50Hz	16	1.5	1.5
GRS-CQ4.0Pd/NhH2-E(O)		16	1.5	1.5
GRS-CQ6.0Pd/NhH-E(O)		16	1.5	1.5
GRS-CQ6.0Pd/NhH2-E(O)		16	1.5	1.5
GRS-CQ4.0Pd/NhH-E(I)		20	6.0	6.0
GRS-CQ4.0Pd/NhH2-E(I)		20	6.0	6.0
GRS-CQ6.0Pd/NhH-E(I)		20	6.0	6.0
GRS-CQ6.0Pd/NhH2-E(I)		20	6.0	6.0
GRS-CQ8.0Pd/NhH-E(O)	230VAC,1Ph,50Hz	25	4.0	4.0
GRS-CQ8.0Pd/NhH2-E(O)		25	4.0	4.0
GRS-CQ10Pd/NhH-E(O)		25	4.0	4.0
GRS-CQ10Pd/NhH2-E(O)		25	4.0	4.0
GRS-CQ8.0Pd/NhH-E(I)		40	6.0	6.0
GRS-CQ8.0Pd/NhH2-E(I)		40	6.0	6.0
GRS-CQ8.0Pd/NhH5-E(I)		20	6.0	6.0
GRS-CQ10Pd/NhH-E(I)		40	6.0	6.0
GRS-CQ10Pd/NhH2-E(I)		40	6.0	6.0
GRS-CQ10Pd/NhH5-E(I)		20	6.0	6.0
GRS-CQ8.0Pd/NhH-M(O)	400V,3N~,50Hz	16	2.5	2.5
GRS-CQ10Pd/NhH-M(O)		16	2.5	2.5
GRS-CQ8.0Pd/NhH-M(I)		20	4.0	4.0
GRS-CQ10Pd/NhH-M(I)		20	4.0	4.0
GRS-CQ12Pd/NhH-M(O)		16	2.5	2.5
GRS-CQ14Pd/NhH-M(O)		16	2.5	2.5
GRS-CQ16Pd/NhH-M(O)		16	2.5	2.5
GRS-CQ12Pd/NhH-M(I)		20	4.0	4.0
GRS-CQ14Pd/NhH-M(I)		20	4.0	4.0
GRS-CQ16Pd/NhH-M(I)		20	4.0	4.0
GRS-CQ12Pd/NhH-E(O)	230VAC,1Ph,50Hz	32	6.0	6.0
GRS-CQ14Pd/NhH-E(O)		40	6.0	6.0
GRS-CQ16Pd/NhH-E(O)		40	6.0	6.0
GRS-CQ12Pd/NhH-E(I)		40	6.0	6.0
GRS-CQ14Pd/NhH-E(I)		40	6.0	6.0
GRS-CQ16Pd/NhH-E(I)		40	6.0	6.0

Notes

(a) Leakage 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.

(b) The 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.

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

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

(e) Ensure safe grounding and the grounding wire shall be connected with the special grounding equipment of the building and must be installed by professional technicians.
(f) The specifications of the breaker and power cable listed in the table above are determined based on the maximum power (maximum amps) of the unit.
(g) The 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.
(h) The 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.
(i) A circuit breaker must be added to the fixed line. The circuit breaker is all-pole disconnected and the breaking distance of the contact is at least 3mm.

1.5.6 Capacity, Power and Efficiency

(1) Cooling capacity, power and efficiency for the single-phase units

GRS-CQ4.0Pd/NhH-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	6.48	1.11	5.86	6.16	1.17	5.28	5.91	1.25	4.74	5.27	1.24	4.26	5.03	1.34	3.74	4.88	1.50	3.25	3.66	1.30	2.82	2.59	1.12	2.30	2.37	1.27	1.87
	norm	3.94	0.63	6.26	3.75	0.66	5.64	3.59	0.71	5.06	3.40	0.76	4.48	3.24	0.82	3.93	3.15	0.92	3.42	3.11	1.01	3.07	2.34	0.96	2.43	2.14	1.08	1.98
	min	3.10	0.44	7.06	2.95	0.46	6.37	2.83	0.49	5.71	2.68	0.53	5.06	2.55	0.58	4.44	2.48	0.64	3.86	2.28	0.71	3.20	2.08	0.84	2.47	1.91	0.95	2.01
8	max	6.68	1.10	6.06	6.36	1.16	5.46	6.09	1.24	4.90	5.44	1.23	4.41	5.19	1.34	3.87	5.04	1.50	3.36	3.78	1.29	2.92	2.67	1.12	2.38	2.45	1.26	1.94
	norm	4.06	0.63	6.48	3.87	0.66	5.84	3.71	0.71	5.24	3.51	0.76	4.64	3.35	0.82	4.07	3.25	0.92	3.54	3.21	1.01	3.18	2.41	0.96	2.52	2.21	1.08	2.05
	min	3.20	0.44	7.31	3.05	0.46	6.59	2.92	0.49	5.91	2.76	0.53	5.23	2.64	0.57	4.59	2.56	0.64	4.00	2.35	0.71	3.32	2.15	0.84	2.56	1.97	0.95	2.08
9	max	6.89	1.10	6.26	6.56	1.16	5.65	6.28	1.24	5.07	5.61	1.23	4.55	5.35	1.34	4.00	5.19	1.49	3.48	3.90	1.29	3.02	2.75	1.12	2.46	2.52	1.26	2.00
	norm	4.19	0.63	6.69	3.99	0.66	6.04	3.82	0.71	5.41	3.62	0.76	4.79	3.45	0.82	4.21	3.35	0.92	3.66	3.31	1.01	3.28	2.48	0.96	2.60	2.28	1.08	2.11
	min	3.30	0.44	7.55	3.14	0.46	6.81	3.01	0.49	6.11	2.85	0.53	5.41	2.72	0.57	4.75	2.64	0.64	4.13	2.43	0.71	3.43	2.22	0.84	2.64	2.03	0.95	2.15
10	max	7.10	1.10	6.47	6.76	1.16	5.83	6.47	1.24	5.23	5.78	1.23	4.70	5.51	1.34	4.13	5.35	1.49	3.59	4.01	1.29	3.12	2.84	1.11	2.54	2.60	1.26	2.07
	norm	4.32	0.62	6.91	4.11	0.66	6.23	3.94	0.70	5.59	3.73	0.75	4.95	3.56	0.82	4.34	3.45	0.91	3.78	3.41	1.01	3.39	2.56	0.95	2.68	2.35	1.08	2.18
	min	3.40	0.44	7.80	3.23	0.46	7.03	3.10	0.49	6.31	2.94	0.53	5.58	2.80	0.57	4.90	2.72	0.64	4.26	2.50	0.71	3.54	2.28	0.84	2.73	2.09	0.94	2.22
11	max	7.30	1.10	6.67	6.95	1.16	6.01	6.66	1.24	5.39	5.95	1.23	4.85	5.67	1.33	4.26	5.50	1.49	3.70	4.13	1.29	3.21	2.92	1.11	2.62	2.68	1.26	2.13
	norm	4.44	0.62	7.13	4.23	0.66	6.42	4.05	0.70	5.76	3.84	0.75	5.10	3.66	0.82	4.48	3.55	0.91	3.89	3.51	1.00	3.50	2.63	0.95	2.77	2.41	1.07	2.25
	min	3.50	0.43	8.04	3.33	0.46	7.25	3.19	0.49	6.50	3.02	0.52	5.76	2.88	0.57	5.05	2.80	0.64	4.39	2.57	0.71	3.65	2.35	0.84	2.81	2.15	0.94	2.29
12	max	7.51	1.09	6.87	7.15	1.15	6.19	6.85	1.23	5.56	6.11	1.22	4.99	5.83	1.33	4.38	5.66	1.48	3.81	4.25	1.28	3.31	3.00	1.11	2.70	2.75	1.25	2.20
	norm	4.57	0.62	7.34	4.35	0.66	6.62	4.17	0.70	5.94	3.95	0.75	5.26	3.76	0.82	4.61	3.65	0.91	4.01	3.61	1.00	3.60	2.71	0.95	2.85	2.48	1.07	2.32
	min	3.60	0.43	8.29	3.42	0.46	7.47	3.28	0.49	6.70	3.11	0.52	5.93	2.96	0.57	5.21	2.88	0.64	4.53	2.65	0.70	3.76	2.42	0.83	2.90	2.22	0.94	2.35
13	max	7.72	1.09	7.07	7.35	1.15	6.38	7.04	1.23	5.72	6.28	1.22	5.14	5.99	1.33	4.51	5.82	1.48	3.92	4.36	1.28	3.41	3.08	1.11	2.78	2.83	1.25	2.26
	norm	4.69	0.62	7.56	4.47	0.66	6.81	4.28	0.70	6.11	4.06	0.75	5.41	3.87	0.81	4.75	3.75	0.91	4.13	3.71	1.00	3.71	2.78	0.95	2.94	2.55	1.07	2.39
	min	3.70	0.43	8.53	3.52	0.46	7.69	3.37	0.49	6.90	3.19	0.52	6.11	3.04	0.57	5.36	2.96	0.63	4.66	2.72	0.70	3.87	2.48	0.83	2.98	2.28	0.94	2.42
14	max	7.93	1.09	7.27	7.54	1.15	6.56	7.23	1.23	5.88	6.45	1.22	5.29	6.15	1.33	4.64	5.97	1.48	4.04	4.48	1.28	3.50	3.17	1.11	2.86	2.90	1.25	2.33
	norm	4.82	0.62	7.77	4.59	0.65	7.01	4.40	0.70	6.29	4.16	0.75	5.56	3.97	0.81	4.88	3.86	0.91	4.25	3.81	1.00	3.81	2.86	0.95	3.02	2.62	1.07	2.45
	min	3.79	0.43	8.77	3.61	0.46	7.91	3.46	0.49	7.10	3.28	0.52	6.28	3.13	0.57	5.51	3.04	0.63	4.79	2.79	0.70	3.98	2.55	0.83	3.07	2.34	0.94	2.49
15	max	8.13	1.09	7.48	7.74	1.15	6.74	7.42	1.23	6.05	6.62	1.22	5.43	6.31	1.32	4.77	6.13	1.48	4.15	4.60	1.28	3.60	3.25	1.10	2.94	2.98	1.25	2.39
	norm	4.95	0.62	7.99	4.71	0.65	7.20	4.51	0.70	6.46	4.27	0.75	5.72	4.08	0.81	5.02	3.96	0.91	4.37	3.91	1.00	3.92	2.93	0.94	3.10	2.69	1.07	2.52
	min	3.89	0.43	9.02	3.71	0.46	8.13	3.55	0.49	7.29	3.36	0.52	6.45	3.21	0.57	5.67	3.11	0.63	4.93	2.87	0.70	4.09	2.62	0.83	3.15	2.40	0.94	2.56
18	max	8.72	1.08	8.08	8.30	1.14	7.29	7.95	1.22	6.54	7.09	1.21	5.88	6.77	1.31	5.16	6.57	1.46	4.49	4.93	1.27	3.89	3.48	1.10	3.18	3.19	1.24	2.58
	norm	5.30	0.61	8.64	5.05	0.65	7.79	4.83	0.69	6.99	4.58	0.74	6.18	4.37	0.80	5.43	3.80	0.82	4.63	4.19	0.99	4.24	3.14	0.94	3.36	2.88	1.06	2.73
	min	4.17	0.43	9.75	3.97	0.45	8.79	3.81	0.48	7.88	3.61	0.52	6.98	3.44	0.56	6.13	3.34	0.63	5.33	3.07	0.69	4.42	2.80	0.82	3.41	2.57	0.93	2.77
20	max	9.17	1.08	8.48	8.73	1.14	7.65	8.36	1.22	6.86	7.46	1.21	6.16	7.12	1.32	5.41	6.91	1.47	4.71	5.18	1.27	4.09	3.66	1.10	3.34	3.36	1.24	2.71
	norm	5.58	0.62	9.06	5.31	0.65	8.17	5.08	0.69	7.33	4.82	0.74	6.49	4.59	0.81	5.69	4.46	0.90	4.95	4.40	0.99	4.45	3.31	0.94	3.52	3.03	1.06	2.86
	min	4.39	0.43	10.23	4.18	0.45	9.22	4.00	0.48	8.27	3.79	0.52	7.32	3.62	0.56	6.43	3.51	0.63	5.59	3.23	0.70	4.64	2.95	0.82	3.58	2.70	0.93	2.91
23	max	9.75	1.07	9.09	9.28	1.13	8.19	8.89	1.21	7.35	7.94	1.20	6.61	7.57	1.31	5.80	7.35	1.46	5.04	5.51	1.26	4.38	3.90	1.09	3.57	3.57	1.23	2.90
	norm	5.93	0.61	9.71	5.65	0.64	8.76	5.41	0.69	7.85	5.12	0.74	6.95	4.89	0.80	6.10	4.74	0.89	5.31	4.68	0.98	4.76	3.52	0.93	3.77	3.22	1.05	3.07
	min	4.67	0.43	10.96	4.44	0.45	9.88	4.26	0.48	8.86	4.03	0.51	7.85	3.85	0.56	6.89	3.73	0.62	5.99	3.44	0.69	4.97	3.14	0.82	3.83	2.88	0.92	3.11
25	max	10.13	1.07	9.49	9.64	1.13	8.56	9.24	1.20	7.67	8.24	1.19	6.90	7.86	1.30	6.06	7.63	1.45	5.27	5.73	1.25	4.57	4.05	1.08	3.73	3.71	1.22	3.03
	norm	6.16	0.61	10.14	5.86	0.64	9.14	5.62	0.68	8.20	5.32	0.73	7.26	5.07	0.80	6.37	4.93	0.89	5.54	4.86	0.98	4.98	3.65	0.93	3.94	3.35	1.05	3.20
	min	4.85	0.42	11.45	4.62	0.45	10.32	4.42	0.48	9.26	4.19	0.51	8.19	4.00	0.56	7.19	3.88	0.62	6.26	3.57	0.69	5.19	3.26	0.81	4.00	2.99	0.92	3.25

GRS-CQ6.0Pd/NhH-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	7.23	1.27	5.67	6.88	1.34	5.12	6.59	1.44	4.59	6.24	1.54	4.06	5.95	1.67	3.57	5.78	1.86	3.10	4.21	1.54	2.74	2.84	1.27	2.24	2.60	1.43	1.82
	norm	5.11	0.87	5.86	4.87	0.92	5.28	4.66	0.98	4.74	4.42	1.05	4.19	4.21	1.14	3.68	4.09	1.28	3.20	3.39	1.13	2.99	2.59	1.08	2.41	2.37	1.21	1.96
	min	3.10	0.44	7.06	2.95	0.46	6.37	2.83	0.49	5.71	2.68	0.53	5.06	2.55	0.58	4.44	2.48	0.64	3.86	2.28	0.71	3.20	2.08	0.84	2.47	1.91	0.95	2.01
8	max	7.46	1.27	5.87	7.10	1.34	5.29	6.80	1.43	4.75	6.44	1.53	4.20	6.14	1.67	3.69	5.96	1.86	3.21	4.35	1.53	2.83	2.93	1.26	2.32	2.69	1.43	1.88
	norm	5.28	0.87	6.06	5.02	0.92	5.46	4.81	0.98	4.90	4.56	1.05	4.34	4.35	1.14	3.81	4.22	1.27	3.31	3.49	1.13	3.09	2.67	1.07	2.49	2.45	1.21	2.02
	min	3.20	0.44	7.31	3.05	0.46	6.59	2.92	0.49	5.91	2.76	0.53	5.23	2.64	0.57	4.59	2.56	0.64	4.00	2.35	0.71	3.32	2.15	0.84	2.56	1.97	0.95	2.08
9	max	7.69	1.27	6.07	7.32	1.34	5.47	7.01	1.43	4.91	6.64	1.53	4.34	6.33	1.66	3.81	6.15	1.85	3.32	4.48	1.53	2.93	3.02	1.26	2.40	2.77	1.42	1.95
	norm	5.44	0.87	6.26	5.18	0.92	5.65	4.96	0.98	5.07	4.70	1.05	4.48	4.48	1.14	3.94	4.35	1.27	3.42	3.60	1.13	3.20	2.75	1.07	2.57	2.52	1.21	2.09
	min	3.30	0.44	7.55	3.14	0.46	6.81	3.01	0.49	6.11	2.85	0.53	5.41	2.72	0.57	4.75	2.64	0.64	4.13	2.43	0.71	3.43	2.22	0.84	2.64	2.03	0.95	2.15
10	max	7.92	1.26	6.26	7.54	1.33	5.65	7.22	1.43	5.07	6.84	1.53	4.48	6.52	1.66	3.94	6.33	1.85	3.42	4.62	1.53	3.02	3.11	1.26	2.47	2.85	1.42	2.01
	norm	5.60	0.87	6.47	5.33	0.92	5.83	5.11	0.98	5.23	4.84	1.05	4.63	4.62	1.14	4.06	4.48	1.27	3.53	3.71	1.12	3.30	2.84	1.07	2.66	2.60	1.20	2.16
	min	3.40	0.44	7.80	3.23	0.46	7.03	3.10	0.49	6.31	2.94	0.53	5.58	2.80	0.57	4.90	2.72	0.64	4.26	2.50	0.71	3.54	2.28	0.84	2.73	2.09	0.94	2.22
11	max	8.15	1.26	6.46	7.76	1.33	5.82	7.43	1.42	5.22	7.04	1.52	4.62	6.72	1.65	4.06	6.52	1.85	3.53	4.75	1.52	3.12	3.20	1.26	2.55	2.94	1.42	2.07
	norm	5.77	0.86	6.67	5.49	0.91	6.01	5.26	0.98	5.39	4.98	1.04	4.77	4.75	1.13	4.19	4.61	1.27	3.64	3.82	1.12	3.40	2.92	1.07	2.74	2.68	1.20	2.23
	min	3.50	0.43	8.04	3.33	0.46	7.25	3.19	0.49	6.50	3.02	0.52	5.76	2.88	0.57	5.05	2.80	0.64	4.39	2.57	0.71	3.65	2.35	0.84	2.81	2.15	0.94	2.29
12	max	8.38	1.26	6.65	7.98	1.33	6.00	7.64	1.42	5.38	7.24	1.52	4.76	6.91	1.65	4.18	6.70	1.84	3.64	4.89	1.52	3.21	3.29	1.25	2.63	3.02	1.41	2.13
	norm	5.93	0.86	6.87	5.65	0.91	6.19	5.41	0.97	5.56	5.12	1.04	4.92	4.89	1.13	4.32	4.74	1.26	3.75	3.93	1.12	3.50	3.00	1.06	2.82	2.75	1.20	2.29
	min	3.60	0.43	8.29	3.42	0.46	7.47	3.28	0.49	6.70	3.11	0.52	5.93	2.96	0.57	5.21	2.88	0.64	4.53	2.65	0.70	3.76	2.42	0.83	2.90	2.22	0.94	2.35
13	max	8.61	1.26	6.85	8.20	1.33	6.18	7.85	1.42	5.54	7.44	1.52	4.90	7.10	1.65	4.30	6.89	1.84	3.74	5.02	1.52	3.31	3.38	1.25	2.70	3.10	1.41	2.20
	norm	6.09	0.86	7.07	5.80	0.91	6.38	5.56	0.97	5.72	5.27	1.04	5.06	5.02	1.13	4.44	4.88	1.26	3.86	4.04	1.12	3.61	3.08	1.06	2.91	2.83	1.20	2.36
	min	3.70	0.43	8.53	3.52	0.46	7.69	3.37	0.49	6.90	3.19	0.52	6.11	3.04	0.57	5.36	2.96	0.63	4.66	2.72	0.70	3.87	2.48	0.83	2.98	2.28	0.94	2.42
14	max	8.84	1.26	7.05	8.42	1.33	6.35	8.07	1.42	5.70	7.64	1.51	5.04	7.29	1.65	4.43	7.07	1.84	3.85	5.16	1.52	3.40	3.48	1.25	2.78	3.19	1.41	2.26
	norm	6.26	0.86	7.27	5.96	0.91	6.56	5.71	0.97	5.88	5.41	1.04	5.21	5.16	1.13	4.57	5.01	1.26	3.97	4.14	1.12	3.71	3.17	1.06	2.99	2.90	1.20	2.43
	min	3.79	0.43	8.77	3.61	0.46	7.91	3.46	0.49	7.10	3.28	0.52	6.28	3.13	0.57	5.51	3.04	0.63	4.79	2.79	0.70	3.98	2.55	0.83	3.07	2.34	0.94	2.49
15	max	9.07	1.25	7.24	8.64	1.32	6.53	8.28	1.41	5.86	7.84	1.51	5.18	7.48	1.64	4.55	7.26	1.83	3.96	5.29	1.51	3.50	3.57	1.25	2.86	3.27	1.41	2.32
	norm	6.42	0.86	7.48	6.11	0.91	6.74	5.86	0.97	6.05	5.55	1.04	5.35	5.29	1.13	4.70	5.14	1.26	4.08	4.25	1.11	3.81	3.25	1.06	3.07	2.98	1.19	2.50
	min	3.89	0.43	9.02	3.71	0.46	8.13	3.55	0.49	7.29	3.36	0.52	6.45	3.21	0.57	5.67	3.11	0.63	4.93	2.87	0.70	4.09	2.62	0.83	3.15	2.40	0.94	2.56
18	max	9.72	1.24	7.83	9.26	1.31	7.06	8.87	1.40	6.33	8.40	1.50	5.60	8.01	1.63	4.92	7.78	1.82	4.28	5.67	1.50	3.78	3.82	1.24	3.09	3.50	1.39	2.51
	norm	6.88	0.85	8.08	6.55	0.90	7.29	6.28	0.96	6.54	5.95	1.03	5.78	5.67	1.12	5.08	5.80	1.32	4.40	4.56	1.11	4.12	3.48	1.05	3.32	3.19	1.18	2.70
	min	4.17	0.43	9.75	3.97	0.45	8.79	3.81	0.48	7.88	3.61	0.52	6.98	3.44	0.56	6.13	3.34	0.63	5.33	3.07	0.69	4.42	2.80	0.82	3.41	2.57	0.93	2.77
20	max	10.23	1.25	8.21	9.74	1.31	7.41	9.33	1.40	6.64	8.84	1.50	5.88	8.43	1.63	5.16	8.18	1.82	4.49	5.97	1.50	3.97	4.02	1.24	3.24	3.69	1.40	2.64
	norm	7.24	0.85	8.48	6.89	0.90	7.65	6.60	0.96	6.86	6.25	1.03	6.07	5.97	1.12	5.33	5.79	1.25	4.63	4.79	1.11	4.33	3.66	1.05	3.48	3.36	1.19	2.83
	min	4.39	0.43	10.23	4.18	0.45	9.22	4.00	0.48	8.27	3.79	0.52	7.32	3.62	0.56	6.43	3.51	0.63	5.59	3.23	0.70	4.64	2.95	0.82	3.58	2.70	0.93	2.91
23	max	10.88	1.24	8.80	10.36	1.31	7.94	9.92	1.39	7.12	9.40	1.49	6.30	8.97	1.62	5.53	8.70	1.81	4.81	6.35	1.49	4.25	4.28	1.23	3.48	3.92	1.39	2.82
	norm	7.70	0.85	9.09	7.33	0.89	8.19	7.02	0.96	7.35	6.65	1.02	6.50	6.34	1.11	5.71	6.16	1.24	4.96	5.10	1.10	4.64	3.90	1.04	3.73	3.57	1.18	3.03
	min	4.67	0.43	10.96	4.44	0.45	9.88	4.26	0.48	8.86	4.03	0.51	7.85	3.85	0.56	6.89	3.73	0.62	5.99	3.44	0.69	4.97	3.14	0.82	3.83	2.88	0.92	3.11
25	max	11.30	1.23	9.19	10.76	1.30	8.29	10.31	1.39	7.43	9.76	1.48	6.58	9.31	1.61	5.78	9.04	1.80	5.02	6.59	1.48	4.44	4.44	1.22	3.63	4.07	1.38	2.95
	norm	8.00	0.84	9.49	7.61	0.89	8.56	7.29	0.95	7.67	6.91	1.02	6.79	6.59	1.10	5.96	6.40	1.23	5.19	5.30	1.09	4.84	4.05	1.04	3.90	3.71	1.17	3.17
	min	4.85	0.42	11.45	4.62	0.45	10.32	4.42	0.48	9.26	4.19	0.51	8.19	4.00	0.56	7.19	3.88	0.62	6.26	3.57	0.69	5.19	3.26	0.81	4.00	2.99	0.92	3.25

GRS-CQ8.0Pd/NhH-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	8.25	1.66	4.96	7.85	1.76	4.47	7.52	1.88	4.01	7.56	2.24	3.38	7.21	2.43	2.97	7.53	3.06	2.46	5.70	2.45	2.33	3.80	1.82	2.09	3.48	2.05	1.70
	norm	6.63	1.18	5.60	6.31	1.25	5.05	6.04	1.33	4.53	5.72	1.43	4.01	5.46	1.55	3.52	5.30	1.73	3.06	4.88	1.92	2.54	3.17	1.43	2.21	2.90	1.61	1.80
	min	4.13	0.64	6.41	3.93	0.68	5.78	3.76	0.73	5.18	3.56	0.78	4.59	3.40	0.84	4.03	3.30	0.94	3.50	3.04	1.05	2.91	2.77	1.24	2.24	2.54	1.40	1.82
8	max	8.51	1.66	5.13	8.11	1.75	4.63	7.76	1.87	4.15	7.80	2.23	3.50	7.44	2.42	3.07	7.77	3.05	2.55	5.89	2.44	2.41	3.92	1.81	2.16	3.59	2.05	1.75
	norm	6.84	1.18	5.80	6.51	1.25	5.23	6.24	1.33	4.69	5.91	1.42	4.15	5.63	1.55	3.64	5.47	1.73	3.17	5.03	1.91	2.63	3.27	1.43	2.29	3.00	1.61	1.86
	min	4.26	0.64	6.63	4.05	0.68	5.98	3.88	0.72	5.36	3.68	0.78	4.75	3.51	0.84	4.17	3.41	0.94	3.62	3.13	1.04	3.01	2.86	1.23	2.32	2.62	1.39	1.88
9	max	8.78	1.65	5.30	8.36	1.75	4.78	8.01	1.87	4.29	8.04	2.23	3.61	7.67	2.42	3.17	8.01	3.05	2.63	6.07	2.43	2.49	4.04	1.81	2.23	3.70	2.04	1.81
	norm	7.05	1.18	5.99	6.71	1.24	5.40	6.43	1.33	4.84	6.09	1.42	4.29	5.81	1.54	3.76	5.64	1.72	3.27	5.19	1.91	2.72	3.37	1.42	2.37	3.09	1.61	1.92
	min	4.39	0.64	6.85	4.18	0.68	6.18	4.00	0.72	5.54	3.79	0.77	4.90	3.62	0.84	4.30	3.51	0.94	3.74	3.23	1.04	3.11	2.95	1.23	2.40	2.70	1.39	1.95
10	max	9.04	1.65	5.48	8.61	1.74	4.94	8.25	1.86	4.43	8.29	2.22	3.73	7.90	2.41	3.28	8.25	3.04	2.72	6.25	2.43	2.57	4.16	1.81	2.30	3.81	2.04	1.87
	norm	7.26	1.17	6.18	6.91	1.24	5.57	6.62	1.32	5.00	6.27	1.42	4.43	5.98	1.54	3.88	5.81	1.72	3.38	5.34	1.91	2.80	3.47	1.42	2.44	3.18	1.60	1.99
	min	4.52	0.64	7.07	4.30	0.68	6.38	4.12	0.72	5.72	3.91	0.77	5.06	3.73	0.84	4.44	3.62	0.94	3.86	3.33	1.04	3.21	3.04	1.23	2.47	2.78	1.39	2.01
11	max	9.31	1.65	5.65	8.86	1.74	5.09	8.49	1.86	4.57	8.53	2.22	3.85	8.13	2.41	3.38	8.49	3.03	2.80	6.43	2.42	2.66	4.28	1.80	2.38	3.93	2.03	1.93
	norm	7.47	1.17	6.38	7.11	1.24	5.75	6.82	1.32	5.16	6.46	1.41	4.56	6.16	1.54	4.01	5.98	1.72	3.48	5.50	1.90	2.89	3.57	1.42	2.52	3.27	1.60	2.05
	min	4.65	0.64	7.29	4.43	0.67	6.57	4.24	0.72	5.90	4.02	0.77	5.22	3.83	0.84	4.58	3.72	0.93	3.98	3.42	1.04	3.31	3.13	1.23	2.55	2.87	1.38	2.07
12	max	9.57	1.65	5.82	9.11	1.74	5.25	8.73	1.86	4.70	8.77	2.21	3.96	8.36	2.40	3.48	8.73	3.03	2.89	6.62	2.42	2.74	4.40	1.80	2.45	4.04	2.03	1.99
	norm	7.69	1.17	6.57	7.32	1.24	5.92	7.01	1.32	5.31	6.64	1.41	4.70	6.33	1.53	4.13	6.15	1.71	3.59	5.66	1.90	2.98	3.67	1.41	2.60	3.37	1.60	2.11
	min	4.79	0.64	7.51	4.56	0.67	6.77	4.36	0.72	6.08	4.13	0.77	5.38	3.94	0.84	4.72	3.83	0.93	4.11	3.52	1.03	3.41	3.22	1.22	2.63	2.95	1.38	2.13
13	max	9.83	1.64	5.99	9.36	1.73	5.40	8.97	1.85	4.84	9.01	2.21	4.08	8.59	2.40	3.58	8.98	3.02	2.97	6.80	2.41	2.82	4.53	1.80	2.52	4.15	2.03	2.05
	norm	7.90	1.17	6.76	7.52	1.23	6.10	7.20	1.32	5.47	6.82	1.41	4.84	6.51	1.53	4.25	6.32	1.71	3.69	5.81	1.90	3.07	3.77	1.41	2.67	3.46	1.59	2.17
	min	4.92	0.64	7.73	4.68	0.67	6.97	4.48	0.72	6.25	4.25	0.77	5.54	4.05	0.83	4.86	3.93	0.93	4.23	3.62	1.03	3.51	3.30	1.22	2.70	3.03	1.38	2.20
14	max	10.10	1.64	6.16	9.61	1.73	5.55	9.21	1.85	4.98	9.25	2.20	4.20	8.83	2.39	3.69	9.22	3.02	3.06	6.98	2.41	2.90	4.65	1.79	2.59	4.26	2.02	2.11
	norm	8.11	1.17	6.95	7.72	1.23	6.27	7.40	1.31	5.62	7.01	1.41	4.98	6.68	1.53	4.37	6.49	1.71	3.80	5.97	1.89	3.15	3.88	1.41	2.75	3.55	1.59	2.23
	min	5.05	0.63	7.96	4.81	0.67	7.17	4.60	0.72	6.43	4.36	0.77	5.69	4.16	0.83	5.00	4.04	0.93	4.35	3.72	1.03	3.61	3.39	1.22	2.78	3.11	1.38	2.26
15	max	10.36	1.64	6.33	9.86	1.73	5.71	9.45	1.85	5.12	9.50	2.20	4.31	9.06	2.39	3.79	9.46	3.01	3.14	7.16	2.41	2.98	4.77	1.79	2.66	4.37	2.02	2.16
	norm	8.32	1.16	7.15	7.92	1.23	6.45	7.59	1.31	5.78	7.19	1.40	5.12	6.86	1.53	4.49	6.66	1.70	3.91	6.12	1.89	3.24	3.98	1.41	2.83	3.65	1.59	2.30
	min	5.18	0.63	8.18	4.93	0.67	7.37	4.73	0.71	6.61	4.48	0.76	5.85	4.27	0.83	5.14	4.14	0.93	4.47	3.81	1.03	3.71	3.48	1.22	2.86	3.19	1.37	2.32
18	max	11.10	1.62	6.84	10.57	1.71	6.17	10.13	1.83	5.53	10.18	2.18	4.66	9.70	2.37	4.09	10.14	2.99	3.39	7.68	2.39	3.22	5.11	1.77	2.88	4.68	2.00	2.34
	norm	8.92	1.15	7.73	8.49	1.22	6.97	8.13	1.30	6.25	7.70	1.39	5.53	7.35	1.51	4.86	7.00	1.75	4.00	6.56	1.87	3.50	4.26	1.39	3.06	3.91	1.57	2.48
	min	5.55	0.63	8.84	5.29	0.66	7.97	5.06	0.71	7.15	4.80	0.76	6.33	4.58	0.82	5.55	4.44	0.92	4.83	4.09	1.02	4.01	3.73	1.21	3.09	3.42	1.36	2.51
20	max	11.68	1.63	7.18	11.12	1.72	6.47	10.65	1.83	5.81	10.70	2.19	4.89	10.21	2.38	4.30	10.66	2.99	3.56	8.08	2.39	3.38	5.38	1.78	3.02	4.93	2.01	2.45
	norm	9.38	1.16	8.11	8.93	1.22	7.31	8.56	1.30	6.56	8.11	1.40	5.80	7.73	1.52	5.10	7.50	1.69	4.43	6.90	1.88	3.68	4.48	1.40	3.21	4.11	1.58	2.61
	min	5.84	0.63	9.27	5.56	0.66	8.36	5.33	0.71	7.50	5.05	0.76	6.64	4.81	0.83	5.83	4.67	0.92	5.07	4.30	1.02	4.21	3.93	1.21	3.24	3.60	1.37	2.64
23	max	12.42	1.61	7.69	11.83	1.70	6.94	11.33	1.82	6.22	11.39	2.17	5.24	10.86	2.36	4.60	11.34	2.97	3.82	8.59	2.37	3.62	5.72	1.77	3.24	5.24	1.99	2.63
	norm	9.98	1.15	8.69	9.50	1.21	7.83	9.10	1.30	7.03	8.62	1.39	6.22	8.22	1.51	5.46	7.98	1.68	4.75	7.34	1.86	3.94	4.77	1.39	3.44	4.37	1.57	2.79
	min	6.21	0.63	9.94	5.91	0.66	8.96	5.67	0.70	8.04	5.37	0.75	7.11	5.12	0.82	6.24	4.97	0.92	5.43	4.57	1.01	4.51	4.17	1.20	3.48	3.83	1.36	2.82
25	max	12.90	1.61	8.04	12.28	1.70	7.25	11.77	1.81	6.50	11.82	2.16	5.48	11.28	2.35	4.81	11.78	2.95	3.99	8.92	2.36	3.78	5.94	1.76	3.38	5.44	1.98	2.75
	norm	10.36	1.14	9.07	9.86	1.21	8.18	9.45	1.29	7.34	8.95	1.38	6.50	8.54	1.50	5.70	8.29	1.67	4.96	7.63	1.85	4.12	4.95	1.38	3.59	4.54	1.56	2.92
	min	6.45	0.62	10.38	6.14	0.66	9.36	5.88	0.70	8.39	5.57	0.75	7.43	5.32	0.82	6.52	5.16	0.91	5.67	4.75	1.01	4.71	4.34	1.19	3.63	3.97	1.35	2.95

GRS-CQ10.0Pd/NhH-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	8.75	1.85	4.72	8.33	1.96	4.26	7.98	2.09	3.82	8.13	2.52	3.22	7.76	2.74	2.83	8.00	3.43	2.33	6.44	3.01	2.14	4.75	2.51	1.89	4.35	1.52	2.86
	norm	8.13	1.55	5.23	7.74	1.64	4.72	7.41	1.75	4.23	7.02	1.87	3.75	6.70	2.04	3.29	6.50	2.27	2.86	5.98	2.52	2.37	3.96	1.93	2.05	3.63	1.39	2.62
	min	4.13	0.64	6.41	3.93	0.68	5.78	3.76	0.73	5.18	3.56	0.78	4.59	3.40	0.84	4.03	3.30	0.94	3.50	3.04	1.05	2.91	2.77	1.24	2.24	2.54	1.40	1.82
8	max	9.03	1.85	4.89	8.60	1.95	4.41	8.24	2.08	3.95	8.39	2.52	3.34	8.00	2.73	2.93	8.26	3.42	2.41	6.65	3.00	2.22	4.90	2.51	1.95	4.49	1.52	2.96
	norm	8.39	1.55	5.42	7.98	1.63	4.88	7.65	1.75	4.38	7.24	1.87	3.88	6.91	2.03	3.40	6.71	2.27	2.96	6.17	2.51	2.46	4.08	1.92	2.13	3.74	1.38	2.71
	min	4.26	0.64	6.63	4.05	0.68	5.98	3.88	0.72	5.36	3.68	0.78	4.75	3.51	0.84	4.17	3.41	0.94	3.62	3.13	1.04	3.01	2.86	1.23	2.32	2.62	1.39	1.88
9	max	9.31	1.84	5.05	8.86	1.95	4.55	8.49	2.08	4.08	8.65	2.51	3.45	8.25	2.73	3.03	8.51	3.42	2.49	6.85	2.99	2.29	5.05	2.50	2.02	4.63	1.51	3.06
	norm	8.65	1.54	5.60	8.23	1.63	5.05	7.88	1.74	4.53	7.47	1.86	4.01	7.12	2.03	3.52	6.92	2.26	3.06	6.36	2.51	2.54	4.21	1.92	2.20	3.86	1.38	2.80
	min	4.39	0.64	6.85	4.18	0.68	6.18	4.00	0.72	5.54	3.79	0.77	4.90	3.62	0.84	4.30	3.51	0.94	3.74	3.23	1.04	3.11	2.95	1.23	2.40	2.70	1.39	1.95
10	max	9.59	1.84	5.21	9.13	1.94	4.70	8.75	2.07	4.22	8.91	2.51	3.56	8.50	2.72	3.12	8.77	3.41	2.57	7.06	2.99	2.36	5.20	2.50	2.08	4.77	1.51	3.16
	norm	8.91	1.54	5.78	8.48	1.63	5.21	8.12	1.74	4.67	7.69	1.86	4.14	7.34	2.02	3.63	7.12	2.26	3.16	6.55	2.50	2.62	4.34	1.91	2.27	3.97	1.38	2.89
	min	4.52	0.64	7.07	4.30	0.68	6.38	4.12	0.72	5.72	3.91	0.77	5.06	3.73	0.84	4.44	3.62	0.94	3.86	3.33	1.04	3.21	3.04	1.23	2.47	2.78	1.39	2.01
11	max	9.87	1.84	5.38	9.40	1.94	4.85	9.00	2.07	4.35	9.17	2.50	3.67	8.75	2.72	3.22	9.02	3.40	2.65	7.26	2.98	2.44	5.35	2.49	2.15	4.91	1.51	3.26
	norm	9.17	1.54	5.96	8.73	1.62	5.37	8.36	1.73	4.82	7.92	1.86	4.27	7.55	2.02	3.74	7.33	2.25	3.26	6.75	2.50	2.70	4.46	1.91	2.34	4.09	1.37	2.98
	min	4.65	0.64	7.29	4.43	0.67	6.57	4.24	0.72	5.90	4.02	0.77	5.22	3.83	0.84	4.58	3.72	0.93	3.98	3.42	1.04	3.31	3.13	1.23	2.55	2.87	1.38	2.07
12	max	10.15	1.83	5.54	9.66	1.94	4.99	9.26	2.07	4.48	9.43	2.50	3.78	9.00	2.71	3.32	9.28	3.40	2.73	7.47	2.97	2.51	5.51	2.49	2.21	5.05	1.50	3.35
	norm	9.43	1.54	6.14	8.97	1.62	5.54	8.60	1.73	4.97	8.14	1.85	4.39	7.77	2.01	3.86	7.54	2.25	3.35	6.94	2.49	2.78	4.59	1.90	2.41	4.21	1.37	3.07
	min	4.79	0.64	7.51	4.56	0.67	6.77	4.36	0.72	6.08	4.13	0.77	5.38	3.94	0.84	4.72	3.83	0.93	4.11	3.52	1.03	3.41	3.22	1.22	2.63	2.95	1.38	2.13
13	max	10.43	1.83	5.70	9.93	1.93	5.14	9.51	2.06	4.61	9.69	2.49	3.89	9.25	2.71	3.42	9.54	3.39	2.81	7.68	2.97	2.59	5.66	2.48	2.28	5.19	1.50	3.45
	norm	9.69	1.53	6.32	9.22	1.62	5.70	8.83	1.73	5.11	8.37	1.85	4.52	7.98	2.01	3.97	7.75	2.24	3.45	7.13	2.49	2.87	4.72	1.90	2.48	4.32	1.37	3.16
	min	4.92	0.64	7.73	4.68	0.67	6.97	4.48	0.72	6.25	4.25	0.77	5.54	4.05	0.83	4.86	3.93	0.93	4.23	3.62	1.03	3.51	3.30	1.22	2.70	3.03	1.38	2.20
14	max	10.71	1.83	5.86	10.20	1.93	5.29	9.77	2.06	4.74	9.95	2.49	4.00	9.49	2.70	3.51	9.79	3.38	2.89	7.88	2.96	2.66	5.81	2.48	2.34	5.33	1.50	3.55
	norm	9.95	1.53	6.50	9.47	1.62	5.86	9.07	1.73	5.26	8.59	1.85	4.65	8.19	2.01	4.08	7.96	2.24	3.55	7.32	2.48	2.95	4.84	1.90	2.55	4.44	1.37	3.25
	min	5.05	0.63	7.96	4.81	0.67	7.17	4.60	0.72	6.43	4.36	0.77	5.69	4.16	0.83	5.00	4.04	0.93	4.35	3.72	1.03	3.61	3.39	1.22	2.78	3.11	1.38	2.26
15	max	10.99	1.82	6.03	10.46	1.93	5.43	10.02	2.06	4.87	10.21	2.48	4.11	9.74	2.70	3.61	10.05	3.38	2.97	8.09	2.96	2.73	5.96	2.47	2.41	5.46	1.50	3.65
	norm	10.21	1.53	6.68	9.72	1.61	6.02	9.31	1.72	5.40	8.82	1.84	4.78	8.41	2.00	4.20	8.16	2.24	3.65	7.51	2.48	3.03	4.97	1.89	2.62	4.56	1.36	3.34
	min	5.18	0.63	8.18	4.93	0.67	7.37	4.73	0.71	6.61	4.48	0.76	5.85	4.27	0.83	5.14	4.14	0.93	4.47	3.81	1.03	3.71	3.48	1.22	2.86	3.19	1.37	2.32
18	max	11.78	1.81	6.52	11.21	1.91	5.87	10.74	2.04	5.27	10.95	2.46	4.45	10.44	2.67	3.90	10.77	3.35	3.22	8.67	2.93	2.96	6.39	2.45	2.61	5.86	1.48	3.95
	norm	10.94	1.51	7.22	10.41	1.60	6.51	9.97	1.71	5.84	9.45	1.83	5.17	9.01	1.99	4.54	8.50	2.24	3.79	8.05	2.46	3.28	5.33	1.88	2.84	4.88	1.35	3.61
	min	5.55	0.63	8.84	5.29	0.66	7.97	5.06	0.71	7.15	4.80	0.76	6.33	4.58	0.82	5.55	4.44	0.92	4.83	4.09	1.02	4.01	3.73	1.21	3.09	3.42	1.36	2.51
20	max	12.39	1.81	6.84	11.80	1.91	6.16	11.30	2.04	5.53	11.52	2.47	4.67	10.98	2.68	4.10	11.33	3.36	3.37	9.12	2.94	3.10	6.72	2.46	2.73	6.16	1.49	4.14
	norm	11.51	1.52	7.58	10.95	1.60	6.83	10.49	1.71	6.13	9.94	1.83	5.43	9.48	1.99	4.76	9.20	2.22	4.14	8.47	2.46	3.44	5.60	1.88	2.97	5.14	1.36	3.79
	min	5.84	0.63	9.27	5.56	0.66	8.36	5.33	0.71	7.50	5.05	0.76	6.64	4.81	0.83	5.83	4.67	0.92	5.07	4.30	1.02	4.21	3.93	1.21	3.24	3.60	1.37	2.64
23	max	13.18	1.80	7.33	12.54	1.90	6.60	12.02	2.03	5.92	12.25	2.45	5.00	11.68	2.66	4.39	12.05	3.33	3.61	9.70	2.92	3.32	7.15	2.44	2.93	6.55	1.48	4.44
	norm	12.24	1.51	8.12	11.65	1.59	7.32	11.16	1.70	6.57	10.57	1.82	5.81	10.08	1.98	5.10	9.79	2.21	4.44	9.01	2.45	3.68	5.96	1.87	3.19	5.46	1.35	4.06
	min	6.21	0.63	9.94	5.91	0.66	8.96	5.67	0.70	8.04	5.37	0.75	7.11	5.12	0.82	6.24	4.97	0.92	5.43	4.57	1.01	4.51	4.17	1.20	3.48	3.83	1.36	2.82
25	max	13.69	1.79	7.65	13.03	1.89	6.90	12.48	2.02	6.19	12.72	2.44	5.22	12.13	2.65	4.58	12.51	3.31	3.78	10.07	2.90	3.47	7.42	2.43	3.06	6.80	1.47	4.63
	norm	12.71	1.50	8.48	12.10	1.58	7.65	11.59	1.69	6.86	10.98	1.81	6.07	10.47	1.96	5.33	10.17	2.19	4.63	9.35	2.43	3.85	6.19	1.86	3.33	5.67	1.34	4.24
	min	6.45	0.62	10.38	6.14	0.66	9.36	5.88	0.70	8.39	5.57	0.75	7.43	5.32	0.82	6.52	5.16	0.91	5.67	4.75	1.01	4.71	4.34	1.19	3.63	3.97	1.35	2.95

GRS-CQ12Pd/NhH-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	12.75	2.58	4.94	12.14	2.72	4.46	11.63	2.91	4.00	11.02	3.11	3.54	10.51	3.38	3.11	10.80	4.06	2.66	8.46	3.64	2.32	6.30	3.33	1.89	5.78	3.75	1.54
	norm	11.50	2.24	5.12	10.95	2.37	4.62	10.49	2.53	4.14	9.94	2.71	3.67	9.48	2.94	3.22	10.59	3.80	2.79	6.90	2.81	2.46	5.88	3.05	1.93	5.39	3.44	1.57
	min	7.73	1.41	5.49	7.35	1.49	4.95	7.05	1.59	4.44	6.67	1.70	3.93	6.37	1.85	3.45	6.18	2.06	3.00	5.69	2.28	2.49	5.19	2.70	1.92	4.76	3.05	1.56
8	max	13.16	2.57	5.11	12.53	2.72	4.61	12.00	2.90	4.14	11.37	3.11	3.66	10.84	3.37	3.21	11.15	4.05	2.75	8.73	3.63	2.41	6.50	3.32	1.96	5.96	3.74	1.59
	norm	11.87	2.24	5.30	11.30	2.36	4.78	10.82	2.52	4.29	10.25	2.70	3.80	9.78	2.93	3.33	10.93	3.78	2.89	7.12	2.80	2.54	6.07	3.04	1.99	5.56	3.43	1.62
	min	7.97	1.40	5.68	7.59	1.48	5.12	7.27	1.58	4.60	6.89	1.69	4.07	6.57	1.84	3.57	6.38	2.05	3.11	5.87	2.28	2.58	5.36	2.70	1.99	4.91	3.04	1.61
9	max	13.57	2.57	5.28	12.91	2.71	4.76	12.37	2.89	4.27	11.72	3.10	3.78	11.18	3.37	3.32	11.49	4.04	2.84	9.01	3.62	2.49	6.70	3.31	2.03	6.14	3.73	1.65
	norm	12.24	2.23	5.48	11.65	2.36	4.94	11.16	2.52	4.43	10.57	2.69	3.92	10.08	2.93	3.44	11.27	3.78	2.98	7.34	2.79	2.63	6.26	3.04	2.06	5.73	3.43	1.67
	min	8.22	1.40	5.87	7.82	1.48	5.29	7.50	1.58	4.75	7.10	1.69	4.20	6.77	1.84	3.69	6.58	2.05	3.21	6.05	2.27	2.66	5.52	2.69	2.05	5.06	3.03	1.67
10	max	13.97	2.56	5.45	13.30	2.70	4.92	12.74	2.89	4.41	12.07	3.09	3.90	11.51	3.36	3.43	11.84	4.03	2.94	9.28	3.62	2.57	6.90	3.30	2.09	6.33	3.72	1.70
	norm	12.60	2.23	5.66	12.00	2.35	5.10	11.49	2.51	4.57	10.89	2.69	4.05	10.39	2.92	3.55	11.61	3.77	3.08	7.56	2.79	2.71	6.44	3.03	2.13	5.91	3.42	1.73
	min	8.47	1.40	6.06	8.06	1.47	5.46	7.72	1.58	4.90	7.32	1.69	4.34	6.98	1.83	3.81	6.77	2.05	3.31	6.23	2.27	2.75	5.69	2.68	2.12	5.22	3.03	1.72
11	max	14.38	2.56	5.63	13.69	2.70	5.07	13.12	2.88	4.55	12.43	3.09	4.03	11.85	3.35	3.54	12.18	4.02	3.03	9.55	3.61	2.65	7.11	3.29	2.16	6.51	3.72	1.75
	norm	12.97	2.22	5.83	12.35	2.35	5.26	11.83	2.51	4.72	11.21	2.68	4.18	10.69	2.92	3.67	11.95	3.76	3.18	7.78	2.78	2.80	6.63	3.02	2.19	6.08	3.41	1.78
	min	8.71	1.39	6.25	8.30	1.47	5.64	7.95	1.57	5.05	7.53	1.68	4.47	7.18	1.83	3.93	6.97	2.04	3.42	6.41	2.26	2.83	5.86	2.68	2.19	5.37	3.02	1.78
12	max	14.79	2.55	5.80	14.08	2.69	5.23	13.49	2.88	4.69	12.78	3.08	4.15	12.19	3.35	3.64	12.53	4.02	3.12	9.82	3.60	2.73	7.31	3.29	2.22	6.70	3.71	1.81
	norm	13.34	2.22	6.01	12.70	2.34	5.42	12.17	2.50	4.86	11.53	2.68	4.30	10.99	2.91	3.78	12.28	3.75	3.27	8.00	2.78	2.88	6.82	3.02	2.26	6.25	3.41	1.84
	min	8.96	1.39	6.44	8.53	1.47	5.81	8.17	1.57	5.21	7.74	1.68	4.61	7.38	1.82	4.05	7.17	2.04	3.52	6.60	2.26	2.92	6.02	2.67	2.25	5.52	3.02	1.83
13	max	15.20	2.55	5.97	14.47	2.69	5.38	13.86	2.87	4.83	13.13	3.07	4.27	12.52	3.34	3.75	12.87	4.01	3.21	10.09	3.60	2.81	7.51	3.28	2.29	6.88	3.70	1.86
	norm	13.71	2.22	6.19	13.05	2.34	5.58	12.50	2.50	5.00	11.84	2.67	4.43	11.30	2.91	3.89	12.62	3.75	3.37	8.22	2.77	2.97	7.01	3.01	2.33	6.42	3.40	1.89
	min	9.21	1.39	6.63	8.77	1.47	5.98	8.40	1.57	5.36	7.96	1.68	4.75	7.59	1.82	4.17	7.37	2.03	3.62	6.78	2.25	3.01	6.19	2.67	2.32	5.67	3.01	1.88
14	max	15.61	2.54	6.14	14.86	2.69	5.53	14.23	2.87	4.96	13.48	3.07	4.39	12.86	3.33	3.86	13.22	4.00	3.30	10.36	3.59	2.89	7.71	3.28	2.35	7.07	3.70	1.91
	norm	14.08	2.21	6.36	13.40	2.34	5.74	12.84	2.49	5.15	12.16	2.67	4.56	11.60	2.90	4.00	12.96	3.74	3.47	8.45	2.77	3.05	7.20	3.01	2.39	6.60	3.39	1.94
	min	9.46	1.39	6.82	9.00	1.46	6.15	8.62	1.56	5.51	8.17	1.67	4.88	7.79	1.82	4.28	7.56	2.03	3.73	6.96	2.25	3.09	6.35	2.66	2.38	5.82	3.01	1.94
15	max	16.01	2.54	6.31	15.25	2.68	5.69	14.60	2.86	5.10	13.84	3.06	4.51	13.20	3.33	3.96	13.56	3.99	3.40	10.63	3.58	2.97	7.91	3.27	2.42	7.25	3.69	1.96
	norm	14.44	2.21	6.54	13.75	2.33	5.90	13.17	2.49	5.29	12.48	2.67	4.68	11.90	2.90	4.11	13.30	3.73	3.56	8.67	2.76	3.14	7.39	3.00	2.46	6.77	3.39	2.00
	min	9.70	1.38	7.01	9.24	1.46	6.32	8.85	1.56	5.67	8.38	1.67	5.02	7.99	1.82	4.40	7.76	2.03	3.83	7.14	2.25	3.18	6.52	2.66	2.45	5.98	3.00	1.99
18	max	17.16	2.52	6.82	16.34	2.66	6.15	15.65	2.84	5.51	14.83	3.04	4.88	14.14	3.30	4.28	14.54	3.96	3.67	11.39	3.55	3.21	8.48	3.24	2.61	7.77	3.66	2.12
	norm	15.48	2.19	7.07	14.74	2.31	6.38	14.12	2.47	5.72	13.37	2.64	5.06	12.75	2.87	4.44	11.00	2.50	4.40	9.29	2.74	3.39	7.91	2.98	2.66	7.25	3.36	2.16
	min	10.40	1.37	7.58	9.90	1.45	6.83	9.48	1.55	6.13	8.98	1.66	5.42	8.57	1.80	4.76	8.32	2.01	4.14	7.65	2.23	3.44	6.99	2.64	2.65	6.41	2.98	2.15
20	max	18.05	2.52	7.15	17.19	2.66	6.45	16.47	2.85	5.79	15.60	3.05	5.12	14.88	3.31	4.50	15.29	3.97	3.85	11.99	3.56	3.37	8.92	3.25	2.74	8.18	3.67	2.23
	norm	16.28	2.19	7.42	15.50	2.32	6.69	14.85	2.47	6.00	14.07	2.65	5.31	13.42	2.88	4.66	15.00	3.71	4.04	9.77	2.75	3.56	8.33	2.98	2.79	7.63	3.37	2.27
	min	10.94	1.38	7.95	10.41	1.45	7.17	9.98	1.55	6.43	9.45	1.66	5.69	9.01	1.80	5.00	8.75	2.01	4.34	8.05	2.23	3.61	7.35	2.64	2.78	6.74	2.98	2.26
23	max	19.20	2.50	7.67	18.28	2.64	6.91	17.51	2.82	6.20	16.59	3.02	5.49	15.82	3.28	4.82	16.26	3.94	4.13	12.75	3.54	3.61	9.49	3.23	2.94	8.70	3.64	2.39
	norm	17.32	2.18	7.95	16.49	2.30	7.17	15.79	2.46	6.43	14.96	2.63	5.69	14.27	2.86	5.00	15.95	3.68	4.33	10.39	2.73	3.81	8.86	2.96	2.99	8.12	3.34	2.43
	min	11.63	1.37	8.52	11.08	1.44	7.68	10.61	1.54	6.89	10.05	1.65	6.10	9.59	1.79	5.35	9.31	2.00	4.65	8.56	2.22	3.86	7.82	2.62	2.98	7.17	2.96	2.42
25	max	19.94	2.49	8.01	18.98	2.63	7.22	18.19	2.81	6.48	17.23	3.01	5.73	16.43	3.27	5.03	16.89	3.92	4.31	13.24	3.52	3.77	9.85	3.21	3.07	9.03	3.62	2.49
	norm	17.99	2.17	8.30	17.12	2.29	7.49	16.40	2.44	6.72	15.54	2.61	5.94	14.82	2.84	5.22	16.56	3.66	4.52	10.79	2.71	3.98	9.20	2.95	3.12	8.43	3.32	2.54
	min	12.08	1.36	8.90	11.50	1.43	8.02	11.02	1.53	7.20	10.44	1.64	6.37	9.96	1.78	5.59	9.67	1.99	4.86	8.89	2.20	4.04	8.12	2.61	3.11	7.44	2.94	2.53

GRS-CQ14Pd/NhH-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	14.20	2.98	4.76	13.52	3.15	4.29	12.95	3.37	3.85	12.27	3.60	3.41	11.70	3.91	2.99	11.90	4.65	2.56	8.46	3.64	2.32	6.55	3.48	1.88	6.01	3.93	1.53
	norm	13.25	2.70	4.90	12.61	2.85	4.42	12.08	3.05	3.97	11.45	3.26	3.51	10.92	3.54	3.08	11.07	4.18	2.65	7.73	3.23	2.39	6.30	3.33	1.89	5.78	3.75	1.54
	min	7.73	1.41	5.49	7.35	1.49	4.95	7.05	1.59	4.44	6.67	1.70	3.93	6.37	1.85	3.45	6.18	2.06	3.00	5.69	2.28	2.49	5.19	2.70	1.92	4.76	3.05	1.56
8	max	14.65	2.98	4.92	13.95	3.14	4.44	13.36	3.36	3.98	12.66	3.59	3.53	12.08	3.90	3.09	12.28	4.63	2.65	8.73	3.63	2.41	6.76	3.47	1.95	6.20	3.92	1.58
	norm	13.67	2.69	5.08	13.02	2.84	4.58	12.47	3.04	4.11	11.81	3.25	3.63	11.27	3.53	3.19	11.42	4.17	2.74	7.98	3.22	2.47	6.50	3.32	1.96	5.96	3.74	1.59
	min	7.97	1.40	5.68	7.59	1.48	5.12	7.27	1.58	4.60	6.89	1.69	4.07	6.57	1.84	3.57	6.38	2.05	3.11	5.87	2.28	2.58	5.36	2.70	1.99	4.91	3.04	1.61
9	max	15.11	2.97	5.09	14.38	3.13	4.59	13.78	3.35	4.12	13.05	3.58	3.64	12.45	3.89	3.20	12.66	4.62	2.74	9.01	3.62	2.49	6.97	3.46	2.01	6.39	3.91	1.64
	norm	14.10	2.69	5.25	13.42	2.84	4.73	12.86	3.03	4.24	12.18	3.24	3.75	11.62	3.52	3.30	11.78	4.16	2.83	8.22	3.22	2.56	6.70	3.31	2.03	6.14	3.73	1.65
	min	8.22	1.40	5.87	7.82	1.48	5.29	7.50	1.58	4.75	7.10	1.69	4.20	6.77	1.84	3.69	6.58	2.05	3.21	6.05	2.27	2.66	5.52	2.69	2.05	5.06	3.03	1.67
10	max	15.56	2.96	5.25	14.82	3.13	4.74	14.19	3.34	4.25	13.45	3.58	3.76	12.82	3.88	3.30	13.04	4.61	2.83	9.28	3.62	2.57	7.18	3.46	2.08	6.58	3.90	1.69
	norm	14.52	2.68	5.41	13.82	2.83	4.88	13.24	3.02	4.38	12.55	3.24	3.88	11.97	3.52	3.40	12.13	4.15	2.93	8.47	3.21	2.64	6.90	3.30	2.09	6.33	3.72	1.70
	min	8.47	1.40	6.06	8.06	1.47	5.46	7.72	1.58	4.90	7.32	1.69	4.34	6.98	1.83	3.81	6.77	2.05	3.31	6.23	2.27	2.75	5.69	2.68	2.12	5.22	3.03	1.72
11	max	16.02	2.96	5.42	15.25	3.12	4.88	14.61	3.33	4.38	13.84	3.57	3.88	13.20	3.88	3.40	13.42	4.61	2.91	9.55	3.61	2.65	7.39	3.45	2.14	6.77	3.89	1.74
	norm	14.95	2.68	5.58	14.23	2.83	5.03	13.63	3.02	4.52	12.91	3.23	4.00	12.32	3.51	3.51	12.49	4.14	3.02	8.72	3.20	2.72	7.11	3.29	2.16	6.51	3.72	1.75
	min	8.71	1.39	6.25	8.30	1.47	5.64	7.95	1.57	5.05	7.53	1.68	4.47	7.18	1.83	3.93	6.97	2.04	3.42	6.41	2.26	2.83	5.86	2.68	2.19	5.37	3.02	1.78
12	max	16.47	2.95	5.58	15.68	3.12	5.03	15.02	3.33	4.51	14.23	3.56	4.00	13.57	3.87	3.51	13.80	4.60	3.00	9.82	3.60	2.73	7.60	3.44	2.21	6.97	3.89	1.79
	norm	15.37	2.67	5.75	14.63	2.82	5.19	14.02	3.01	4.65	13.28	3.22	4.12	12.66	3.50	3.62	12.84	4.13	3.11	8.96	3.20	2.80	7.31	3.29	2.22	6.70	3.71	1.81
	min	8.96	1.39	6.44	8.53	1.47	5.81	8.17	1.57	5.21	7.74	1.68	4.61	7.38	1.82	4.05	7.17	2.04	3.52	6.60	2.26	2.92	6.02	2.67	2.25	5.52	3.02	1.83
13	max	16.93	2.95	5.75	16.11	3.11	5.18	15.44	3.32	4.65	14.62	3.56	4.11	13.95	3.86	3.61	14.18	4.59	3.09	10.09	3.60	2.81	7.81	3.44	2.27	7.16	3.88	1.85
	norm	15.79	2.67	5.92	15.04	2.82	5.34	14.40	3.01	4.79	13.65	3.22	4.24	13.01	3.50	3.72	13.20	4.12	3.20	9.21	3.19	2.89	7.51	3.28	2.29	6.88	3.70	1.86
	min	9.21	1.39	6.63	8.77	1.47	5.98	8.40	1.57	5.36	7.96	1.68	4.75	7.59	1.82	4.17	7.37	2.03	3.62	6.78	2.25	3.01	6.19	2.67	2.32	5.67	3.01	1.88
14	max	17.38	2.94	5.91	16.55	3.11	5.33	15.85	3.32	4.78	15.02	3.55	4.23	14.32	3.86	3.71	14.57	4.58	3.18	10.36	3.59	2.89	8.02	3.43	2.34	7.35	3.87	1.90
	norm	16.22	2.66	6.09	15.44	2.81	5.49	14.79	3.00	4.93	14.01	3.21	4.36	13.36	3.49	3.83	13.55	4.12	3.29	9.46	3.19	2.97	7.71	3.28	2.35	7.07	3.70	1.91
	min	9.46	1.39	6.82	9.00	1.46	6.15	8.62	1.56	5.51	8.17	1.67	4.88	7.79	1.82	4.28	7.56	2.03	3.73	6.96	2.25	3.09	6.35	2.66	2.38	5.82	3.01	1.94
15	max	17.84	2.94	6.07	16.98	3.10	5.48	16.27	3.31	4.91	15.41	3.54	4.35	14.70	3.85	3.82	14.95	4.57	3.27	10.63	3.58	2.97	8.23	3.43	2.40	7.54	3.87	1.95
	norm	16.64	2.66	6.26	15.84	2.81	5.64	15.18	3.00	5.06	14.38	3.21	4.48	13.71	3.49	3.93	13.90	4.11	3.38	9.71	3.18	3.05	7.91	3.27	2.42	7.25	3.69	1.96
	min	9.70	1.38	7.01	9.24	1.46	6.32	8.85	1.56	5.67	8.38	1.67	5.02	7.99	1.82	4.40	7.76	2.03	3.83	7.14	2.25	3.18	6.52	2.66	2.45	5.98	3.00	1.99
18	max	19.11	2.91	6.57	18.20	3.07	5.92	17.43	3.28	5.31	16.51	3.51	4.70	15.75	3.82	4.13	16.02	4.53	3.53	11.39	3.55	3.21	8.82	3.40	2.60	8.08	3.83	2.11
	norm	17.83	2.64	6.77	16.98	2.78	6.10	16.27	2.97	5.47	15.41	3.18	4.84	14.70	3.46	4.25	12.60	3.41	3.70	10.40	3.15	3.30	8.48	3.24	2.61	7.77	3.66	2.12
	min	10.40	1.37	7.58	9.90	1.45	6.83	9.48	1.55	6.13	8.98	1.66	5.42	8.57	1.80	4.76	8.32	2.01	4.14	7.65	2.23	3.44	6.99	2.64	2.65	6.41	2.98	2.15
20	max	20.11	2.92	6.89	19.14	3.08	6.21	18.34	3.29	5.57	17.37	3.52	4.93	16.57	3.83	4.33	16.85	4.55	3.71	11.99	3.56	3.37	9.28	3.41	2.72	8.50	3.84	2.21
	norm	18.76	2.64	7.10	17.86	2.79	6.40	17.11	2.98	5.74	16.21	3.19	5.08	15.46	3.46	4.46	15.68	4.09	3.84	10.94	3.16	3.46	8.92	3.25	2.74	8.18	3.67	2.23
	min	10.94	1.38	7.95	10.41	1.45	7.17	9.98	1.55	6.43	9.45	1.66	5.69	9.01	1.80	5.00	8.75	2.01	4.34	8.05	2.23	3.61	7.35	2.64	2.78	6.74	2.98	2.26
23	max	21.39	2.90	7.38	20.36	3.06	6.66	19.50	3.27	5.97	18.48	3.50	5.28	17.62	3.80	4.64	17.92	4.51	3.97	12.75	3.54	3.61	9.87	3.38	2.92	9.05	3.81	2.37
	norm	19.95	2.62	7.61	19.00	2.77	6.86	18.20	2.96	6.15	17.24	3.17	5.45	16.44	3.44	4.78	16.67	4.05	4.11	11.64	3.14	3.71	9.49	3.23	2.94	8.70	3.64	2.39
	min	11.63	1.37	8.52	11.08	1.44	7.68	10.61	1.54	6.89	10.05	1.65	6.10	9.59	1.79	5.35	9.31	2.00	4.65	8.56	2.22	3.86	7.82	2.62	2.98	7.17	2.96	2.42
25	max	22.21	2.88	7.71	21.14	3.04	6.95	20.25	3.25	6.24	19.19	3.48	5.52	18.30	3.78	4.85	18.61	4.49	4.15	13.24	3.52	3.77	10.25	3.36	3.05	9.39	3.79	2.48
	norm	20.72	2.61	7.95	19.73	2.75	7.17	18.90	2.94	6.43	17.90	3.15	5.69	17.08	3.42	4.99	17.31	4.03	4.29	12.09	3.12	3.87	9.85	3.21	3.07	9.03	3.62	2.49
	min	12.08	1.36	8.90	11.50	1.43	8.02	11.02	1.53	7.20	10.44	1.64	6.37	9.96	1.78	5.59	9.67	1.99	4.86	8.89	2.20	4.04	8.12	2.61	3.11	7.44	2.94	2.53

GRS-CQ16Pd/NhH-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	14.88	3.18	4.68	14.16	3.35	4.22	13.57	3.58	3.79	12.85	3.83	3.35	12.26	4.16	2.94	12.40	4.94	2.51	9.75	4.38	2.22	7.06	3.83	1.84	6.47	4.32	1.50
	norm	13.75	2.85	4.83	13.09	3.01	4.36	12.54	3.21	3.91	11.88	3.44	3.46	11.33	3.73	3.04	11.57	4.52	2.56	8.96	3.91	2.29	6.55	3.48	1.88	6.01	3.93	1.53
	min	7.73	1.41	5.49	7.35	1.49	4.95	7.05	1.59	4.44	6.67	1.70	3.93	6.37	1.85	3.45	6.18	2.06	3.00	5.69	2.28	2.49	5.19	2.70	1.92	4.76	3.05	1.56
8	max	15.35	3.17	4.85	14.61	3.34	4.37	14.00	3.57	3.92	13.26	3.82	3.47	12.65	4.15	3.05	12.80	4.93	2.60	10.06	4.37	2.30	7.28	3.82	1.91	6.67	4.31	1.55
	norm	14.19	2.84	5.00	13.51	3.00	4.51	12.94	3.20	4.04	12.26	3.43	3.58	11.69	3.72	3.14	11.94	4.51	2.65	9.25	3.90	2.37	6.76	3.47	1.95	6.20	3.92	1.58
	min	7.97	1.40	5.68	7.59	1.48	5.12	7.27	1.58	4.60	6.89	1.69	4.07	6.57	1.84	3.57	6.38	2.05	3.11	5.87	2.28	2.58	5.36	2.70	1.99	4.91	3.04	1.61
9	max	15.83	3.16	5.01	15.07	3.34	4.52	14.43	3.56	4.05	13.67	3.81	3.59	13.04	4.14	3.15	13.19	4.91	2.68	10.38	4.36	2.38	7.51	3.81	1.97	6.88	4.30	1.60
	norm	14.63	2.83	5.17	13.93	2.99	4.66	13.34	3.19	4.18	12.64	3.42	3.70	12.06	3.71	3.25	12.31	4.50	2.74	9.53	3.89	2.45	6.97	3.46	2.01	6.39	3.91	1.64
	min	8.22	1.40	5.87	7.82	1.48	5.29	7.50	1.58	4.75	7.10	1.69	4.20	6.77	1.84	3.69	6.58	2.05	3.21	6.05	2.27	2.66	5.52	2.69	2.05	5.06	3.03	1.67
10	max	16.30	3.15	5.17	15.52	3.33	4.66	14.87	3.55	4.18	14.09	3.80	3.70	13.43	4.13	3.25	13.59	4.90	2.77	10.69	4.35	2.46	7.73	3.80	2.03	7.09	4.29	1.65
	norm	15.07	2.83	5.33	14.35	2.98	4.81	13.74	3.19	4.31	13.02	3.41	3.82	12.42	3.70	3.35	12.68	4.49	2.83	9.82	3.88	2.53	7.18	3.46	2.08	6.58	3.90	1.69
	min	8.47	1.40	6.06	8.06	1.47	5.46	7.72	1.58	4.90	7.32	1.69	4.34	6.98	1.83	3.81	6.77	2.05	3.31	6.23	2.27	2.75	5.69	2.68	2.12	5.22	3.03	1.72
11	max	16.78	3.15	5.33	15.97	3.32	4.81	15.30	3.55	4.31	14.50	3.80	3.82	13.83	4.12	3.35	13.99	4.89	2.86	11.00	4.34	2.53	7.96	3.79	2.10	7.30	4.28	1.71
	norm	15.51	2.82	5.50	14.77	2.98	4.96	14.15	3.18	4.45	13.40	3.40	3.94	12.78	3.70	3.46	13.05	4.48	2.91	10.11	3.88	2.61	7.39	3.45	2.14	6.77	3.89	1.74
	min	8.71	1.39	6.25	8.30	1.47	5.64	7.95	1.57	5.05	7.53	1.68	4.47	7.18	1.83	3.93	6.97	2.04	3.42	6.41	2.26	2.83	5.86	2.68	2.19	5.37	3.02	1.78
12	max	17.26	3.14	5.50	16.43	3.32	4.95	15.74	3.54	4.44	14.91	3.79	3.93	14.22	4.12	3.45	14.38	4.89	2.94	11.31	4.34	2.61	8.18	3.79	2.16	7.50	4.27	1.76
	norm	15.95	2.81	5.67	15.18	2.97	5.11	14.55	3.17	4.58	13.78	3.40	4.06	13.14	3.69	3.56	13.42	4.47	3.00	10.39	3.87	2.69	7.60	3.44	2.21	6.97	3.89	1.79
	min	8.96	1.39	6.44	8.53	1.47	5.81	8.17	1.57	5.21	7.74	1.68	4.61	7.38	1.82	4.05	7.17	2.04	3.52	6.60	2.26	2.92	6.02	2.67	2.25	5.52	3.02	1.83
13	max	17.73	3.13	5.66	16.88	3.31	5.10	16.17	3.53	4.57	15.32	3.78	4.05	14.61	4.11	3.55	14.78	4.88	3.03	11.62	4.33	2.69	8.41	3.78	2.23	7.71	4.26	1.81
	norm	16.39	2.81	5.83	15.60	2.97	5.26	14.95	3.17	4.72	14.16	3.39	4.18	13.51	3.68	3.67	13.79	4.46	3.09	10.68	3.86	2.77	7.81	3.44	2.27	7.16	3.88	1.85
	min	9.21	1.39	6.63	8.77	1.47	5.98	8.40	1.57	5.36	7.96	1.68	4.75	7.59	1.82	4.17	7.37	2.03	3.62	6.78	2.25	3.01	6.19	2.67	2.32	5.67	3.01	1.88
14	max	18.21	3.13	5.82	17.33	3.30	5.25	16.60	3.53	4.71	15.73	3.78	4.17	15.00	4.10	3.66	15.18	4.87	3.12	11.94	4.32	2.76	8.64	3.77	2.29	7.92	4.26	1.86
	norm	16.83	2.80	6.00	16.02	2.96	5.41	15.35	3.16	4.85	14.54	3.39	4.30	13.87	3.68	3.77	14.16	4.45	3.18	10.97	3.85	2.85	8.02	3.43	2.34	7.35	3.87	1.90
	min	9.46	1.39	6.82	9.00	1.46	6.15	8.62	1.56	5.51	8.17	1.67	4.88	7.79	1.82	4.28	7.56	2.03	3.73	6.96	2.25	3.09	6.35	2.66	2.38	5.82	3.01	1.94
15	max	18.68	3.12	5.98	17.79	3.30	5.39	17.04	3.52	4.84	16.14	3.77	4.28	15.39	4.10	3.76	15.57	4.86	3.20	12.25	4.31	2.84	8.86	3.77	2.35	8.12	4.25	1.91
	norm	17.27	2.80	6.17	16.44	2.96	5.56	15.75	3.16	4.99	14.92	3.38	4.41	14.23	3.67	3.88	14.53	4.45	3.27	11.25	3.85	2.92	8.23	3.43	2.40	7.54	3.87	1.95
	min	9.70	1.38	7.01	9.24	1.46	6.32	8.85	1.56	5.67	8.38	1.67	5.02	7.99	1.82	4.40	7.76	2.03	3.83	7.14	2.25	3.18	6.52	2.66	2.45	5.98	3.00	1.99
18	max	20.02	3.10	6.47	19.06	3.27	5.83	18.26	3.49	5.23	17.30	3.74	4.63	16.50	4.06	4.06	16.69	4.82	3.46	13.13	4.28	3.07	9.50	3.73	2.54	8.71	4.21	2.07
	norm	18.51	2.78	6.67	17.62	2.93	6.01	16.88	3.13	5.39	15.99	3.35	4.77	15.25	3.64	4.19	13.00	3.60	3.61	12.06	3.82	3.16	8.82	3.40	2.60	8.08	3.83	2.11
	min	10.40	1.37	7.58	9.90	1.45	6.83	9.48	1.55	6.13	8.98	1.66	5.42	8.57	1.80	4.76	8.32	2.01	4.14	7.65	2.23	3.44	6.99	2.64	2.65	6.41	2.98	2.15
20	max	21.06	3.10	6.78	20.05	3.28	6.12	19.21	3.50	5.49	18.20	3.75	4.86	17.36	4.07	4.26	17.56	4.83	3.63	13.81	4.29	3.22	9.99	3.74	2.67	9.16	4.22	2.17
	norm	19.47	2.78	7.00	18.54	2.94	6.31	17.76	3.14	5.66	16.82	3.36	5.01	16.04	3.65	4.40	16.38	4.42	3.71	12.69	3.83	3.32	9.28	3.41	2.72	8.50	3.84	2.21
	min	10.94	1.38	7.95	10.41	1.45	7.17	9.98	1.55	6.43	9.45	1.66	5.69	9.01	1.80	5.00	8.75	2.01	4.34	8.05	2.23	3.61	7.35	2.64	2.78	6.74	2.98	2.26
23	max	22.40	3.08	7.27	21.33	3.25	6.55	20.43	3.48	5.88	19.36	3.72	5.20	18.46	4.04	4.57	18.67	4.80	3.89	14.69	4.26	3.45	10.63	3.72	2.86	9.74	4.19	2.32
	norm	20.71	2.76	7.50	19.71	2.92	6.76	18.89	3.12	6.06	17.89	3.33	5.37	17.06	3.62	4.71	17.42	4.39	3.97	13.49	3.80	3.55	9.87	3.38	2.92	9.05	3.81	2.37
	min	11.63	1.37	8.52	11.08	1.44	7.68	10.61	1.54	6.89	10.05	1.65	6.10	9.59	1.79	5.35	9.31	2.00	4.65	8.56	2.22	3.86	7.82	2.62	2.98	7.17	2.96	2.42
25	max	23.26	3.06	7.59	22.15	3.24	6.84	21.22	3.46	6.14	20.10	3.70	5.43	19.17	4.02	4.77	19.39	4.77	4.07	15.25	4.23	3.60	11.04	3.69	2.99	10.12	4.17	2.43
	norm	21.51	2.75	7.83	20.47	2.90	7.06	19.61	3.10	6.33	18.58	3.32	5.60	17.72	3.60	4.92	18.10	4.36	4.15	14.01	3.78	3.71	10.25	3.36	3.05	9.39	3.79	2.48
	min	12.08	1.36	8.90	11.50	1.43	8.02	11.02	1.53	7.20	10.44	1.64	6.37	9.96	1.78	5.59	9.67	1.99	4.86	8.89	2.20	4.04	8.12	2.61	3.11	7.44	2.94	2.53

GRS-CQ4.0Pd/NhH2-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	6.48	1.04	6.24	6.16	1.10	5.63	5.91	1.17	5.05	5.27	1.16	4.53	5.03	1.26	3.98	4.88	1.41	3.46	3.66	1.23	2.99	2.59	1.09	2.37	2.37	1.23	1.92
	norm	5.73	0.89	6.41	5.45	0.94	5.78	5.22	1.01	5.18	3.67	0.76	4.83	3.50	0.83	4.24	3.40	0.92	3.69	3.11	1.01	3.07	2.34	0.96	2.43	2.14	1.08	1.98
	min	3.10	0.44	7.06	2.95	0.46	6.37	2.83	0.49	5.71	2.68	0.53	5.06	2.55	0.58	4.44	2.48	0.64	3.86	2.28	0.71	3.20	2.08	0.84	2.47	1.91	0.95	2.01
8	max	6.68	1.03	6.46	6.36	1.09	5.82	6.09	1.17	5.22	5.44	1.16	4.69	5.19	1.26	4.12	5.04	1.41	3.58	3.78	1.22	3.09	2.67	1.09	2.45	2.45	1.23	1.99
	norm	5.91	0.89	6.63	5.62	0.94	5.98	5.39	1.01	5.36	3.79	0.76	5.00	3.61	0.82	4.39	3.51	0.92	3.82	3.21	1.01	3.18	2.41	0.96	2.52	2.21	1.08	2.05
	min	3.20	0.44	7.31	3.05	0.46	6.59	2.92	0.49	5.91	2.76	0.53	5.23	2.64	0.57	4.59	2.56	0.64	4.00	2.35	0.71	3.32	2.15	0.84	2.56	1.97	0.95	2.08
9	max	6.89	1.03	6.67	6.56	1.09	6.02	6.28	1.16	5.40	5.61	1.16	4.85	5.35	1.26	4.26	5.19	1.40	3.70	3.90	1.22	3.20	2.75	1.09	2.53	2.52	1.23	2.06
	norm	6.09	0.89	6.85	5.80	0.94	6.18	5.56	1.00	5.54	3.91	0.76	5.17	3.73	0.82	4.54	3.62	0.92	3.95	3.31	1.01	3.28	2.48	0.96	2.60	2.28	1.08	2.11
	min	3.30	0.44	7.55	3.14	0.46	6.81	3.01	0.49	6.11	2.85	0.53	5.41	2.72	0.57	4.75	2.64	0.64	4.13	2.43	0.71	3.43	2.22	0.84	2.64	2.03	0.95	2.15
10	max	7.10	1.03	6.89	6.76	1.09	6.21	6.47	1.16	5.57	5.78	1.15	5.00	5.51	1.25	4.39	5.35	1.40	3.82	4.01	1.22	3.30	2.84	1.08	2.61	2.60	1.22	2.12
	norm	6.27	0.89	7.07	5.97	0.94	6.38	5.72	1.00	5.72	4.02	0.75	5.34	3.84	0.82	4.68	3.73	0.91	4.07	3.41	1.01	3.39	2.56	0.95	2.68	2.35	1.08	2.18
	min	3.40	0.44	7.80	3.23	0.46	7.03	3.10	0.49	6.31	2.94	0.53	5.58	2.80	0.57	4.90	2.72	0.64	4.26	2.50	0.71	3.54	2.28	0.84	2.73	2.09	0.94	2.22
11	max	7.30	1.03	7.10	6.95	1.09	6.41	6.66	1.16	5.75	5.95	1.15	5.16	5.67	1.25	4.53	5.50	1.40	3.94	4.13	1.21	3.40	2.92	1.08	2.70	2.68	1.22	2.19
	norm	6.46	0.89	7.29	6.15	0.94	6.57	5.89	1.00	5.90	4.14	0.75	5.50	3.95	0.82	4.83	3.84	0.91	4.20	3.51	1.00	3.50	2.63	0.95	2.77	2.41	1.07	2.25
	min	3.50	0.43	8.04	3.33	0.46	7.25	3.19	0.49	6.50	3.02	0.52	5.76	2.88	0.57	5.05	2.80	0.64	4.39	2.57	0.71	3.65	2.35	0.84	2.81	2.15	0.94	2.29
12	max	7.51	1.03	7.32	7.15	1.08	6.60	6.85	1.16	5.92	6.11	1.15	5.32	5.83	1.25	4.67	5.66	1.39	4.06	4.25	1.21	3.50	3.00	1.08	2.78	2.75	1.22	2.26
	norm	6.64	0.88	7.51	6.32	0.93	6.77	6.06	1.00	6.08	4.26	0.75	5.67	4.06	0.82	4.98	3.94	0.91	4.33	3.61	1.00	3.60	2.71	0.95	2.85	2.48	1.07	2.32
	min	3.60	0.43	8.29	3.42	0.46	7.47	3.28	0.49	6.70	3.11	0.52	5.93	2.96	0.57	5.21	2.88	0.64	4.53	2.65	0.70	3.76	2.42	0.83	2.90	2.22	0.94	2.35
13	max	7.72	1.02	7.54	7.35	1.08	6.79	7.04	1.16	6.09	6.28	1.15	5.47	5.99	1.25	4.80	5.82	1.39	4.18	4.36	1.21	3.61	3.08	1.08	2.86	2.83	1.22	2.32
	norm	6.82	0.88	7.73	6.50	0.93	6.97	6.22	1.00	6.25	4.38	0.75	5.84	4.17	0.81	5.12	4.05	0.91	4.46	3.71	1.00	3.71	2.78	0.95	2.94	2.55	1.07	2.39
	min	3.70	0.43	8.53	3.52	0.46	7.69	3.37	0.49	6.90	3.19	0.52	6.11	3.04	0.57	5.36	2.96	0.63	4.66	2.72	0.70	3.87	2.48	0.83	2.98	2.28	0.94	2.42
14	max	7.93	1.02	7.75	7.54	1.08	6.99	7.23	1.15	6.27	6.45	1.15	5.63	6.15	1.24	4.94	5.97	1.39	4.30	4.48	1.21	3.71	3.17	1.08	2.94	2.90	1.21	2.39
	norm	7.01	0.88	7.96	6.67	0.93	7.17	6.39	0.99	6.43	4.49	0.75	6.00	4.29	0.81	5.27	4.16	0.91	4.58	3.81	1.00	3.81	2.86	0.95	3.02	2.62	1.07	2.45
	min	3.79	0.43	8.77	3.61	0.46	7.91	3.46	0.49	7.10	3.28	0.52	6.28	3.13	0.57	5.51	3.04	0.63	4.79	2.79	0.70	3.98	2.55	0.83	3.07	2.34	0.94	2.49
15	max	8.13	1.02	7.97	7.74	1.08	7.18	7.42	1.15	6.44	6.62	1.14	5.79	6.31	1.24	5.08	6.13	1.39	4.42	4.60	1.21	3.81	3.25	1.08	3.02	2.98	1.21	2.46
	norm	7.19	0.88	8.18	6.85	0.93	7.37	6.56	0.99	6.61	4.61	0.75	6.17	4.40	0.81	5.42	4.27	0.91	4.71	3.91	1.00	3.92	2.93	0.94	3.10	2.69	1.07	2.52
	min	3.89	0.43	9.02	3.71	0.46	8.13	3.55	0.49	7.29	3.36	0.52	6.45	3.21	0.57	5.67	3.11	0.63	4.93	2.87	0.70	4.09	2.62	0.83	3.15	2.40	0.94	2.56
18	max	8.72	1.01	8.61	8.30	1.07	7.76	7.95	1.14	6.96	7.09	1.13	6.25	6.77	1.23	5.49	6.57	1.38	4.77	4.93	1.20	4.12	3.48	1.07	3.27	3.19	1.20	2.66
	norm	7.71	0.87	8.84	7.34	0.92	7.97	7.03	0.98	7.15	4.94	0.74	6.67	4.71	0.80	5.86	3.90	0.68	5.74	4.19	0.99	4.24	3.14	0.94	3.36	2.88	1.06	2.73
	min	4.17	0.43	9.75	3.97	0.45	8.79	3.81	0.48	7.88	3.61	0.52	6.98	3.44	0.56	6.13	3.34	0.63	5.33	3.07	0.69	4.42	2.80	0.82	3.41	2.57	0.93	2.77
20	max	9.17	1.01	9.04	8.73	1.07	8.15	8.36	1.14	7.31	7.46	1.14	6.56	7.12	1.24	5.76	6.91	1.38	5.01	5.18	1.20	4.33	3.66	1.07	3.43	3.36	1.21	2.79
	norm	8.11	0.87	9.27	7.72	0.92	8.36	7.39	0.99	7.50	5.20	0.74	7.00	4.96	0.81	6.14	4.81	0.90	5.34	4.40	0.99	4.45	3.31	0.94	3.52	3.03	1.06	2.86
	min	4.39	0.43	10.23	4.18	0.45	9.22	4.00	0.48	8.27	3.79	0.52	7.32	3.62	0.56	6.43	3.51	0.63	5.59	3.23	0.70	4.64	2.95	0.82	3.58	2.70	0.93	2.91
23	max	9.75	1.01	9.68	9.28	1.06	8.73	8.89	1.14	7.83	7.94	1.13	7.03	7.57	1.23	6.17	7.35	1.37	5.37	5.51	1.19	4.64	3.90	1.06	3.67	3.57	1.20	2.99
	norm	8.62	0.87	9.94	8.21	0.92	8.96	7.86	0.98	8.04	5.53	0.74	7.50	5.27	0.80	6.58	5.12	0.89	5.73	4.68	0.98	4.76	3.52	0.93	3.77	3.22	1.05	3.07
	min	4.67	0.43	10.96	4.44	0.45	9.88	4.26	0.48	8.86	4.03	0.51	7.85	3.85	0.56	6.89	3.73	0.62	5.99	3.44	0.69	4.97	3.14	0.82	3.83	2.88	0.92	3.11
26	max	10.13	1.00	10.11	9.64	1.06	9.12	9.24	1.13	8.18	8.24	1.12	7.35	7.86	1.22	6.45	7.63	1.36	5.61	5.73	1.18	4.84	4.05	1.05	3.84	3.71	1.19	3.12
	norm	8.95	0.86	10.38	8.52	0.91	9.36	8.17	0.97	8.39	5.74	0.73	7.83	5.48	0.80	6.88	5.32	0.89	5.98	4.86	0.98	4.98	3.65	0.93	3.94	3.35	1.05	3.20
	min	4.85	0.42	11.45	4.62	0.45	10.32	4.42	0.48	9.26	4.19	0.51	8.19	4.00	0.56	7.19	3.88	0.62	6.26	3.57	0.69	5.19	3.26	0.81	4.00	2.99	0.92	3.25

GRS-CQ6.0Pd/NhH2-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	7.23	1.20	6.04	6.88	1.26	5.45	6.59	1.35	4.88	6.24	1.44	4.32	5.95	1.57	3.80	5.78	1.75	3.30	4.21	1.45	2.91	2.84	1.20	2.37	2.60	1.35	1.92
	norm	5.00	0.79	6.31	4.76	0.84	5.69	4.56	0.89	5.11	4.32	0.96	4.52	4.12	1.04	3.97	4.00	1.16	3.45	3.39	1.13	2.99	2.59	1.08	2.41	2.37	1.21	1.96
	min	3.10	0.44	7.06	2.95	0.46	6.37	2.83	0.49	5.71	2.68	0.53	5.06	2.55	0.58	4.44	2.48	0.64	3.86	2.28	0.71	3.20	2.08	0.84	2.47	1.91	0.95	2.01
8	max	7.46	1.19	6.25	7.10	1.26	5.64	6.80	1.35	5.05	6.44	1.44	4.47	6.14	1.56	3.93	5.96	1.75	3.42	4.35	1.45	3.01	2.93	1.20	2.45	2.69	1.35	1.99
	norm	5.16	0.79	6.53	4.91	0.83	5.89	4.71	0.89	5.28	4.46	0.95	4.68	4.25	1.04	4.11	4.13	1.16	3.57	3.49	1.13	3.09	2.67	1.07	2.49	2.45	1.21	2.02
	min	3.20	0.44	7.31	3.05	0.46	6.59	2.92	0.49	5.91	2.76	0.53	5.23	2.64	0.57	4.59	2.56	0.64	4.00	2.35	0.71	3.32	2.15	0.84	2.56	1.97	0.95	2.08
9	max	7.69	1.19	6.46	7.32	1.26	5.82	7.01	1.34	5.22	6.64	1.44	4.62	6.33	1.56	4.06	6.15	1.74	3.53	4.48	1.44	3.11	3.02	1.19	2.53	2.77	1.35	2.06
	norm	5.32	0.79	6.75	5.06	0.83	6.09	4.85	0.89	5.46	4.60	0.95	4.83	4.38	1.03	4.24	4.26	1.15	3.69	3.60	1.13	3.20	2.75	1.07	2.57	2.52	1.21	2.09
	min	3.30	0.44	7.55	3.14	0.46	6.81	3.01	0.49	6.11	2.85	0.53	5.41	2.72	0.57	4.75	2.64	0.64	4.13	2.43	0.71	3.43	2.22	0.84	2.64	2.03	0.95	2.15
10	max	7.92	1.19	6.67	7.54	1.25	6.01	7.22	1.34	5.39	6.84	1.43	4.77	6.52	1.56	4.19	6.33	1.74	3.64	4.62	1.44	3.21	3.11	1.19	2.61	2.85	1.34	2.12
	norm	5.48	0.79	6.97	5.22	0.83	6.28	5.00	0.89	5.64	4.73	0.95	4.99	4.52	1.03	4.38	4.38	1.15	3.81	3.71	1.12	3.30	2.84	1.07	2.66	2.60	1.20	2.16
	min	3.40	0.44	7.80	3.23	0.46	7.03	3.10	0.49	6.31	2.94	0.53	5.58	2.80	0.57	4.90	2.72	0.64	4.26	2.50	0.71	3.54	2.28	0.84	2.73	2.09	0.94	2.22
11	max	8.15	1.19	6.88	7.76	1.25	6.20	7.43	1.34	5.56	7.04	1.43	4.92	6.72	1.55	4.32	6.52	1.74	3.76	4.75	1.44	3.31	3.20	1.19	2.70	2.94	1.34	2.19
	norm	5.64	0.78	7.19	5.37	0.83	6.48	5.14	0.88	5.81	4.87	0.95	5.15	4.65	1.03	4.52	4.51	1.15	3.93	3.82	1.12	3.40	2.92	1.07	2.74	2.68	1.20	2.23
	min	3.50	0.43	8.04	3.33	0.46	7.25	3.19	0.49	6.50	3.02	0.52	5.76	2.88	0.57	5.05	2.80	0.64	4.39	2.57	0.71	3.65	2.35	0.84	2.81	2.15	0.94	2.29
12	max	8.38	1.18	7.08	7.98	1.25	6.39	7.64	1.33	5.73	7.24	1.43	5.07	6.91	1.55	4.45	6.70	1.73	3.87	4.89	1.43	3.41	3.29	1.19	2.78	3.02	1.34	2.26
	norm	5.80	0.78	7.41	5.52	0.83	6.68	5.29	0.88	5.99	5.01	0.95	5.30	4.78	1.03	4.65	4.64	1.15	4.05	3.93	1.12	3.50	3.00	1.06	2.82	2.75	1.20	2.29
	min	3.60	0.43	8.29	3.42	0.46	7.47	3.28	0.49	6.70	3.11	0.52	5.93	2.96	0.57	5.21	2.88	0.64	4.53	2.65	0.70	3.76	2.42	0.83	2.90	2.22	0.94	2.35
13	max	8.61	1.18	7.29	8.20	1.25	6.57	7.85	1.33	5.90	7.44	1.43	5.22	7.10	1.55	4.58	6.89	1.73	3.98	5.02	1.43	3.51	3.38	1.18	2.86	3.10	1.34	2.32
	norm	5.96	0.78	7.62	5.67	0.83	6.87	5.44	0.88	6.17	5.15	0.94	5.46	4.91	1.03	4.79	4.77	1.14	4.17	4.04	1.12	3.61	3.08	1.06	2.91	2.83	1.20	2.36
	min	3.70	0.43	8.53	3.52	0.46	7.69	3.37	0.49	6.90	3.19	0.52	6.11	3.04	0.57	5.36	2.96	0.63	4.66	2.72	0.70	3.87	2.48	0.83	2.98	2.28	0.94	2.42
14	max	8.84	1.18	7.50	8.42	1.24	6.76	8.07	1.33	6.07	7.64	1.42	5.37	7.29	1.55	4.71	7.07	1.73	4.10	5.16	1.43	3.61	3.48	1.18	2.94	3.19	1.33	2.39
	norm	6.12	0.78	7.84	5.83	0.82	7.07	5.58	0.88	6.34	5.29	0.94	5.61	5.04	1.02	4.93	4.90	1.14	4.28	4.14	1.12	3.71	3.17	1.06	2.99	2.90	1.20	2.43
	min	3.79	0.43	8.77	3.61	0.46	7.91	3.46	0.49	7.10	3.28	0.52	6.28	3.13	0.57	5.51	3.04	0.63	4.79	2.79	0.70	3.98	2.55	0.83	3.07	2.34	0.94	2.49
15	max	9.07	1.18	7.71	8.64	1.24	6.95	8.28	1.33	6.23	7.84	1.42	5.52	7.48	1.54	4.84	7.26	1.72	4.21	5.29	1.43	3.71	3.57	1.18	3.02	3.27	1.33	2.46
	norm	6.28	0.78	8.06	5.98	0.82	7.27	5.73	0.88	6.52	5.43	0.94	5.77	5.17	1.02	5.06	5.02	1.14	4.40	4.25	1.11	3.81	3.25	1.06	3.07	2.98	1.19	2.50
	min	3.89	0.43	9.02	3.71	0.46	8.13	3.55	0.49	7.29	3.36	0.52	6.45	3.21	0.57	5.67	3.11	0.63	4.93	2.87	0.70	4.09	2.62	0.83	3.15	2.40	0.94	2.56
18	max	9.72	1.17	8.33	9.26	1.23	7.51	8.87	1.32	6.74	8.40	1.41	5.97	8.01	1.53	5.24	7.78	1.71	4.55	5.67	1.41	4.01	3.82	1.17	3.27	3.50	1.32	2.66
	norm	6.73	0.77	8.71	6.41	0.82	7.86	6.14	0.87	7.05	5.81	0.93	6.24	5.55	1.01	5.48	5.80	1.13	5.15	4.56	1.11	4.12	3.48	1.05	3.32	3.19	1.18	2.70
	min	4.17	0.43	9.75	3.97	0.45	8.79	3.81	0.48	7.88	3.61	0.52	6.98	3.44	0.56	6.13	3.34	0.63	5.33	3.07	0.69	4.42	2.80	0.82	3.41	2.57	0.93	2.77
20	max	10.23	1.17	8.74	9.74	1.24	7.88	9.33	1.32	7.07	8.84	1.41	6.26	8.43	1.53	5.50	8.18	1.71	4.78	5.97	1.42	4.21	4.02	1.17	3.43	3.69	1.32	2.79
	norm	7.08	0.77	9.14	6.74	0.82	8.24	6.46	0.87	7.39	6.12	0.93	6.54	5.83	1.02	5.74	5.66	1.13	5.00	4.79	1.11	4.33	3.66	1.05	3.48	3.36	1.19	2.83
	min	4.39	0.43	10.23	4.18	0.45	9.22	4.00	0.48	8.27	3.79	0.52	7.32	3.62	0.56	6.43	3.51	0.63	5.59	3.23	0.70	4.64	2.95	0.82	3.58	2.70	0.93	2.91
23	max	10.88	1.16	9.37	10.36	1.23	8.45	9.92	1.31	7.58	9.40	1.40	6.71	8.97	1.52	5.89	8.70	1.70	5.12	6.35	1.41	4.51	4.28	1.16	3.67	3.92	1.31	2.99
	norm	7.53	0.77	9.80	7.17	0.81	8.83	6.87	0.87	7.92	6.51	0.93	7.01	6.20	1.01	6.16	6.02	1.13	5.35	5.10	1.10	4.64	3.90	1.04	3.73	3.57	1.18	3.03
	min	4.67	0.43	10.96	4.44	0.45	9.88	4.26	0.48	8.86	4.03	0.51	7.85	3.85	0.56	6.89	3.73	0.62	5.99	3.44	0.69	4.97	3.14	0.82	3.83	2.88	0.92	3.11
25	max	11.30	1.15	9.79	10.76	1.22	8.82	10.31	1.30	7.91	9.76	1.39	7.01	9.31	1.51	6.15	9.04	1.69	5.35	6.59	1.40	4.71	4.44	1.16	3.84	4.07	1.31	3.12
	norm	7.82	0.76	10.23	7.44	0.81	9.22	7.13	0.86	8.27	6.76	0.92	7.32	6.44	1.00	6.43	6.26	1.12	5.59	5.30	1.09	4.84	4.05	1.04	3.90	3.71	1.17	3.17
	min	4.85	0.42	11.45	4.62	0.45	10.32	4.42	0.48	9.26	4.19	0.51	8.19	4.00	0.56	7.19	3.88	0.62	6.26	3.57	0.69	5.19	3.26	0.81	4.00	2.99	0.92	3.25

GRS-CQ8.0Pd/NhH2-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	8.96	1.77	5.05	8.53	1.87	4.55	8.17	2.00	4.08	8.21	2.38	3.45	7.83	2.59	3.02	8.10	3.23	2.51	6.26	2.64	2.37	4.28	2.03	2.11	3.93	2.30	1.71
	norm	7.75	1.41	5.49	7.38	1.49	4.95	7.07	1.59	4.44	7.34	1.70	4.31	7.00	1.85	3.78	7.15	2.49	2.87	4.69	1.82	2.57	3.61	1.62	2.23	3.31	1.82	1.81
	min	4.85	0.73	6.61	4.62	0.78	5.96	4.42	0.83	5.34	4.19	0.89	4.73	4.00	0.96	4.15	3.88	1.07	3.61	3.57	1.19	3.00	3.26	1.41	2.31	2.99	1.59	1.88
8	max	9.25	1.77	5.23	8.81	1.87	4.71	8.44	2.00	4.23	8.47	2.38	3.57	8.08	2.58	3.13	8.36	3.22	2.60	6.46	2.64	2.45	4.42	2.03	2.18	4.05	2.29	1.77
	norm	8.00	1.41	5.68	7.61	1.49	5.12	7.29	1.59	4.60	7.58	1.70	4.46	7.23	1.85	3.92	7.38	2.48	2.97	4.84	1.82	2.66	3.73	1.61	2.31	3.42	1.82	1.88
	min	5.01	0.73	6.84	4.76	0.77	6.16	4.56	0.83	5.53	4.32	0.88	4.89	4.12	0.96	4.30	4.00	1.07	3.74	3.68	1.19	3.10	3.36	1.41	2.39	3.08	1.59	1.94
9	max	9.54	1.77	5.40	9.08	1.86	4.87	8.70	1.99	4.37	8.73	2.37	3.68	8.33	2.57	3.23	8.62	3.21	2.68	6.66	2.63	2.53	4.56	2.02	2.25	4.18	2.28	1.83
	norm	8.25	1.40	5.87	7.85	1.48	5.29	7.52	1.58	4.75	7.81	1.70	4.61	7.45	1.84	4.05	7.61	2.48	3.07	4.99	1.81	2.75	3.84	1.61	2.39	3.52	1.82	1.94
	min	5.16	0.73	7.07	4.91	0.77	6.37	4.71	0.82	5.71	4.46	0.88	5.06	4.25	0.96	4.44	4.13	1.07	3.86	3.80	1.19	3.20	3.47	1.40	2.47	3.18	1.58	2.01
10	max	9.82	1.76	5.58	9.35	1.86	5.03	8.96	1.99	4.51	9.00	2.37	3.80	8.58	2.57	3.34	8.88	3.20	2.77	6.86	2.63	2.61	4.70	2.02	2.32	4.30	2.28	1.89
	norm	8.49	1.40	6.06	8.09	1.48	5.46	7.75	1.58	4.90	8.05	1.69	4.76	7.68	1.84	4.18	7.84	2.47	3.17	5.14	1.81	2.84	3.96	1.61	2.47	3.63	1.81	2.00
	min	5.32	0.73	7.29	5.06	0.77	6.58	4.85	0.82	5.90	4.59	0.88	5.22	4.38	0.96	4.58	4.25	1.07	3.99	3.91	1.18	3.31	3.57	1.40	2.55	3.27	1.58	2.07
11	max	10.11	1.76	5.75	9.62	1.86	5.18	9.22	1.98	4.65	9.26	2.36	3.92	8.83	2.56	3.44	9.14	3.20	2.86	7.06	2.62	2.69	4.83	2.02	2.40	4.43	2.27	1.95
	norm	8.74	1.40	6.25	8.32	1.48	5.64	7.97	1.58	5.05	8.28	1.69	4.91	7.90	1.83	4.31	8.07	2.47	3.27	5.29	1.81	2.93	4.07	1.60	2.54	3.73	1.81	2.07
	min	5.47	0.73	7.52	5.21	0.77	6.78	4.99	0.82	6.08	4.73	0.88	5.38	4.51	0.95	4.73	4.38	1.06	4.11	4.03	1.18	3.41	3.68	1.40	2.63	3.37	1.58	2.14
12	max	10.40	1.75	5.92	9.90	1.85	5.34	9.48	1.98	4.79	9.52	2.36	4.04	9.08	2.56	3.55	9.40	3.19	2.94	7.26	2.62	2.77	4.97	2.01	2.47	4.56	2.27	2.01
	norm	8.99	1.40	6.44	8.56	1.47	5.81	8.20	1.57	5.21	8.52	1.69	5.06	8.12	1.83	4.44	8.29	2.46	3.37	5.44	1.80	3.02	4.19	1.60	2.62	3.84	1.80	2.13
	min	5.63	0.73	7.75	5.36	0.77	6.99	5.13	0.82	6.27	4.86	0.88	5.55	4.64	0.95	4.87	4.50	1.06	4.23	4.14	1.18	3.51	3.78	1.40	2.71	3.47	1.57	2.20
13	max	10.68	1.75	6.10	10.17	1.85	5.50	9.74	1.98	4.93	9.78	2.35	4.16	9.33	2.55	3.65	9.66	3.19	3.03	7.46	2.61	2.86	5.11	2.01	2.54	4.68	2.27	2.07
	norm	9.24	1.39	6.63	8.79	1.47	5.98	8.43	1.57	5.36	8.75	1.68	5.20	8.35	1.83	4.57	8.52	2.46	3.47	5.59	1.80	3.11	4.31	1.60	2.70	3.95	1.80	2.19
	min	5.78	0.72	7.98	5.50	0.77	7.19	5.27	0.82	6.45	4.99	0.87	5.71	4.76	0.95	5.01	4.62	1.06	4.36	4.25	1.18	3.62	3.88	1.39	2.79	3.56	1.57	2.27
14	max	10.97	1.75	6.27	10.44	1.85	5.66	10.00	1.97	5.07	10.05	2.35	4.28	9.58	2.55	3.76	9.91	3.18	3.12	7.66	2.61	2.94	5.24	2.01	2.62	4.81	2.26	2.12
	norm	9.49	1.39	6.82	9.03	1.47	6.15	8.65	1.57	5.51	8.99	1.68	5.35	8.57	1.82	4.70	8.75	2.46	3.56	5.74	1.80	3.20	4.42	1.59	2.77	4.05	1.80	2.25
	min	5.94	0.72	8.21	5.65	0.76	7.40	5.41	0.82	6.64	5.13	0.87	5.87	4.89	0.95	5.16	4.75	1.06	4.48	4.37	1.17	3.72	3.99	1.39	2.87	3.66	1.57	2.33
15	max	11.26	1.75	6.45	10.72	1.84	5.81	10.27	1.97	5.21	10.31	2.34	4.40	9.83	2.55	3.86	10.17	3.18	3.20	7.86	2.60	3.02	5.38	2.00	2.69	4.93	2.26	2.18
	norm	9.73	1.39	7.01	9.27	1.47	6.32	8.88	1.57	5.67	9.22	1.68	5.50	8.80	1.82	4.83	8.98	2.45	3.66	5.89	1.79	3.28	4.54	1.59	2.85	4.16	1.80	2.32
	min	6.09	0.72	8.43	5.80	0.76	7.60	5.56	0.81	6.82	5.26	0.87	6.04	5.02	0.95	5.30	4.87	1.06	4.61	4.48	1.17	3.82	4.09	1.39	2.95	3.75	1.57	2.40
18	max	12.06	1.73	6.97	11.48	1.83	6.28	11.00	1.95	5.64	11.05	2.32	4.75	10.54	2.52	4.17	10.90	3.15	3.46	8.42	2.58	3.26	5.77	1.98	2.91	5.29	2.24	2.36
	norm	10.43	1.38	7.58	9.93	1.45	6.83	9.51	1.55	6.13	9.89	1.66	5.95	9.43	1.81	5.22	7.70	1.72	4.48	6.32	1.78	3.55	4.86	1.58	3.08	4.46	1.78	2.50
	min	6.53	0.72	9.12	6.21	0.76	8.22	5.95	0.81	7.37	5.64	0.86	6.53	5.38	0.94	5.73	5.22	1.05	4.98	4.80	1.16	4.13	4.39	1.38	3.19	4.02	1.55	2.59
20	max	12.69	1.74	7.31	12.08	1.83	6.59	11.57	1.96	5.91	11.62	2.33	4.99	11.08	2.53	4.38	11.47	3.16	3.63	8.86	2.59	3.43	6.07	1.99	3.05	5.56	2.24	2.48
	norm	10.97	1.38	7.95	10.45	1.46	7.17	10.01	1.56	6.43	10.40	1.67	6.24	9.92	1.81	5.48	10.12	2.44	4.16	6.64	1.78	3.73	5.11	1.58	3.23	4.69	1.78	2.63
	min	6.87	0.72	9.57	6.54	0.76	8.63	6.26	0.81	7.74	5.93	0.87	6.85	5.66	0.94	6.01	5.49	1.05	5.23	5.05	1.17	4.34	4.62	1.38	3.35	4.23	1.56	2.72
23	max	13.50	1.72	7.84	12.85	1.82	7.07	12.31	1.94	6.34	12.36	2.31	5.35	11.79	2.51	4.69	12.20	3.13	3.89	9.42	2.57	3.67	6.45	1.97	3.27	5.91	2.23	2.65
	norm	11.67	1.37	8.52	11.11	1.45	7.68	10.64	1.55	6.89	11.06	1.65	6.69	10.55	1.80	5.87	10.77	2.42	4.45	7.07	1.77	3.99	5.44	1.57	3.47	4.99	1.77	2.82
	min	7.30	0.71	10.25	6.95	0.75	9.24	6.66	0.80	8.29	6.31	0.86	7.34	6.02	0.93	6.44	5.84	1.04	5.60	5.38	1.16	4.65	4.91	1.37	3.58	4.50	1.54	2.91
25	max	14.02	1.71	8.18	13.34	1.81	7.38	12.78	1.93	6.62	12.84	2.30	5.58	12.24	2.50	4.90	12.67	3.11	4.07	9.78	2.55	3.83	6.70	1.96	3.41	6.14	2.22	2.77
	norm	12.12	1.36	8.90	11.54	1.44	8.02	11.05	1.54	7.20	11.49	1.64	6.98	10.95	1.79	6.13	11.18	2.40	4.65	7.34	1.76	4.17	5.65	1.56	3.62	5.18	1.76	2.94
	min	7.59	0.71	10.71	7.22	0.75	9.65	6.92	0.80	8.66	6.55	0.86	7.66	6.25	0.93	6.73	6.07	1.04	5.85	5.58	1.15	4.86	5.10	1.36	3.74	4.67	1.54	3.04

GRS-CQ10Pd/NhH2-E																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	9.50	1.97	4.81	9.04	2.08	4.34	8.66	2.23	3.89	8.75	2.66	3.29	8.34	2.89	2.89	8.50	3.56	2.39	6.99	3.20	2.18	5.21	2.71	1.92	4.77	1.67	2.86
	norm	8.50	1.63	5.22	8.09	1.72	4.70	7.75	1.84	4.22	7.72	2.14	3.62	7.36	2.32	3.17	7.60	2.77	2.74	6.26	2.64	2.37	4.28	2.03	2.11	3.93	1.50	2.62
	min	4.85	0.73	6.61	4.62	0.78	5.96	4.42	0.83	5.34	4.19	0.89	4.73	4.00	0.96	4.15	3.88	1.07	3.61	3.57	1.19	3.00	3.26	1.41	2.31	2.99	1.59	1.88
8	max	9.80	1.97	4.98	9.33	2.08	4.49	8.94	2.22	4.03	9.03	2.65	3.40	8.61	2.88	2.99	8.77	3.55	2.47	7.22	3.19	2.26	5.37	2.70	1.99	4.93	1.66	2.96
	norm	8.77	1.63	5.40	8.35	1.72	4.87	8.00	1.83	4.37	7.97	2.13	3.74	7.60	2.31	3.29	7.84	2.77	2.84	6.46	2.64	2.45	4.42	2.03	2.18	4.05	1.50	2.71
	min	5.01	0.73	6.84	4.76	0.77	6.16	4.56	0.83	5.53	4.32	0.88	4.89	4.12	0.96	4.30	4.00	1.07	3.74	3.68	1.19	3.10	3.36	1.41	2.39	3.08	1.59	1.94
9	max	10.11	1.96	5.15	9.62	2.07	4.64	9.22	2.21	4.16	9.31	2.65	3.52	8.88	2.88	3.09	9.04	3.54	2.56	7.44	3.19	2.33	5.54	2.70	2.05	5.08	1.66	3.06
	norm	9.04	1.62	5.58	8.61	1.71	5.03	8.25	1.83	4.51	8.22	2.12	3.87	7.84	2.31	3.39	8.09	2.76	2.93	6.66	2.63	2.53	4.56	2.02	2.25	4.18	1.49	2.80
	min	5.16	0.73	7.07	4.91	0.77	6.37	4.71	0.82	5.71	4.46	0.88	5.06	4.25	0.96	4.44	4.13	1.07	3.86	3.80	1.19	3.20	3.47	1.40	2.47	3.18	1.58	2.01
10	max	10.41	1.96	5.31	9.91	2.07	4.79	9.50	2.21	4.30	9.59	2.64	3.63	9.14	2.87	3.19	9.32	3.53	2.64	7.66	3.18	2.41	5.71	2.69	2.12	5.23	1.66	3.16
	norm	9.32	1.62	5.76	8.87	1.71	5.19	8.50	1.82	4.66	8.46	2.12	3.99	8.07	2.30	3.50	8.33	2.75	3.02	6.86	2.63	2.61	4.70	2.02	2.32	4.30	1.49	2.89
	min	5.32	0.73	7.29	5.06	0.77	6.58	4.85	0.82	5.90	4.59	0.88	5.22	4.38	0.96	4.58	4.25	1.07	3.99	3.91	1.18	3.31	3.57	1.40	2.55	3.27	1.58	2.07
11	max	10.72	1.96	5.48	10.20	2.06	4.94	9.77	2.21	4.43	9.87	2.64	3.74	9.41	2.86	3.29	9.59	3.52	2.72	7.89	3.17	2.49	5.87	2.69	2.19	5.39	1.65	3.26
	norm	9.59	1.61	5.94	9.13	1.70	5.35	8.74	1.82	4.80	8.71	2.12	4.12	8.31	2.30	3.61	8.57	2.75	3.12	7.06	2.62	2.69	4.83	2.02	2.40	4.43	1.49	2.98
	min	5.47	0.73	7.52	5.21	0.77	6.78	4.99	0.82	6.08	4.73	0.88	5.38	4.51	0.95	4.73	4.38	1.06	4.11	4.03	1.18	3.41	3.68	1.40	2.63	3.37	1.58	2.14
12	max	11.02	1.95	5.65	10.49	2.06	5.09	10.05	2.20	4.57	10.15	2.63	3.86	9.68	2.86	3.39	9.86	3.52	2.80	8.11	3.17	2.56	6.04	2.68	2.25	5.54	1.65	3.35
	norm	9.86	1.61	6.12	9.39	1.70	5.52	8.99	1.82	4.95	8.96	2.11	4.24	8.54	2.29	3.72	8.82	2.74	3.21	7.26	2.62	2.77	4.97	2.01	2.47	4.56	1.48	3.07
	min	5.63	0.73	7.75	5.36	0.77	6.99	5.13	0.82	6.27	4.86	0.88	5.55	4.64	0.95	4.87	4.50	1.06	4.23	4.14	1.18	3.51	3.78	1.40	2.71	3.47	1.57	2.20
13	max	11.32	1.95	5.81	10.78	2.06	5.24	10.33	2.20	4.70	10.43	2.63	3.97	9.94	2.85	3.49	10.13	3.51	2.89	8.33	3.16	2.64	6.21	2.68	2.32	5.69	1.65	3.45
	norm	10.13	1.61	6.30	9.65	1.70	5.68	9.24	1.81	5.09	9.20	2.11	4.37	8.78	2.29	3.83	9.06	2.74	3.31	7.46	2.61	2.86	5.11	2.01	2.54	4.68	1.48	3.16
	min	5.78	0.72	7.98	5.50	0.77	7.19	5.27	0.82	6.45	4.99	0.87	5.71	4.76	0.95	5.01	4.62	1.06	4.36	4.25	1.18	3.62	3.88	1.39	2.79	3.56	1.57	2.27
14	max	11.63	1.95	5.98	11.07	2.05	5.39	10.60	2.19	4.83	10.71	2.62	4.08	10.21	2.85	3.59	10.40	3.50	2.97	8.56	3.16	2.71	6.37	2.67	2.38	5.84	1.65	3.55
	norm	10.40	1.61	6.48	9.90	1.70	5.84	9.49	1.81	5.24	9.45	2.10	4.49	9.01	2.29	3.94	9.30	2.73	3.40	7.66	2.61	2.94	5.24	2.01	2.62	4.81	1.48	3.25
	min	5.94	0.72	8.21	5.65	0.76	7.40	5.41	0.82	6.64	5.13	0.87	5.87	4.89	0.95	5.16	4.75	1.06	4.48	4.37	1.17	3.72	3.99	1.39	2.87	3.66	1.57	2.33
15	max	11.93	1.94	6.14	11.36	2.05	5.54	10.88	2.19	4.97	10.99	2.62	4.20	10.48	2.84	3.68	10.68	3.50	3.05	8.78	3.15	2.79	6.54	2.67	2.45	6.00	1.64	3.65
	norm	10.68	1.60	6.66	10.16	1.69	6.00	9.74	1.81	5.38	9.70	2.10	4.62	9.25	2.28	4.05	9.55	2.73	3.50	7.86	2.60	3.02	5.38	2.00	2.69	4.93	1.48	3.34
	min	6.09	0.72	8.43	5.80	0.76	7.60	5.56	0.81	6.82	5.26	0.87	6.04	5.02	0.95	5.30	4.87	1.06	4.61	4.48	1.17	3.82	4.09	1.39	2.95	3.75	1.57	2.40
18	max	12.79	1.93	6.64	12.17	2.03	5.99	11.66	2.17	5.37	11.77	2.59	4.54	11.23	2.82	3.98	11.44	3.47	3.30	9.41	3.12	3.01	7.01	2.65	2.65	6.43	1.63	3.95
	norm	11.44	1.59	7.20	10.89	1.68	6.49	10.43	1.79	5.82	10.39	2.08	4.99	9.91	2.26	4.38	9.35	2.36	3.96	8.42	2.58	3.26	5.77	1.98	2.91	5.29	1.46	3.61
	min	6.53	0.72	9.12	6.21	0.76	8.22	5.95	0.81	7.37	5.64	0.86	6.53	5.38	0.94	5.73	5.22	1.05	4.98	4.80	1.16	4.13	4.39	1.38	3.19	4.02	1.55	2.59
20	max	13.45	1.93	6.97	12.81	2.04	6.28	12.27	2.18	5.64	12.39	2.60	4.76	11.81	2.83	4.18	12.04	3.48	3.46	9.90	3.13	3.16	7.37	2.65	2.78	6.76	1.63	4.14
	norm	12.04	1.59	7.55	11.46	1.68	6.81	10.98	1.80	6.11	10.93	2.09	5.24	10.43	2.27	4.60	10.76	2.71	3.97	8.86	2.59	3.43	6.07	1.99	3.05	5.56	1.47	3.79
	min	6.87	0.72	9.57	6.54	0.76	8.63	6.26	0.81	7.74	5.93	0.87	6.85	5.66	0.94	6.01	5.49	1.05	5.23	5.05	1.17	4.34	4.62	1.38	3.35	4.23	1.56	2.72
23	max	14.31	1.92	7.47	13.62	2.02	6.73	13.05	2.16	6.04	13.17	2.58	5.10	12.56	2.81	4.48	12.80	3.45	3.71	10.53	3.11	3.39	7.84	2.63	2.98	7.19	1.62	4.44
	norm	12.80	1.58	8.09	12.19	1.67	7.30	11.67	1.78	6.54	11.63	2.07	5.61	11.09	2.25	4.92	11.45	2.69	4.25	9.42	2.57	3.67	6.45	1.97	3.27	5.91	1.46	4.06
	min	7.30	0.71	10.25	6.95	0.75	9.24	6.66	0.80	8.29	6.31	0.86	7.34	6.02	0.93	6.44	5.84	1.04	5.60	5.38	1.16	4.65	4.91	1.37	3.58	4.50	1.54	2.91
25	max	14.86	1.91	7.80	14.14	2.01	7.03	13.55	2.15	6.31	13.68	2.57	5.33	13.05	2.79	4.68	13.29	3.43	3.87	10.94	3.09	3.54	8.15	2.62	3.11	7.47	1.61	4.63
	norm	13.29	1.57	8.45	12.66	1.66	7.62	12.12	1.77	6.84	12.08	2.06	5.86	11.52	2.24	5.14	11.89	2.68	4.44	9.78	2.55	3.83	6.70	1.96	3.41	6.14	1.45	4.24
	min	7.59	0.71	10.71	7.22	0.75	9.65	6.92	0.80	8.66	6.55	0.86	7.66	6.25	0.93	6.73	6.07	1.04	5.85	5.58	1.15	4.86	5.10	1.36	3.74	4.67	1.54	3.04

(2) Cooling capacity, power and efficiency for the 3-phase units

GRS-CQ8Pd/NhH-M																													
Outflow Water (°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	8.96	1.61	5.58	8.53	1.70	5.03	8.17	1.81	4.51	8.21	2.09	3.93	7.83	2.27	3.45	8.10	2.75	2.95	6.26	2.44	2.56	4.28	2.05	2.09	3.93	2.31	1.70
	norm	7.75	1.34	5.76	7.38	1.42	5.20	7.07	1.52	4.66	7.34	1.81	4.05	7.00	1.97	3.55	7.60	2.48	3.07	4.69	1.73	2.71	3.61	1.68	2.14	3.31	1.90	1.74
	min	4.38	0.69	6.30	4.17	0.73	5.68	3.99	0.78	5.09	3.78	0.84	4.51	3.61	0.91	3.96	3.50	1.02	3.44	3.22	1.13	2.86	2.94	1.34	2.20	2.70	1.51	1.79
8	max	9.25	1.60	5.78	8.81	1.69	5.21	8.44	1.81	4.67	8.47	2.08	4.07	8.08	2.26	3.57	8.36	2.74	3.05	6.46	2.43	2.65	4.42	2.04	2.17	4.05	2.30	1.76
	norm	8.00	1.34	5.97	7.61	1.42	5.38	7.29	1.51	4.83	7.58	1.81	4.19	7.23	1.97	3.68	7.84	2.47	3.18	4.84	1.72	2.81	3.73	1.68	2.22	3.42	1.90	1.80
	min	4.52	0.69	6.52	4.30	0.73	5.87	4.12	0.78	5.27	3.90	0.84	4.66	3.72	0.91	4.09	3.61	1.01	3.56	3.32	1.12	2.96	3.03	1.33	2.28	2.78	1.50	1.85
9	max	9.54	1.60	5.97	9.08	1.69	5.38	8.70	1.80	4.83	8.73	2.08	4.20	8.33	2.26	3.69	8.62	2.73	3.16	6.66	2.43	2.74	4.56	2.04	2.24	4.18	2.30	1.82
	norm	8.25	1.34	6.17	7.85	1.41	5.56	7.52	1.51	4.99	7.81	1.80	4.33	7.45	1.96	3.80	8.09	2.46	3.28	4.99	1.72	2.90	3.84	1.68	2.29	3.52	1.89	1.86
	min	4.66	0.69	6.73	4.43	0.73	6.07	4.25	0.78	5.45	4.02	0.83	4.82	3.84	0.91	4.23	3.72	1.01	3.68	3.43	1.12	3.05	3.13	1.33	2.35	2.87	1.50	1.91
10	max	9.82	1.59	6.16	9.35	1.68	5.56	8.96	1.80	4.98	9.00	2.07	4.34	8.58	2.25	3.81	8.88	2.73	3.26	6.86	2.42	2.83	4.70	2.03	2.31	4.30	2.29	1.88
	norm	8.49	1.33	6.36	8.09	1.41	5.74	7.75	1.51	5.15	8.05	1.80	4.47	7.68	1.96	3.92	8.33	2.46	3.39	5.14	1.72	3.00	3.96	1.67	2.37	3.63	1.89	1.92
	min	4.80	0.69	6.95	4.56	0.73	6.27	4.37	0.78	5.62	4.14	0.83	4.98	3.95	0.90	4.37	3.84	1.01	3.80	3.53	1.12	3.15	3.22	1.33	2.43	2.95	1.50	1.97
11	max	10.11	1.59	6.35	9.62	1.68	5.73	9.22	1.79	5.14	9.26	2.07	4.47	8.83	2.25	3.93	9.14	2.72	3.36	7.06	2.42	2.92	4.83	2.03	2.38	4.43	2.29	1.94
	norm	8.74	1.33	6.56	8.32	1.41	5.92	7.97	1.50	5.31	8.28	1.80	4.61	7.90	1.95	4.05	8.57	2.45	3.50	5.29	1.71	3.09	4.07	1.67	2.44	3.73	1.88	1.98
	min	4.94	0.69	7.17	4.70	0.73	6.46	4.50	0.78	5.80	4.26	0.83	5.13	4.07	0.90	4.50	3.95	1.01	3.92	3.63	1.12	3.25	3.32	1.32	2.51	3.04	1.49	2.04
12	max	10.40	1.59	6.55	9.90	1.68	5.90	9.48	1.79	5.29	9.52	2.07	4.61	9.08	2.24	4.05	9.40	2.72	3.46	7.26	2.41	3.01	4.97	2.02	2.45	4.56	2.28	1.99
	norm	8.99	1.33	6.76	8.56	1.40	6.10	8.20	1.50	5.47	8.52	1.79	4.75	8.12	1.95	4.17	8.82	2.45	3.60	5.44	1.71	3.18	4.19	1.67	2.51	3.84	1.88	2.04
	min	5.08	0.69	7.38	4.83	0.73	6.66	4.63	0.78	5.97	4.38	0.83	5.29	4.18	0.90	4.64	4.06	1.01	4.04	3.74	1.12	3.35	3.41	1.32	2.58	3.13	1.49	2.10
13	max	10.68	1.59	6.74	10.17	1.67	6.08	9.74	1.79	5.45	9.78	2.06	4.75	9.33	2.24	4.17	9.66	2.71	3.56	7.46	2.41	3.10	5.11	2.02	2.53	4.68	2.28	2.05
	norm	9.24	1.33	6.96	8.79	1.40	6.28	8.43	1.50	5.63	8.75	1.79	4.89	8.35	1.95	4.29	9.06	2.44	3.71	5.59	1.71	3.28	4.31	1.66	2.59	3.95	1.88	2.10
	min	5.22	0.69	7.60	4.96	0.72	6.85	4.76	0.77	6.15	4.51	0.83	5.44	4.30	0.90	4.78	4.17	1.00	4.15	3.84	1.11	3.45	3.50	1.32	2.66	3.21	1.49	2.16
14	max	10.97	1.58	6.93	10.44	1.67	6.25	10.00	1.78	5.61	10.05	2.06	4.88	9.58	2.24	4.28	9.91	2.71	3.66	7.66	2.40	3.19	5.24	2.02	2.60	4.81	2.28	2.11
	norm	9.49	1.32	7.16	9.03	1.40	6.46	8.65	1.49	5.79	8.99	1.79	5.03	8.57	1.94	4.41	9.30	2.44	3.81	5.74	1.70	3.37	4.42	1.66	2.66	4.05	1.87	2.16
	min	5.36	0.68	7.82	5.10	0.72	7.05	4.88	0.77	6.32	4.63	0.83	5.60	4.41	0.90	4.91	4.28	1.00	4.27	3.94	1.11	3.55	3.60	1.32	2.73	3.30	1.48	2.22
15	max	11.26	1.58	7.12	10.72	1.67	6.42	10.27	1.78	5.76	10.31	2.06	5.02	9.83	2.23	4.40	10.17	2.70	3.77	7.86	2.40	3.27	5.38	2.01	2.67	4.93	2.27	2.17
	norm	9.73	1.32	7.36	9.27	1.40	6.63	8.88	1.49	5.95	9.22	1.79	5.17	8.80	1.94	4.54	9.55	2.44	3.92	5.89	1.70	3.46	4.54	1.66	2.74	4.16	1.87	2.22
	min	5.50	0.68	8.04	5.23	0.72	7.25	5.01	0.77	6.50	4.75	0.83	5.75	4.53	0.90	5.05	4.40	1.00	4.39	4.04	1.11	3.64	3.69	1.31	2.81	3.38	1.48	2.28
18	max	12.06	1.57	7.70	11.48	1.65	6.94	11.00	1.77	6.23	11.05	2.04	5.42	10.54	2.21	4.76	10.90	2.68	4.07	8.42	2.38	3.54	5.77	2.00	2.89	5.29	2.25	2.35
	norm	10.43	1.31	7.96	9.93	1.38	7.17	9.51	1.48	6.43	9.89	1.77	5.59	9.43	1.92	4.90	8.50	1.74	4.89	6.32	1.69	3.75	4.86	1.64	2.96	4.46	1.85	2.40
	min	5.89	0.68	8.69	5.61	0.72	7.83	5.37	0.76	7.03	5.09	0.82	6.22	4.85	0.89	5.46	4.71	0.99	4.75	4.33	1.10	3.94	3.96	1.30	3.04	3.63	1.47	2.47
20	max	12.69	1.57	8.08	12.08	1.66	7.29	11.57	1.77	6.54	11.62	2.04	5.69	11.08	2.22	5.00	11.47	2.69	4.27	8.86	2.39	3.71	6.07	2.00	3.03	5.56	2.26	2.46
	norm	10.97	1.31	8.35	10.45	1.39	7.53	10.01	1.48	6.75	10.40	1.77	5.86	9.92	1.93	5.15	10.76	2.42	4.45	6.64	1.69	3.93	5.11	1.65	3.10	4.69	1.86	2.52
	min	6.20	0.68	9.12	5.90	0.72	8.22	5.65	0.77	7.37	5.35	0.82	6.53	5.10	0.89	5.73	4.96	0.99	4.98	4.56	1.10	4.13	4.16	1.31	3.19	3.82	1.47	2.59
23	max	13.50	1.56	8.66	12.85	1.65	7.81	12.31	1.76	7.00	12.36	2.03	6.10	11.79	2.20	5.35	12.20	2.67	4.58	9.42	2.37	3.98	6.45	1.99	3.25	5.91	2.24	2.64
	norm	11.67	1.31	8.94	11.11	1.38	8.06	10.64	1.47	7.23	11.06	1.76	6.28	10.55	1.91	5.51	11.45	2.40	4.76	7.07	1.68	4.21	5.44	1.64	3.33	4.99	1.84	2.70
	min	6.59	0.67	9.77	6.27	0.71	8.81	6.01	0.76	7.90	5.69	0.81	6.99	5.43	0.88	6.14	5.27	0.99	5.34	4.85	1.09	4.43	4.43	1.30	3.42	4.06	1.46	2.78
25	max	14.02	1.55	9.04	13.34	1.64	8.16	12.78	1.75	7.31	12.84	2.02	6.37	12.24	2.19	5.59	12.67	2.65	4.78	9.78	2.35	4.16	6.70	1.98	3.39	6.14	2.23	2.76
	norm	12.12	1.30	9.34	11.54	1.37	8.42	11.05	1.46	7.55	11.49	1.75	6.56	10.95	1.90	5.76	11.89	2.39	4.97	7.34	1.67	4.40	5.65	1.63	3.47	5.18	1.83	2.82
	min	6.84	0.67	10.20	6.51	0.71	9.20	6.24	0.76	8.25	5.91	0.81	7.30	5.64	0.88	6.41	5.47	0.98	5.57	5.04	1.09	4.63	4.60	1.29	3.57	4.21	1.45	2.90

GRS-CQ10Pd/NhH-M																													
Outflow Water(°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	9.50	1.73	5.49	9.04	1.83	4.95	8.66	1.95	4.44	8.75	2.26	3.86	8.34	2.46	3.39	8.50	2.93	2.90	6.99	2.81	2.49	5.21	2.58	2.02	4.77	1.67	2.86
	norm	8.50	1.50	5.65	8.09	1.59	5.10	7.75	1.70	4.57	7.72	1.93	4.00	7.36	2.10	3.51	8.20	2.61	3.14	6.26	2.44	2.56	4.28	2.05	2.09	3.93	1.50	2.62
	min	4.38	0.69	6.30	4.17	0.73	5.68	3.99	0.78	5.09	3.78	0.84	4.51	3.61	0.91	3.96	3.50	1.02	3.44	3.22	1.13	2.86	2.94	1.34	2.20	2.70	1.51	1.79
8	max	9.80	1.73	5.68	9.33	1.82	5.12	8.94	1.95	4.60	9.03	2.26	4.00	8.61	2.45	3.51	8.77	2.92	3.00	7.22	2.80	2.58	5.37	2.58	2.09	4.93	1.66	2.96
	norm	8.77	1.50	5.85	8.35	1.58	5.28	8.00	1.69	4.73	7.97	1.93	4.14	7.60	2.09	3.63	8.46	2.60	3.25	6.46	2.43	2.65	4.42	2.04	2.17	4.05	1.50	2.71
	min	4.52	0.69	6.52	4.30	0.73	5.87	4.12	0.78	5.27	3.90	0.84	4.66	3.72	0.91	4.09	3.61	1.01	3.56	3.32	1.12	2.96	3.03	1.33	2.28	2.78	1.50	1.85
9	max	10.11	1.72	5.87	9.62	1.82	5.29	9.22	1.94	4.75	9.31	2.25	4.13	8.88	2.45	3.63	9.04	2.92	3.10	7.44	2.79	2.66	5.54	2.57	2.16	5.08	1.66	3.06
	norm	9.04	1.50	6.05	8.61	1.58	5.45	8.25	1.69	4.89	8.22	1.92	4.27	7.84	2.09	3.75	8.72	2.60	3.36	6.66	2.43	2.74	4.56	2.04	2.24	4.18	1.49	2.80
	min	4.66	0.69	6.73	4.43	0.73	6.07	4.25	0.78	5.45	4.02	0.83	4.82	3.84	0.91	4.23	3.72	1.01	3.68	3.43	1.12	3.05	3.13	1.33	2.35	2.87	1.50	1.91
10	max	10.41	1.72	6.06	9.91	1.81	5.46	9.50	1.94	4.90	9.59	2.25	4.27	9.14	2.44	3.75	9.32	2.91	3.20	7.66	2.79	2.75	5.71	2.56	2.23	5.23	1.66	3.16
	norm	9.32	1.49	6.24	8.87	1.58	5.63	8.50	1.68	5.05	8.46	1.92	4.41	8.07	2.08	3.87	8.99	2.59	3.47	6.86	2.42	2.83	4.70	2.03	2.31	4.30	1.49	2.89
	min	4.80	0.69	6.95	4.56	0.73	6.27	4.37	0.78	5.62	4.14	0.83	4.98	3.95	0.90	4.37	3.84	1.01	3.80	3.53	1.12	3.15	3.22	1.33	2.43	2.95	1.50	1.97
11	max	10.72	1.71	6.25	10.20	1.81	5.64	9.77	1.93	5.05	9.87	2.24	4.40	9.41	2.44	3.86	9.59	2.90	3.30	7.89	2.78	2.83	5.87	2.56	2.30	5.39	1.65	3.26
	norm	9.59	1.49	6.44	9.13	1.57	5.80	8.74	1.68	5.21	8.71	1.91	4.55	8.31	2.08	3.99	9.25	2.59	3.57	7.06	2.42	2.92	4.83	2.03	2.38	4.43	1.49	2.98
	min	4.94	0.69	7.17	4.70	0.73	6.46	4.50	0.78	5.80	4.26	0.83	5.13	4.07	0.90	4.50	3.95	1.01	3.92	3.63	1.12	3.25	3.32	1.32	2.51	3.04	1.49	2.04
12	max	11.02	1.71	6.44	10.49	1.81	5.81	10.05	1.93	5.21	10.15	2.24	4.53	9.68	2.43	3.98	9.86	2.90	3.40	8.11	2.78	2.92	6.04	2.55	2.36	5.54	1.65	3.35
	norm	9.86	1.49	6.63	9.39	1.57	5.98	8.99	1.68	5.36	8.96	1.91	4.69	8.54	2.08	4.11	9.51	2.58	3.68	7.26	2.41	3.01	4.97	2.02	2.45	4.56	1.48	3.07
	min	5.08	0.69	7.38	4.83	0.73	6.66	4.63	0.78	5.97	4.38	0.83	5.29	4.18	0.90	4.64	4.06	1.01	4.04	3.74	1.12	3.35	3.41	1.32	2.58	3.13	1.49	2.10
13	max	11.32	1.71	6.63	10.78	1.80	5.98	10.33	1.93	5.36	10.43	2.23	4.67	9.94	2.43	4.10	10.13	2.89	3.50	8.33	2.77	3.01	6.21	2.55	2.43	5.69	1.65	3.45
	norm	10.13	1.48	6.83	9.65	1.57	6.16	9.24	1.67	5.52	9.20	1.91	4.82	8.78	2.07	4.24	9.77	2.58	3.79	7.46	2.41	3.10	5.11	2.02	2.53	4.68	1.48	3.16
	min	5.22	0.69	7.60	4.96	0.72	6.85	4.76	0.77	6.15	4.51	0.83	5.44	4.30	0.90	4.78	4.17	1.00	4.15	3.84	1.11	3.45	3.50	1.32	2.66	3.21	1.49	2.16
14	max	11.63	1.71	6.82	11.07	1.80	6.15	10.60	1.92	5.51	10.71	2.23	4.80	10.21	2.42	4.21	10.40	2.89	3.60	8.56	2.77	3.09	6.37	2.55	2.50	5.84	1.65	3.55
	norm	10.40	1.48	7.02	9.90	1.56	6.33	9.49	1.67	5.68	9.45	1.90	4.96	9.01	2.07	4.36	10.04	2.57	3.90	7.66	2.40	3.19	5.24	2.02	2.60	4.81	1.48	3.25
	min	5.36	0.68	7.82	5.10	0.72	7.05	4.88	0.77	6.32	4.63	0.83	5.60	4.41	0.90	4.91	4.28	1.00	4.27	3.94	1.11	3.55	3.60	1.32	2.73	3.30	1.48	2.22
15	max	11.93	1.70	7.01	11.36	1.80	6.32	10.88	1.92	5.67	10.99	2.23	4.93	10.48	2.42	4.33	10.68	2.88	3.70	8.78	2.76	3.18	6.54	2.54	2.57	6.00	1.64	3.65
	norm	10.68	1.48	7.22	10.16	1.56	6.51	9.74	1.67	5.84	9.70	1.90	5.10	9.25	2.07	4.48	10.30	2.57	4.01	7.86	2.40	3.27	5.38	2.01	2.67	4.93	1.48	3.34
	min	5.50	0.68	8.04	5.23	0.72	7.25	5.01	0.77	6.50	4.75	0.83	5.75	4.53	0.90	5.05	4.40	1.00	4.39	4.04	1.11	3.64	3.69	1.31	2.81	3.38	1.48	2.28
18	max	12.79	1.69	7.58	12.17	1.78	6.83	11.66	1.90	6.13	11.77	2.21	5.33	11.23	2.40	4.68	11.44	2.86	4.00	9.41	2.74	3.44	7.01	2.52	2.78	6.43	1.63	3.95
	norm	11.44	1.47	7.80	10.89	1.55	7.04	10.43	1.65	6.31	10.39	1.89	5.51	9.91	2.05	4.84	10.00	2.33	4.29	8.42	2.38	3.54	5.77	2.00	2.89	5.29	1.46	3.61
	min	5.89	0.68	8.69	5.61	0.72	7.83	5.37	0.76	7.03	5.09	0.82	6.22	4.85	0.89	5.46	4.71	0.99	4.75	4.33	1.10	3.94	3.96	1.30	3.04	3.63	1.47	2.47
20	max	13.45	1.69	7.95	12.81	1.79	7.17	12.27	1.91	6.43	12.39	2.21	5.60	11.81	2.40	4.91	12.04	2.87	4.20	9.90	2.75	3.61	7.37	2.53	2.92	6.76	1.63	4.14
	norm	12.04	1.47	8.19	11.46	1.55	7.38	10.98	1.66	6.62	10.93	1.89	5.79	10.43	2.05	5.08	11.61	2.55	4.55	8.86	2.39	3.71	6.07	2.00	3.03	5.56	1.47	3.79
	min	6.20	0.68	9.12	5.90	0.72	8.22	5.65	0.77	7.37	5.35	0.82	6.53	5.10	0.89	5.73	4.96	0.99	4.98	4.56	1.10	4.13	4.16	1.31	3.19	3.82	1.47	2.59
23	max	14.31	1.68	8.52	13.62	1.77	7.68	13.05	1.89	6.89	13.17	2.20	6.00	12.56	2.39	5.26	12.80	2.85	4.50	10.53	2.73	3.86	7.84	2.51	3.13	7.19	1.62	4.44
	norm	12.80	1.46	8.77	12.19	1.54	7.91	11.67	1.65	7.10	11.63	1.88	6.20	11.09	2.04	5.44	12.35	2.53	4.87	9.42	2.37	3.98	6.45	1.99	3.25	5.91	1.46	4.06
	min	6.59	0.67	9.77	6.27	0.71	8.81	6.01	0.76	7.90	5.69	0.81	6.99	5.43	0.88	6.14	5.27	0.99	5.34	4.85	1.09	4.43	4.43	1.30	3.42	4.06	1.46	2.78
25	max	14.86	1.67	8.90	14.14	1.76	8.02	13.55	1.88	7.20	13.68	2.18	6.26	13.05	2.37	5.50	13.29	2.83	4.70	10.94	2.71	4.04	8.15	2.49	3.27	7.47	1.61	4.63
	norm	13.29	1.45	9.16	12.66	1.53	8.26	12.12	1.64	7.41	12.08	1.87	6.47	11.52	2.03	5.68	12.82	2.52	5.09	9.78	2.35	4.16	6.70	1.98	3.39	6.14	1.45	4.24
	min	6.84	0.67	10.20	6.51	0.71	9.20	6.24	0.76	8.25	5.91	0.81	7.30	5.64	0.88	6.41	5.47	0.98	5.57	5.04	1.09	4.63	4.60	1.29	3.57	4.21	1.45	2.90

GRS-CQ12Pd/NhH-M																													
Outflow Water(°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	12.75	2.48	5.14	12.14	2.62	4.64	11.63	2.80	4.16	11.02	2.99	3.68	10.51	3.25	3.23	10.80	3.91	2.76	8.46	3.50	2.42	6.30	3.22	1.96	5.78	3.63	1.59
	norm	11.50	2.16	5.33	10.95	2.28	4.80	10.49	2.44	4.31	9.94	2.61	3.81	9.48	2.83	3.35	10.65	3.74	2.85	6.90	2.72	2.54	5.88	2.95	1.99	5.39	3.33	1.62
	min	7.73	1.32	5.84	7.35	1.40	5.26	7.05	1.49	4.72	6.67	1.60	4.18	6.37	1.74	3.67	6.18	1.94	3.19	5.69	2.15	2.65	5.19	2.54	2.04	4.76	2.87	1.66
8	max	13.16	2.47	5.32	12.53	2.61	4.80	12.00	2.79	4.30	11.37	2.98	3.81	10.84	3.24	3.34	11.15	3.90	2.86	8.73	3.49	2.50	6.50	3.21	2.03	5.96	3.62	1.65
	norm	11.87	2.15	5.51	11.30	2.27	4.97	10.82	2.43	4.46	10.25	2.60	3.95	9.78	2.82	3.46	10.99	3.73	2.95	7.12	2.71	2.63	6.07	2.95	2.06	5.56	3.32	1.67
	min	7.97	1.32	6.04	7.59	1.39	5.45	7.27	1.49	4.89	6.89	1.59	4.33	6.57	1.73	3.80	6.38	1.93	3.30	5.87	2.14	2.74	5.36	2.54	2.11	4.91	2.86	1.72
9	max	13.57	2.47	5.50	12.91	2.60	4.96	12.37	2.78	4.45	11.72	2.98	3.94	11.18	3.23	3.46	11.49	3.89	2.95	9.01	3.49	2.58	6.70	3.20	2.09	6.14	3.61	1.70
	norm	12.24	2.15	5.70	11.65	2.27	5.14	11.16	2.42	4.61	10.57	2.59	4.08	10.08	2.82	3.58	11.33	3.72	3.05	7.34	2.70	2.72	6.26	2.94	2.13	5.73	3.32	1.73
	min	8.22	1.32	6.24	7.82	1.39	5.63	7.50	1.48	5.05	7.10	1.59	4.47	6.77	1.73	3.92	6.58	1.93	3.41	6.05	2.14	2.83	5.52	2.53	2.18	5.06	2.85	1.77
10	max	13.97	2.46	5.68	13.30	2.60	5.12	12.74	2.78	4.59	12.07	2.97	4.06	11.51	3.23	3.57	11.84	3.88	3.05	9.28	3.48	2.67	6.90	3.19	2.16	6.33	3.60	1.76
	norm	12.60	2.14	5.88	12.00	2.26	5.30	11.49	2.42	4.75	10.89	2.59	4.21	10.39	2.81	3.69	11.67	3.71	3.15	7.56	2.70	2.80	6.44	2.93	2.20	5.91	3.31	1.79
	min	8.47	1.31	6.44	8.06	1.39	5.81	7.72	1.48	5.21	7.32	1.59	4.61	6.98	1.72	4.05	6.77	1.92	3.52	6.23	2.13	2.92	5.69	2.52	2.25	5.22	2.85	1.83
11	max	14.38	2.46	5.85	13.69	2.59	5.28	13.12	2.77	4.73	12.43	2.96	4.19	11.85	3.22	3.68	12.18	3.88	3.14	9.55	3.47	2.75	7.11	3.19	2.23	6.51	3.60	1.81
	norm	12.97	2.14	6.06	12.35	2.26	5.47	11.83	2.41	4.90	11.21	2.58	4.34	10.69	2.81	3.81	12.01	3.70	3.24	7.78	2.69	2.89	6.63	2.93	2.27	6.08	3.30	1.84
	min	8.71	1.31	6.65	8.30	1.38	5.99	7.95	1.48	5.38	7.53	1.58	4.76	7.18	1.72	4.18	6.97	1.92	3.63	6.41	2.13	3.01	5.86	2.52	2.32	5.37	2.84	1.89
12	max	14.79	2.45	6.03	14.08	2.59	5.44	13.49	2.77	4.88	12.78	2.96	4.32	12.19	3.22	3.79	12.53	3.87	3.24	9.82	3.47	2.83	7.31	3.18	2.30	6.70	3.59	1.87
	norm	13.34	2.14	6.25	12.70	2.25	5.63	12.17	2.41	5.05	11.53	2.58	4.47	10.99	2.80	3.93	12.35	3.70	3.34	8.00	2.69	2.98	6.82	2.92	2.33	6.25	3.30	1.90
	min	8.96	1.31	6.85	8.53	1.38	6.17	8.17	1.48	5.54	7.74	1.58	4.90	7.38	1.72	4.30	7.17	1.92	3.74	6.60	2.12	3.11	6.02	2.51	2.39	5.52	2.84	1.95
13	max	15.20	2.45	6.21	14.47	2.58	5.60	13.86	2.76	5.02	13.13	2.95	4.44	12.52	3.21	3.90	12.87	3.86	3.33	10.09	3.46	2.92	7.51	3.18	2.36	6.88	3.58	1.92
	norm	13.71	2.13	6.43	13.05	2.25	5.80	12.50	2.40	5.20	11.84	2.57	4.60	11.30	2.80	4.04	12.69	3.69	3.44	8.22	2.68	3.07	7.01	2.92	2.40	6.42	3.29	1.95
	min	9.21	1.31	7.05	8.77	1.38	6.36	8.40	1.47	5.70	7.96	1.58	5.05	7.59	1.71	4.43	7.37	1.91	3.85	6.78	2.12	3.20	6.19	2.51	2.47	5.67	2.83	2.00
14	max	15.61	2.44	6.39	14.86	2.58	5.76	14.23	2.76	5.17	13.48	2.95	4.57	12.86	3.20	4.01	13.22	3.86	3.43	10.36	3.45	3.00	7.71	3.17	2.43	7.07	3.58	1.98
	norm	14.08	2.13	6.61	13.40	2.25	5.96	12.84	2.40	5.35	12.16	2.57	4.73	11.60	2.79	4.16	13.04	3.68	3.54	8.45	2.68	3.15	7.20	2.91	2.47	6.60	3.28	2.01
	min	9.46	1.30	7.25	9.00	1.38	6.54	8.62	1.47	5.86	8.17	1.57	5.19	7.79	1.71	4.56	7.56	1.91	3.96	6.96	2.12	3.29	6.35	2.51	2.54	5.82	2.83	2.06
15	max	16.01	2.44	6.56	15.25	2.58	5.92	14.60	2.75	5.31	13.84	2.94	4.70	13.20	3.20	4.13	13.56	3.85	3.52	10.63	3.45	3.08	7.91	3.17	2.50	7.25	3.57	2.03
	norm	14.44	2.12	6.80	13.75	2.24	6.13	13.17	2.40	5.50	12.48	2.56	4.87	11.90	2.79	4.27	13.38	3.68	3.64	8.67	2.67	3.24	7.39	2.91	2.54	6.77	3.28	2.06
	min	9.70	1.30	7.45	9.24	1.37	6.72	8.85	1.47	6.03	8.38	1.57	5.33	7.99	1.71	4.68	7.76	1.91	4.07	7.14	2.11	3.38	6.52	2.50	2.61	5.98	2.82	2.12
18	max	17.16	2.42	7.10	16.34	2.55	6.40	15.65	2.73	5.74	14.83	2.92	5.08	14.14	3.17	4.46	14.54	3.82	3.81	11.39	3.42	3.33	8.48	3.14	2.70	7.77	3.54	2.20
	norm	15.48	2.11	7.35	14.74	2.22	6.63	14.12	2.38	5.94	13.37	2.54	5.26	12.75	2.76	4.62	11.00	2.50	4.40	9.29	2.65	3.50	7.91	2.88	2.75	7.25	3.25	2.23
	min	10.40	1.29	8.06	9.90	1.36	7.26	9.48	1.46	6.52	8.98	1.56	5.77	8.57	1.69	5.06	8.32	1.89	4.40	7.65	2.09	3.65	6.99	2.48	2.82	6.41	2.80	2.29
20	max	18.05	2.42	7.45	17.19	2.56	6.71	16.47	2.73	6.02	15.60	2.93	5.33	14.88	3.18	4.68	15.29	3.83	4.00	11.99	3.43	3.50	8.92	3.15	2.84	8.18	3.55	2.30
	norm	16.28	2.11	7.71	15.50	2.23	6.95	14.85	2.38	6.24	14.07	2.55	5.52	13.42	2.77	4.85	15.08	3.65	4.13	9.77	2.66	3.68	8.33	2.89	2.88	7.63	3.26	2.34
	min	10.94	1.29	8.45	10.41	1.37	7.62	9.98	1.46	6.84	9.45	1.56	6.05	9.01	1.70	5.31	8.75	1.89	4.62	8.05	2.10	3.83	7.35	2.49	2.96	6.74	2.81	2.40
23	max	19.20	2.41	7.98	18.28	2.54	7.19	17.51	2.71	6.45	16.59	2.90	5.71	15.82	3.16	5.01	16.26	3.80	4.28	12.75	3.40	3.75	9.49	3.12	3.04	8.70	3.52	2.47
	norm	17.32	2.10	8.26	16.49	2.21	7.45	15.79	2.36	6.68	14.96	2.53	5.91	14.27	2.75	5.19	16.04	3.63	4.42	10.39	2.64	3.94	8.86	2.87	3.09	8.12	3.24	2.51
	min	11.63	1.28	9.06	11.08	1.36	8.17	10.61	1.45	7.32	10.05	1.55	6.48	9.59	1.68	5.69	9.31	1.88	4.95	8.56	2.08	4.11	7.82	2.47	3.17	7.17	2.78	2.57
25	max	19.94	2.39	8.33	18.98	2.53	7.51	18.19	2.70	6.74	17.23	2.89	5.97	16.43	3.14	5.24	16.89	3.78	4.47	13.24	3.38	3.91	9.85	3.10	3.17	9.03	3.50	2.58
	norm	17.99	2.08	8.63	17.12	2.20	7.78	16.40	2.35	6.98	15.54	2.52	6.18	14.82	2.73	5.42	16.66	3.61	4.62	10.79	2.62	4.12	9.20	2.85	3.23	8.43	3.22	2.62
	min	12.08	1.28	9.46	11.50	1.35	8.53	11.02	1.44	7.65	10.44	1.54	6.77	9.96	1.67	5.94	9.67	1.87	5.17	8.89	2.07	4.29	8.12	2.45	3.31	7.44	2.77	2.69

GRS-CQ14Pd/NhH-M																													
Outflow Water(°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	14.20	2.87	4.94	13.52	3.03	4.46	12.95	3.24	4.00	12.27	3.47	3.54	11.70	3.77	3.11	11.90	4.47	2.66	8.46	3.50	2.42	6.55	3.37	1.95	6.01	3.80	1.58
	norm	13.25	2.60	5.09	12.61	2.75	4.59	12.08	2.94	4.11	11.45	3.14	3.64	10.92	3.42	3.20	11.24	4.13	2.72	7.73	3.12	2.47	6.30	3.22	1.96	5.78	3.63	1.59
	min	7.73	1.32	5.84	7.35	1.40	5.26	7.05	1.49	4.72	6.67	1.60	4.18	6.37	1.74	3.67	6.18	1.94	3.19	5.69	2.15	2.65	5.19	2.54	2.04	4.76	2.87	1.66
8	max	14.65	2.87	5.11	13.95	3.03	4.61	13.36	3.23	4.14	12.66	3.46	3.66	12.08	3.76	3.21	12.28	4.46	2.75	8.73	3.49	2.50	6.76	3.36	2.01	6.20	3.79	1.64
	norm	13.67	2.60	5.27	13.02	2.74	4.75	12.47	2.93	4.26	11.81	3.13	3.77	11.27	3.41	3.31	11.60	4.12	2.82	7.98	3.12	2.56	6.50	3.21	2.03	5.96	3.62	1.65
	min	7.97	1.32	6.04	7.59	1.39	5.45	7.27	1.49	4.89	6.89	1.59	4.33	6.57	1.73	3.80	6.38	1.93	3.30	5.87	2.14	2.74	5.36	2.54	2.11	4.91	2.86	1.72
9	max	15.11	2.86	5.28	14.38	3.02	4.76	13.78	3.22	4.27	13.05	3.45	3.78	12.45	3.75	3.32	12.66	4.45	2.84	9.01	3.49	2.58	6.97	3.35	2.08	6.39	3.78	1.69
	norm	14.10	2.59	5.44	13.42	2.74	4.91	12.86	2.92	4.40	12.18	3.13	3.89	11.62	3.40	3.42	11.96	4.11	2.91	8.22	3.11	2.65	6.70	3.20	2.09	6.14	3.61	1.70
	min	8.22	1.32	6.24	7.82	1.39	5.63	7.50	1.48	5.05	7.10	1.59	4.47	6.77	1.73	3.92	6.58	1.93	3.41	6.05	2.14	2.83	5.52	2.53	2.18	5.06	2.85	1.77
10	max	15.56	2.85	5.45	14.82	3.01	4.92	14.19	3.22	4.41	13.45	3.44	3.90	12.82	3.74	3.43	13.04	4.44	2.94	9.28	3.48	2.67	7.18	3.34	2.15	6.58	3.77	1.75
	norm	14.52	2.59	5.62	13.82	2.73	5.06	13.24	2.92	4.54	12.55	3.12	4.02	11.97	3.39	3.53	12.32	4.10	3.00	8.47	3.10	2.73	6.90	3.19	2.16	6.33	3.60	1.76
	min	8.47	1.31	6.44	8.06	1.39	5.81	7.72	1.48	5.21	7.32	1.59	4.61	6.98	1.72	4.05	6.77	1.92	3.52	6.23	2.13	2.92	5.69	2.52	2.25	5.22	2.85	1.83
11	max	16.02	2.85	5.63	15.25	3.01	5.07	14.61	3.21	4.55	13.84	3.44	4.03	13.20	3.73	3.54	13.42	4.43	3.03	9.55	3.47	2.75	7.39	3.34	2.22	6.77	3.76	1.80
	norm	14.95	2.58	5.79	14.23	2.72	5.22	13.63	2.91	4.68	12.91	3.11	4.15	12.32	3.38	3.64	12.68	4.09	3.10	8.72	3.10	2.82	7.11	3.19	2.23	6.51	3.60	1.81
	min	8.71	1.31	6.65	8.30	1.38	5.99	7.95	1.48	5.38	7.53	1.58	4.76	7.18	1.72	4.18	6.97	1.92	3.63	6.41	2.13	3.01	5.86	2.52	2.32	5.37	2.84	1.89
12	max	16.47	2.84	5.80	15.68	3.00	5.23	15.02	3.20	4.69	14.23	3.43	4.15	13.57	3.73	3.64	13.80	4.42	3.12	9.82	3.47	2.83	7.60	3.33	2.28	6.97	3.76	1.85
	norm	15.37	2.58	5.97	14.63	2.72	5.38	14.02	2.90	4.83	13.28	3.11	4.27	12.66	3.38	3.75	13.04	4.09	3.19	8.96	3.09	2.90	7.31	3.18	2.30	6.70	3.59	1.87
	min	8.96	1.31	6.85	8.53	1.38	6.17	8.17	1.48	5.54	7.74	1.58	4.90	7.38	1.72	4.30	7.17	1.92	3.74	6.60	2.12	3.11	6.02	2.51	2.39	5.52	2.84	1.95
13	max	16.93	2.84	5.97	16.11	3.00	5.38	15.44	3.20	4.83	14.62	3.42	4.27	13.95	3.72	3.75	14.18	4.42	3.21	10.09	3.46	2.92	7.81	3.32	2.35	7.16	3.75	1.91
	norm	15.79	2.57	6.14	15.04	2.71	5.54	14.40	2.90	4.97	13.65	3.10	4.40	13.01	3.37	3.86	13.40	4.08	3.28	9.21	3.08	2.99	7.51	3.18	2.36	6.88	3.58	1.92
	min	9.21	1.31	7.05	8.77	1.38	6.36	8.40	1.47	5.70	7.96	1.58	5.05	7.59	1.71	4.43	7.37	1.91	3.85	6.78	2.12	3.20	6.19	2.51	2.47	5.67	2.83	2.00
14	max	17.38	2.83	6.14	16.55	2.99	5.53	15.85	3.19	4.96	15.02	3.42	4.39	14.32	3.71	3.86	14.57	4.41	3.30	10.36	3.45	3.00	8.02	3.32	2.42	7.35	3.74	1.96
	norm	16.22	2.57	6.32	15.44	2.71	5.70	14.79	2.89	5.11	14.01	3.10	4.52	13.36	3.37	3.97	13.76	4.07	3.38	9.46	3.08	3.07	7.71	3.17	2.43	7.07	3.58	1.98
	min	9.46	1.30	7.25	9.00	1.38	6.54	8.62	1.47	5.86	8.17	1.57	5.19	7.79	1.71	4.56	7.56	1.91	3.96	6.96	2.12	3.29	6.35	2.51	2.54	5.82	2.83	2.06
15	max	17.84	2.83	6.31	16.98	2.99	5.69	16.27	3.19	5.10	15.41	3.41	4.51	14.70	3.71	3.96	14.95	4.40	3.40	10.63	3.45	3.08	8.23	3.31	2.48	7.54	3.74	2.02
	norm	16.64	2.56	6.49	15.84	2.71	5.86	15.18	2.89	5.25	14.38	3.09	4.65	13.71	3.36	4.08	14.12	4.07	3.47	9.71	3.07	3.16	7.91	3.17	2.50	7.25	3.57	2.03
	min	9.70	1.30	7.45	9.24	1.37	6.72	8.85	1.47	6.03	8.38	1.57	5.33	7.99	1.71	4.68	7.76	1.91	4.07	7.14	2.11	3.38	6.52	2.50	2.61	5.98	2.82	2.12
18	max	19.11	2.80	6.82	18.20	2.96	6.15	17.43	3.16	5.51	16.51	3.38	4.88	15.75	3.68	4.28	16.02	4.36	3.67	11.39	3.42	3.33	8.82	3.28	2.68	8.08	3.71	2.18
	norm	17.83	2.54	7.02	16.98	2.68	6.33	16.27	2.86	5.68	15.41	3.07	5.03	14.70	3.33	4.41	12.60	3.41	3.70	10.40	3.05	3.41	8.48	3.14	2.70	7.77	3.54	2.20
	min	10.40	1.29	8.06	9.90	1.36	7.26	9.48	1.46	6.52	8.98	1.56	5.77	8.57	1.69	5.06	8.32	1.89	4.40	7.65	2.09	3.65	6.99	2.48	2.82	6.41	2.80	2.29
20	max	20.11	2.81	7.15	19.14	2.97	6.45	18.34	3.17	5.79	17.37	3.39	5.12	16.57	3.69	4.50	16.85	4.37	3.85	11.99	3.43	3.50	9.28	3.29	2.82	8.50	3.72	2.29
	norm	18.76	2.55	7.37	17.86	2.69	6.64	17.11	2.87	5.96	16.21	3.07	5.27	15.46	3.34	4.63	15.92	4.04	3.94	10.94	3.06	3.58	8.92	3.15	2.84	8.18	3.55	2.30
	min	10.94	1.29	8.45	10.41	1.37	7.62	9.98	1.46	6.84	9.45	1.56	6.05	9.01	1.70	5.31	8.75	1.89	4.62	8.05	2.10	3.83	7.35	2.49	2.96	6.74	2.81	2.40
23	max	21.39	2.79	7.67	20.36	2.95	6.91	19.50	3.15	6.20	18.48	3.37	5.49	17.62	3.66	4.82	17.92	4.34	4.13	12.75	3.40	3.75	9.87	3.27	3.02	9.05	3.69	2.45
	norm	19.95	2.53	7.89	19.00	2.67	7.12	18.20	2.85	6.38	17.24	3.05	5.65	16.44	3.31	4.96	16.93	4.01	4.22	11.64	3.03	3.84	9.49	3.12	3.04	8.70	3.52	2.47
	min	11.63	1.28	9.06	11.08	1.36	8.17	10.61	1.45	7.32	10.05	1.55	6.48	9.59	1.68	5.69	9.31	1.88	4.95	8.56	2.08	4.11	7.82	2.47	3.17	7.17	2.78	2.57
25	max	22.21	2.77	8.01	21.14	2.93	7.22	20.25	3.13	6.48	19.19	3.35	5.73	18.30	3.64	5.03	18.61	4.32	4.31	13.24	3.38	3.91	10.25	3.25	3.15	9.39	3.67	2.56
	norm	20.72	2.51	8.24	19.73	2.65	7.43	18.90	2.83	6.67	17.90	3.03	5.90	17.08	3.30	5.18	17.58	3.99	4.41	12.09	3.02	4.01	9.85	3.10	3.17	9.03	3.50	2.58
	min	12.08	1.28	9.46	11.50	1.35	8.53	11.02	1.44	7.65	10.44	1.54	6.77	9.96	1.67	5.94	9.67	1.87	5.17	8.89	2.07	4.29	8.12	2.45	3.31	7.44	2.77	2.69

GRS-CQ16Pd/NhH-M																													
Outflow Water(°C)	Capacity level	Ambient Temp.(°C)																											
		10			15			20			25			30			35			40			45			48		
		Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
7	max	14.88	3.06	4.87	14.16	3.23	4.39	13.57	3.45	3.94	12.85	3.69	3.48	12.26	4.01	3.06	12.40	4.75	2.61	9.75	4.23	2.31	7.06	3.70	1.91	6.47	4.17	1.55
	norm	13.75	2.74	5.01	13.09	2.90	4.52	12.54	3.09	4.06	11.88	3.31	3.59	11.33	3.60	3.15	11.52	4.38	2.63	8.96	3.77	2.37	6.55	3.37	1.95	6.01	3.80	1.58
	min	7.73	1.32	5.84	7.35	1.40	5.26	7.05	1.49	4.72	6.67	1.60	4.18	6.37	1.74	3.67	6.18	1.94	3.19	5.69	2.15	2.65	5.19	2.54	2.04	4.76	2.87	1.66
8	max	15.35	3.05	5.04	14.61	3.22	4.54	14.00	3.44	4.07	13.26	3.68	3.61	12.65	4.00	3.17	12.80	4.74	2.70	10.06	4.21	2.39	7.28	3.69	1.97	6.67	4.16	1.60
	norm	14.19	2.73	5.19	13.51	2.89	4.68	12.94	3.08	4.20	12.26	3.30	3.72	11.69	3.59	3.26	11.89	4.37	2.72	9.25	3.76	2.46	6.76	3.36	2.01	6.20	3.79	1.64
	min	7.97	1.32	6.04	7.59	1.39	5.45	7.27	1.49	4.89	6.89	1.59	4.33	6.57	1.73	3.80	6.38	1.93	3.30	5.87	2.14	2.74	5.36	2.54	2.11	4.91	2.86	1.72
9	max	15.83	3.04	5.21	15.07	3.21	4.69	14.43	3.43	4.21	13.67	3.67	3.73	13.04	3.99	3.27	13.19	4.73	2.79	10.38	4.20	2.47	7.51	3.68	2.04	6.88	4.15	1.66
	norm	14.63	2.73	5.36	13.93	2.88	4.84	13.34	3.08	4.34	12.64	3.29	3.84	12.06	3.58	3.37	12.26	4.36	2.81	9.53	3.76	2.54	6.97	3.35	2.08	6.39	3.78	1.69
	min	8.22	1.32	6.24	7.82	1.39	5.63	7.50	1.48	5.05	7.10	1.59	4.47	6.77	1.73	3.92	6.58	1.93	3.41	6.05	2.14	2.83	5.52	2.53	2.18	5.06	2.85	1.77
10	max	16.30	3.03	5.37	15.52	3.20	4.85	14.87	3.42	4.35	14.09	3.66	3.85	13.43	3.98	3.38	13.59	4.72	2.88	10.69	4.20	2.55	7.73	3.67	2.11	7.09	4.14	1.71
	norm	15.07	2.72	5.54	14.35	2.87	4.99	13.74	3.07	4.48	13.02	3.29	3.96	12.42	3.57	3.48	12.63	4.35	2.90	9.82	3.75	2.62	7.18	3.34	2.15	6.58	3.77	1.75
	min	8.47	1.31	6.44	8.06	1.39	5.81	7.72	1.48	5.21	7.32	1.59	4.61	6.98	1.72	4.05	6.77	1.92	3.52	6.23	2.13	2.92	5.69	2.52	2.25	5.22	2.85	1.83
11	max	16.78	3.03	5.54	15.97	3.20	5.00	15.30	3.41	4.48	14.50	3.65	3.97	13.83	3.97	3.48	13.99	4.71	2.97	11.00	4.19	2.63	7.96	3.67	2.17	7.30	4.14	1.76
	norm	15.51	2.72	5.71	14.77	2.87	5.15	14.15	3.06	4.62	13.40	3.28	4.09	12.78	3.56	3.59	12.99	4.34	2.99	10.11	3.74	2.70	7.39	3.34	2.22	6.77	3.76	1.80
	min	8.71	1.31	6.65	8.30	1.38	5.99	7.95	1.48	5.38	7.53	1.58	4.76	7.18	1.72	4.18	6.97	1.92	3.63	6.41	2.13	3.01	5.86	2.52	2.32	5.37	2.84	1.89
12	max	17.26	3.02	5.71	16.43	3.19	5.15	15.74	3.41	4.62	14.91	3.65	4.09	14.22	3.96	3.59	14.38	4.70	3.06	11.31	4.18	2.71	8.18	3.66	2.24	7.50	4.13	1.82
	norm	15.95	2.71	5.88	15.18	2.86	5.30	14.55	3.06	4.76	13.78	3.27	4.21	13.14	3.56	3.70	13.36	4.33	3.08	10.39	3.73	2.78	7.60	3.33	2.28	6.97	3.76	1.85
	min	8.96	1.31	6.85	8.53	1.38	6.17	8.17	1.48	5.54	7.74	1.58	4.90	7.38	1.72	4.30	7.17	1.92	3.74	6.60	2.12	3.11	6.02	2.51	2.39	5.52	2.84	1.95
13	max	17.73	3.02	5.88	16.88	3.19	5.30	16.17	3.40	4.75	15.32	3.64	4.21	14.61	3.96	3.69	14.78	4.69	3.15	11.62	4.17	2.79	8.41	3.65	2.30	7.71	4.12	1.87
	norm	16.39	2.71	6.05	15.60	2.86	5.46	14.95	3.05	4.90	14.16	3.27	4.33	13.51	3.55	3.80	13.73	4.32	3.18	10.68	3.73	2.87	7.81	3.32	2.35	7.16	3.75	1.91
	min	9.21	1.31	7.05	8.77	1.38	6.36	8.40	1.47	5.70	7.96	1.58	5.05	7.59	1.71	4.43	7.37	1.91	3.85	6.78	2.12	3.20	6.19	2.51	2.47	5.67	2.83	2.00
14	max	18.21	3.01	6.05	17.33	3.18	5.45	16.60	3.40	4.89	15.73	3.63	4.33	15.00	3.95	3.80	15.18	4.68	3.24	11.94	4.17	2.87	8.64	3.65	2.37	7.92	4.11	1.92
	norm	16.83	2.70	6.23	16.02	2.85	5.62	15.35	3.05	5.04	14.54	3.26	4.46	13.87	3.54	3.91	14.10	4.32	3.27	10.97	3.72	2.95	8.02	3.32	2.42	7.35	3.74	1.96
	min	9.46	1.30	7.25	9.00	1.38	6.54	8.62	1.47	5.86	8.17	1.57	5.19	7.79	1.71	4.56	7.56	1.91	3.96	6.96	2.12	3.29	6.35	2.51	2.54	5.82	2.83	2.06
15	max	18.68	3.01	6.21	17.79	3.17	5.60	17.04	3.39	5.03	16.14	3.63	4.45	15.39	3.94	3.90	15.57	4.67	3.33	12.25	4.16	2.95	8.86	3.64	2.43	8.12	4.11	1.98
	norm	17.27	2.70	6.40	16.44	2.85	5.77	15.75	3.04	5.18	14.92	3.26	4.58	14.23	3.54	4.02	14.47	4.31	3.36	11.25	3.71	3.03	8.23	3.31	2.48	7.54	3.74	2.02
	min	9.70	1.30	7.45	9.24	1.37	6.72	8.85	1.47	6.03	8.38	1.57	5.33	7.99	1.71	4.68	7.76	1.91	4.07	7.14	2.11	3.38	6.52	2.50	2.61	5.98	2.82	2.12
18	max	20.02	2.98	6.72	19.06	3.15	6.06	18.26	3.36	5.43	17.30	3.60	4.81	16.50	3.91	4.22	16.69	4.62	3.61	13.13	4.12	3.18	9.50	3.61	2.63	8.71	4.07	2.14
	norm	18.51	2.67	6.92	17.62	2.82	6.24	16.88	3.02	5.60	15.99	3.23	4.95	15.25	3.51	4.35	13.00	3.58	3.63	12.06	3.68	3.28	8.82	3.28	2.68	8.08	3.71	2.18
	min	10.40	1.29	8.06	9.90	1.36	7.26	9.48	1.46	6.52	8.98	1.56	5.77	8.57	1.69	5.06	8.32	1.89	4.40	7.65	2.09	3.65	6.99	2.48	2.82	6.41	2.80	2.29
20	max	21.06	2.99	7.05	20.05	3.16	6.36	19.21	3.37	5.70	18.20	3.61	5.05	17.36	3.92	4.43	17.56	4.65	3.78	13.81	4.13	3.34	9.99	3.62	2.76	9.16	4.08	2.24
	norm	19.47	2.68	7.26	18.54	2.83	6.55	17.76	3.02	5.87	16.82	3.24	5.20	16.04	3.52	4.56	16.31	4.28	3.81	12.69	3.69	3.44	9.28	3.29	2.82	8.50	3.72	2.29
	min	10.94	1.29	8.45	10.41	1.37	7.62	9.98	1.46	6.84	9.45	1.56	6.05	9.01	1.70	5.31	8.75	1.89	4.62	8.05	2.10	3.83	7.35	2.49	2.96	6.74	2.81	2.40
23	max	22.40	2.97	7.55	21.33	3.13	6.81	20.43	3.34	6.11	19.36	3.58	5.41	18.46	3.89	4.75	18.67	4.61	4.05	14.69	4.10	3.58	10.63	3.59	2.96	9.74	4.05	2.40
	norm	20.71	2.66	7.78	19.71	2.81	7.01	18.89	3.00	6.29	17.89	3.21	5.57	17.06	3.49	4.89	17.35	4.25	4.08	13.49	3.66	3.68	9.87	3.27	3.02	9.05	3.69	2.45
	min	11.63	1.28	9.06	11.08	1.36	8.17	10.61	1.45	7.32	10.05	1.55	6.48	9.59	1.68	5.69	9.31	1.88	4.95	8.56	2.08	4.11	7.82	2.47	3.17	7.17	2.78	2.57
25	max	23.26	2.95	7.89	22.15	3.11	7.11	21.22	3.33	6.38	20.10	3.56	5.65	19.17	3.87	4.96	19.39	4.59	4.23	15.25	4.08	3.74	11.04	3.57	3.09	10.12	4.03	2.51
	norm	21.51	2.65	8.13	20.47	2.79	7.33	19.61	2.98	6.57	18.58	3.19	5.82	17.72	3.47	5.11	18.02	4.23	4.26	14.01	3.64	3.85	10.25	3.25	3.15	9.39	3.67	2.56
	min	12.08	1.28	9.46	11.50	1.35	8.53	11.02	1.44	7.65	10.44	1.54	6.77	9.96	1.67	5.94	9.67	1.87	5.17	8.89	2.07	4.29	8.12	2.45	3.31	7.44	2.77	2.69

(3) Heating capacity, power and efficiency for the single-phase units

| GRS-CQ4.0Pd/NhH-E | | |

GRS-CQ6.0Pd/NhH-E

Outflow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		2.33	1.19	1.95	2.85	1.24	2.30	3.45	1.38	2.50	4.35	1.40	3.10	4.80	1.39	3.45	5.40	1.37	3.94	5.85	1.34	4.37	6.57	1.12	5.87	6.77	1.13	6.01	7.57	1.16	6.54	7.24	1.02	7.10	7.94	1.06	7.52	6.07	0.75	8.14	6.56	0.78	8.45
	norm		1.86	0.90	2.07	2.28	0.93	2.44	2.76	1.04	2.65	3.48	1.06	3.29	3.84	1.05	3.66	4.32	1.03	4.18	4.68	1.01	4.64	5.88	0.96	6.10	6.06	0.97	6.25	6.78	1.00	6.80	6.20	0.86	7.24	6.80	0.89	7.67	5.48	0.67	8.22	5.92	0.69	8.53
	min		0.90	0.41	2.18	1.10	0.43	2.57	1.33	0.48	2.79	1.68	0.49	3.47	1.86	0.48	3.85	2.09	0.48	4.40	2.26	0.46	4.88	2.84	0.44	6.42	2.93	0.45	6.58	3.28	0.46	7.16	3.60	0.47	7.60	3.94	0.49	8.05	4.29	0.51	8.37	4.64	0.53	8.70
30	max		2.40	1.34	1.79	2.93	1.39	2.11	3.53	1.53	2.31	4.43	1.55	2.85	4.88	1.54	3.17	5.48	1.52	3.61	5.93	1.48	4.01	6.63	1.23	5.39	6.83	1.24	5.52	7.64	1.27	6.01	7.30	1.12	6.52	8.00	1.16	6.90	6.11	0.82	7.47	6.60	0.85	7.75
	norm		1.92	1.01	1.90	2.34	1.04	2.24	2.82	1.15	2.45	3.54	1.17	3.02	3.90	1.16	3.36	4.38	1.14	3.84	4.74	1.11	4.26	5.94	1.06	5.60	6.12	1.07	5.74	6.84	1.10	6.24	6.25	0.94	6.65	6.85	0.97	7.04	5.51	0.73	7.54	5.96	0.76	7.83
	min		0.93	0.46	2.00	1.13	0.48	2.36	1.36	0.53	2.58	1.71	0.54	3.18	1.89	0.53	3.53	2.12	0.52	4.04	2.29	0.51	4.48	2.96	0.49	5.89	2.96	0.49	6.04	3.31	0.50	6.57	3.63	0.52	6.98	3.97	0.54	7.39	4.32	0.56	7.69	4.67	0.58	7.98
35	max		2.48	1.55	1.60	3.00	1.59	1.88	3.60	1.78	2.03	4.50	1.77	2.54	4.95	1.75	2.83	5.55	1.72	3.23	6.00	1.68	3.58	6.70	1.39	4.81	6.90	1.40	4.93	7.71	1.44	5.36	7.36	1.26	5.82	8.06	1.31	6.16	6.15	0.92	6.67	6.64	0.96	6.92
	norm		1.98	1.16	1.70	2.40	1.20	2.00	2.88	1.34	2.15	3.60	1.33	2.70	3.96	1.32	3.00	4.44	1.30	3.43	4.80	1.26	3.80	6.00	1.20	5.00	6.18	1.21	5.13	6.90	1.24	5.58	6.30	1.06	5.94	6.90	1.10	6.29	5.55	0.82	6.73	5.99	0.86	6.99
	min		0.96	0.54	1.79	1.16	0.55	2.10	1.39	0.62	2.26	1.74	0.61	2.84	1.91	0.61	3.16	2.15	0.60	3.60	2.32	0.58	4.00	2.90	0.55	5.26	2.99	0.55	5.39	3.34	0.57	5.86	3.65	0.59	6.23	4.00	0.61	6.60	4.35	0.63	6.86	4.70	0.66	7.13
40	max		2.40	1.70	1.41	2.93	1.76	1.66	3.53	2.02	1.74	4.43	1.98	2.24	4.88	1.96	2.49	5.48	1.93	2.84	5.93	1.88	3.15	6.63	1.57	4.23	6.83	1.58	4.34	7.64	1.62	4.72	7.30	1.43	5.12	8.00	1.48	5.42	6.11	1.04	5.87	6.60	1.08	6.09
	norm		1.92	1.28	1.50	2.34	1.33	1.76	2.82	1.52	1.85	3.54	1.49	2.38	3.90	1.48	2.64	4.38	1.45	3.01	4.74	1.42	3.34	5.94	1.35	4.40	6.12	1.36	4.51	6.84	1.39	4.91	6.25	1.20	5.22	6.85	1.24	5.53	5.51	0.93	5.93	5.96	0.97	6.15
	min		0.93	0.59	1.57	1.13	0.61	1.85	1.36	0.70	1.95	1.71	0.68	2.50	1.89	0.68	2.78	2.12	0.67	3.17	2.29	0.65	3.52	2.87	0.62	4.63	2.96	0.62	4.74	3.31	0.64	5.16	3.63	0.66	5.49	3.97	0.68	5.81	4.32	0.72	6.04	4.67	0.74	6.27
45	max		2.25	1.76	1.28	2.78	1.84	1.51	3.38	2.11	1.60	4.28	2.10	2.03	4.73	2.09	2.26	5.33	2.06	2.58	5.78	2.02	2.86	6.50	1.69	3.85	6.70	1.70	3.94	7.50	1.75	4.29	7.18	1.54	4.65	7.88	1.60	4.93	6.03	1.13	5.33	6.52	1.18	5.54
	norm		1.80	1.32	1.36	2.22	1.39	1.60	2.70	1.59	1.70	3.42	1.58	2.16	3.78	1.58	2.40	4.26	1.55	2.74	4.62	1.52	3.04	5.90	1.51	3.91	6.00	1.46	4.10	6.72	1.51	4.46	6.15	1.29	4.75	6.75	1.34	5.03	5.44	1.01	5.39	5.88	1.05	5.59
	min		0.87	0.61	1.43	1.07	0.64	1.68	1.31	0.73	1.79	1.65	0.73	2.27	1.83	0.72	2.52	2.06	0.72	2.88	2.23	0.70	3.20	2.81	0.67	4.21	2.90	0.67	4.31	3.25	0.69	4.69	3.57	0.72	4.99	3.92	0.74	5.28	4.26	0.78	5.49	4.61	0.81	5.70
50	max		/	/	/	2.63	1.94	1.36	3.23	2.28	1.41	4.13	2.25	1.83	4.58	2.25	2.03	5.18	2.23	2.32	5.63	2.18	2.58	6.37	1.84	3.46	6.57	1.85	3.55	7.37	1.91	3.86	7.07	1.69	4.19	7.77	1.75	4.44	5.95	1.24	4.80	6.44	1.29	4.99
	norm		/	/	/	2.10	1.46	1.44	2.58	1.72	1.50	3.30	1.70	1.94	3.66	1.69	2.16	4.14	1.68	2.47	4.50	1.64	2.74	5.70	1.58	3.60	5.88	1.59	3.69	6.60	1.64	4.01	6.05	1.42	4.27	6.65	1.47	4.53	5.37	1.11	4.85	5.81	1.15	5.03
	min		/	/	/	1.02	0.67	1.51	1.25	0.79	1.58	1.60	0.78	2.05	1.77	0.78	2.27	2.00	0.77	2.59	2.18	0.76	2.88	2.76	0.73	3.79	2.84	0.73	3.88	3.19	0.76	4.22	3.51	0.78	4.49	3.86	0.81	4.75	4.21	0.85	4.94	4.55	0.89	5.13
55	max		/	/	/	/	/	/	3.08	2.51	1.22	3.98	2.48	1.60	4.43	2.49	1.78	5.03	2.47	2.03	5.48	2.43	2.26	6.23	2.06	3.03	6.43	2.07	3.11	7.24	2.14	3.38	6.95	1.90	3.67	7.65	1.97	3.88	5.86	1.40	4.20	6.36	1.46	4.36
	norm		/	/	/	/	/	/	2.46	1.89	1.30	3.18	1.87	1.70	3.54	1.87	1.89	4.02	1.86	2.16	4.38	1.83	2.39	5.40	2.16	2.50	5.76	1.78	3.23	6.48	1.84	3.51	5.95	1.59	3.74	6.55	1.65	3.96	5.29	1.25	4.24	5.74	1.30	4.40
	min		/	/	/	/	/	/	1.19	0.87	1.37	1.54	0.86	1.79	1.71	0.86	1.99	1.94	0.86	2.27	2.12	0.84	2.52	2.70	0.81	3.31	2.78	0.82	3.40	3.13	0.85	3.69	3.45	0.88	3.93	3.80	0.91	4.16	4.15	0.96	4.32	4.50	1.00	4.49
60	max		/	/	/	/	/	/	/	/	/	/	/	/	4.35	2.75	1.58	4.95	2.74	1.81	5.40	2.69	2.00	6.16	2.29	2.69	6.37	2.31	2.76	7.17	2.39	3.00	6.89	2.11	3.26	7.59	2.20	3.45	5.82	1.56	3.73	6.31	1.63	3.88
	norm		/	/	/	/	/	/	/	/	/	/	/	/	3.48	2.07	1.68	3.96	2.06	1.92	4.32	2.03	2.13	5.52	1.97	2.80	5.70	1.99	2.87	6.42	2.06	3.12	5.90	1.77	3.32	6.50	1.85	3.52	5.25	1.39	3.77	5.70	1.46	3.92
	min		/	/	/	/	/	/	/	/	/	/	/	/	1.68	0.95	1.77	1.91	0.95	2.02	2.09	0.93	2.24	2.67	0.91	2.95	2.76	0.91	3.02	3.10	0.94	3.28	3.42	0.98	3.49	3.77	1.02	3.70	4.12	1.07	3.84	4.47	1.12	3.99

GRS-CQ8.0Pd/NhH-E

Outflow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		3.57	1.98	1.80	4.37	2.07	2.11	5.29	2.18	2.43	6.67	2.34	2.85	7.36	2.32	3.17	8.28	2.29	3.62	8.97	2.23	4.01	10.67	1.97	5.42	11.00	1.98	5.55	12.31	2.04	6.04	11.16	1.63	6.84	12.24	1.69	7.24	11.25	1.42	7.91	12.16	1.48	8.22
	norm		2.54	1.26	2.02	3.12	1.31	2.37	3.77	1.38	2.73	4.76	1.49	3.20	5.25	1.48	3.56	5.90	1.45	4.06	6.40	1.42	4.51	7.84	1.36	5.75	8.08	1.37	5.89	9.04	1.41	6.41	8.68	1.18	7.33	9.52	1.23	7.76	9.96	1.22	8.14	10.77	1.27	8.45
	min		1.56	0.70	2.24	1.92	0.73	2.63	2.32	0.77	3.02	2.92	0.82	3.55	3.23	0.82	3.95	3.63	0.81	4.50	3.93	0.79	5.00	4.94	0.75	6.58	5.09	0.76	6.74	5.70	0.78	7.33	6.25	0.80	7.79	6.85	0.83	8.25	7.46	0.87	8.58	8.06	0.91	8.91
30	max		3.68	2.23	1.65	4.49	2.31	1.94	5.41	2.42	2.23	6.79	2.59	2.62	7.48	2.57	2.91	8.40	2.53	3.32	9.09	2.46	3.69	10.78	2.17	4.97	11.11	2.18	5.10	12.41	2.24	5.54	11.25	1.79	6.28	12.33	1.85	6.65	11.32	1.56	7.26	12.24	1.62	7.54
	norm		2.62	1.42	1.85	3.20	1.47	2.18	3.85	1.54	2.50	4.84	1.65	2.94	5.33	1.63	3.27	5.99	1.57	3.73	6.48	1.57	4.14	7.92	1.50	5.28	8.16	1.51	5.41	9.12	1.55	5.88	8.75	1.30	6.73	9.59	1.35	7.13	10.03	1.34	7.47	10.84	1.40	7.75
	min		1.61	0.79	2.05	1.97	0.81	2.41	2.37	0.85	2.78	2.97	0.91	3.26	3.28	0.90	3.62	3.68	0.89	4.14	3.98	0.87	4.59	4.99	0.83	6.04	5.14	0.83	6.19	5.75	0.85	6.73	6.30	0.88	7.15	6.90	0.91	7.58	7.51	0.95	7.88	8.11	0.99	8.18
35	max		3.80	2.58	1.47	4.60	2.66	1.73	5.52	2.77	1.99	6.90	2.95	2.34	7.59	2.92	2.60	8.51	2.87	2.97	9.20	2.80	3.29	10.89	2.45	4.44	11.22	2.46	4.55	12.52	2.53	4.95	11.34	2.02	5.61	12.42	2.09	5.94	11.40	1.76	6.49	12.31	1.83	6.73
	norm		2.71	1.64	1.65	3.28	1.69	1.94	3.94	1.76	2.24	4.92	1.87	2.62	5.41	1.86	2.92	6.07	1.82	3.33	6.56	1.78	3.69	8.00	1.70	4.71	8.24	1.71	4.83	9.20	1.75	5.25	8.82	1.47	6.01	9.66	1.52	6.36	10.10	1.51	6.67	10.90	1.57	6.92
	min		1.66	0.91	1.83	2.02	0.94	2.16	2.42	0.98	2.48	3.02	1.04	2.91	3.33	1.03	3.23	3.73	1.01	3.69	4.03	0.98	4.10	5.04	0.94	5.39	5.19	0.94	5.52	5.80	0.96	6.01	6.35	0.99	6.39	6.96	1.03	6.76	7.56	1.07	7.03	8.16	1.12	7.30
40	max		3.68	2.84	1.30	4.49	2.94	1.52	5.41	3.08	1.75	6.79	3.30	2.06	7.48	3.27	2.29	8.40	3.22	2.61	9.09	3.14	2.90	10.78	2.76	3.91	11.11	2.77	4.00	12.41	2.85	4.36	11.25	2.28	4.93	12.33	2.36	5.22	11.32	1.98	5.71	12.24	2.06	5.93
	norm		2.62	1.80	1.45	3.20	1.87	1.71	3.85	1.96	1.97	4.84	2.09	2.31	5.33	2.08	2.57	5.99	2.04	2.93	6.48	1.99	3.25	7.92	1.91	4.14	8.16	1.92	4.25	9.12	1.97	4.62	8.75	1.65	5.29	9.59	1.71	5.60	10.03	1.71	5.87	10.84	1.78	6.09
	min		1.61	1.00	1.61	1.97	1.04	1.90	2.37	1.09	2.18	2.97	1.16	2.56	3.28	1.15	2.85	3.68	1.13	3.25	3.98	1.10	3.60	4.99	1.05	4.74	5.14	1.06	4.86	5.75	1.09	5.29	6.30	1.12	5.62	6.90	1.16	5.95	7.51	1.21	6.19	8.11	1.26	6.43
45	max		3.45	2.93	1.18	4.26	3.07	1.39	5.18	3.25	1.59	6.56	3.50	1.87	7.25	3.49	2.08	8.17	3.44	2.37	8.86	3.36	2.63	10.56	2.97	3.55	10.89	2.99	3.64	12.20	3.08	3.96	11.07	2.47	4.48	12.15	2.56	4.75	11.17	2.15	5.19	12.08	2.24	5.39
	norm		2.46	1.86	1.32	3.03	1.95	1.56	3.69	2.06	1.79	4.67	2.23	2.10	5.17	2.21	2.33	5.82	2.19	2.66	6.31	2.14	2.95	7.00	1.87	3.74	8.00	2.07	3.86	8.96	2.13	4.20	8.61	1.79	4.81	9.45	1.86	5.09	9.89	1.85	5.33	10.70	1.93	5.54
	min		1.51	1.03	1.47	1.86	1.08	1.72	2.27	1.14	1.98	2.87	1.23	2.33	3.18	1.23	2.59	3.58	1.21	2.95	3.88	1.18	3.28	4.89	1.13	4.31	5.04	1.14	4.42	5.64	1.17	4.81	6.20	1.21	5.11	6.80	1.26	5.41	7.41	1.32	5.63	8.01	1.37	5.84
50	max		/	/	/	4.03	3.23	1.25	4.95	3.45	1.43	6.33	3.76	1.68	7.02	3.75	1.87	7.94	3.72	2.14	8.63	3.64	2.37	10.35	3.24	3.20	10.67	3.26	3.28	11.98	3.36	3.56	10.89	2.70	4.04	11.97	2.80	4.27	11.02	2.36	4.67	11.93	2.46	4.85
	norm		/	/	/	2.87	2.05	1.40	3.53	2.19	1.61	4.51	2.39	1.89	5.00	2.38	2.10	5.66	2.36	2.40	6.15	2.31	2.66	7.60	2.24	3.39	7.84	2.26	3.48	8.80	2.33	3.78	8.47	1.96	4.33	9.31	2.03	4.58	9.76	2.03	4.80	10.57	2.12	4.99
	min		/	/	/	1.76	1.14	1.55	2.17	1.21	1.79	2.77	1.32	2.10	3.07	1.32	2.33	3.48	1.31	2.66	3.78	1.28	2.95	4.79	1.23	3.88	4.94	1.24	3.98	5.54	1.28	4.33	6.10	1.33	4.60	6.70	1.38	4.87	7.31	1.44	5.06	7.91	1.50	5.26
55	max		/	/	/	/	/	/	4.72	/	/	6.10	4.14	1.47	6.79	4.15	1.64	7.71	4.12	1.87	8.40	4.05	2.07	10.13	3.62	2.80	10.45	3.65	2.87	11.76	3.77	3.12	10.71	3.03	3.53	11.79	3.15	3.74	10.87	2.66	4.09	11.78	2.78	4.24
	norm		/	/	/	/	/	/	3.36	/	/	4.35	2.63	1.65	4.84	2.63	1.84	5.49	2.62	2.10	5.99	2.57	2.33	7.20	3.05	2.36	7.68	2.53	3.04	8.64	2.61	3.31	8.33	2.20	3.79	9.17	2.29	4.01	9.62	2.29	4.20	10.43	2.39	4.36
	min		/	/	/	/	/	/	2.07	1.32	1.56	2.67	1.46	1.83	2.97	1.46	2.04	3.38	1.45	2.33	3.68	1.43	2.58	4.69	1.38	3.40	4.84	1.39	3.48	5.44	1.44	3.79	6.00	1.49	4.02	6.60	1.55	4.26	7.21	1.63	4.43	7.81	1.70	4.60
60	max		/	/	/	/	/	/	/	/	/	/	/	/	6.67	4.58	1.45	7.59	4.57	1.66	8.28	4.49	1.84	10.02	4.03	2.49	10.35	4.06	2.55	11.65	4.20	2.77	10.62	3.38	3.14	11.70	3.52	3.32	10.79	2.97	3.63	11.70	3.10	3.77
	norm		/	/	/	/	/	/	/	/	/	/	/	/	4.76	2.91	1.63	5.41	2.90	1.86	5.90	2.85	2.07	7.36	2.79	2.64	7.60	2.81	2.70	8.56	2.91	2.94	8.26	2.45	3.37	9.10	2.55	3.56	9.56	2.56	3.73	10.36	2.67	3.88
	min		/	/	/	/	/	/	/	/	/	/	/	/	2.92	1.61	1.81	3.33	1.61	2.07	3.63	1.58	2.29	4.64	1.54	3.02	4.79	1.55	3.09	5.39	1.60	3.37	5.95	1.66	3.58	6.55	1.73	3.79	7.16	1.82	3.94	7.76	1.90	4.09

GRS-CQ10.0Pd/NhH-E

Outlow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max	3.66	2.06	1.78	4.48	2.14	2.09	5.43	2.25	2.41	6.84	2.42	2.83	7.55	2.40	3.14	8.50	2.37	3.59	9.20	2.31	3.98	11.31	2.14	5.29	11.66	2.15	5.43	13.04	2.21	5.90	12.65	1.92	6.58	13.87	1.99	6.97	12.14	1.57	7.74	13.12	1.63	8.03
	norm	2.97	1.54	1.93	3.64	1.61	2.27	4.41	1.69	2.61	5.56	1.82	3.06	6.14	1.80	3.40	6.90	1.78	3.89	7.48	1.73	4.31	9.31	1.66	5.60	9.60	1.67	5.74	10.74	1.72	6.24	10.17	1.45	7.03	11.15	1.50	7.44	10.36	1.28	8.07	11.20	1.34	8.38
	min	1.56	0.70	2.24	1.92	0.73	2.63	2.32	0.77	3.02	2.92	0.82	3.55	3.23	0.82	3.95	3.63	0.81	4.50	3.93	0.79	5.00	4.94	0.75	6.58	5.09	0.76	6.74	5.70	0.78	7.33	6.25	0.80	7.79	6.85	0.83	8.25	7.46	0.87	8.58	8.06	0.91	8.91
30	max	3.78	2.31	1.63	4.60	2.39	1.92	5.55	2.51	2.21	6.96	2.68	2.59	7.67	2.66	2.88	8.61	2.62	3.29	9.32	2.55	3.65	11.42	2.35	4.86	11.77	2.36	4.98	13.16	2.43	5.42	13.97	2.18	6.40	13.97	2.18	6.40	12.22	1.72	7.10	13.20	1.79	7.38
	norm	3.07	1.73	1.77	3.74	1.80	2.08	4.51	1.88	2.40	5.66	2.01	2.81	6.23	1.99	3.12	7.00	1.96	3.57	7.58	1.91	3.96	9.41	1.83	5.14	9.69	1.84	5.27	10.83	1.89	5.73	10.25	1.59	6.45	11.23	1.64	6.83	10.43	1.41	7.41	11.27	1.46	7.69
	min	1.61	0.79	2.05	1.97	0.81	2.41	2.37	0.85	2.78	2.97	0.91	3.26	3.28	0.90	3.62	3.68	0.89	4.14	3.98	0.87	4.59	4.99	0.83	6.04	5.14	0.83	6.19	5.75	0.85	6.73	6.30	0.88	7.15	6.90	0.91	7.58	7.51	0.95	7.88	8.11	0.99	8.18
35	max	3.89	2.67	1.46	4.72	2.75	1.72	5.66	2.87	1.97	7.08	3.06	2.32	7.79	3.03	2.57	8.73	2.97	2.94	9.44	2.90	3.26	11.54	2.66	4.34	11.89	2.67	4.45	13.27	2.74	4.84	12.85	2.38	5.39	14.08	2.47	5.71	12.30	1.94	6.34	13.28	2.02	6.59
	norm	3.16	2.00	1.58	3.84	2.06	1.86	4.60	2.15	2.14	5.75	2.29	2.51	6.33	2.27	2.79	7.10	2.23	3.19	7.67	2.17	3.53	9.50	2.07	4.59	9.79	2.08	4.70	10.93	2.13	5.12	10.33	1.79	5.76	11.32	1.86	6.10	10.50	1.59	6.62	11.34	1.65	6.87
	min	1.66	0.91	1.83	2.02	0.94	2.16	2.42	0.98	2.48	3.02	1.04	2.91	3.33	1.03	3.23	3.73	1.01	3.69	4.03	0.98	4.10	5.04	0.94	5.39	5.19	0.94	5.52	5.80	0.96	6.01	6.35	0.99	6.39	6.96	1.03	6.76	7.56	1.07	7.03	8.16	1.12	7.30
40	max	3.78	2.94	1.28	4.60	3.05	1.51	5.55	3.19	1.74	6.96	3.42	2.04	7.67	3.39	2.27	8.61	3.33	2.59	9.32	3.25	2.87	11.42	2.99	3.82	11.77	3.01	3.91	13.16	3.09	4.26	12.75	2.69	4.74	13.97	2.78	5.03	12.22	2.19	5.58	13.20	2.28	5.80
	norm	3.07	2.21	1.39	3.74	2.29	1.64	4.51	2.39	1.88	5.66	2.56	2.21	6.23	2.54	2.46	7.00	2.50	2.80	7.58	2.44	3.11	9.41	2.33	4.04	9.69	2.34	4.14	10.83	2.40	4.50	10.25	2.02	5.07	11.23	2.09	5.37	10.43	1.79	5.82	11.27	1.86	6.05
	min	1.61	1.00	1.61	1.97	1.04	1.90	2.37	1.09	2.18	2.97	1.16	2.56	3.28	1.15	2.85	3.68	1.13	3.25	3.98	1.10	3.60	4.99	1.05	4.74	5.14	1.06	4.86	5.75	1.09	5.29	6.30	1.12	5.62	6.90	1.16	5.95	7.51	1.21	6.19	8.11	1.26	6.43
45	max	3.54	3.03	1.17	4.37	3.18	1.37	5.31	3.36	1.58	6.73	3.63	1.85	7.43	3.61	2.06	8.38	2.61	2.35	9.09	3.48	2.61	11.19	3.22	3.47	11.54	3.24	3.56	12.92	3.34	3.87	12.55	2.91	4.31	13.77	3.01	4.57	12.05	2.38	5.07	13.04	2.47	5.27
	norm	2.88	2.27	1.26	3.55	2.38	1.49	4.32	2.52	1.71	5.47	2.72	2.01	6.04	2.71	2.23	6.81	2.67	2.55	7.38	2.61	2.83	8.50	2.36	3.60	9.50	2.52	3.76	10.64	2.60	4.09	10.09	2.19	4.61	11.07	2.27	4.88	10.29	1.94	5.29	11.13	2.03	5.50
	min	1.51	1.03	1.47	1.86	1.08	1.72	2.27	1.14	1.98	2.87	1.23	2.33	3.18	1.23	2.59	3.58	1.21	2.95	3.88	1.18	3.28	4.89	1.13	4.31	5.04	1.14	4.42	5.64	1.17	4.81	6.20	1.21	5.11	6.80	1.26	5.41	7.41	1.32	5.63	8.01	1.37	5.84
50	max	/	/	/	4.13	3.34	1.24	5.07	3.57	1.42	6.49	3.89	1.67	7.20	3.88	1.85	8.14	3.85	2.12	8.85	3.77	2.35	10.96	3.51	3.12	11.31	3.53	3.20	12.69	3.64	3.48	12.34	3.18	3.88	13.57	3.30	4.11	11.89	2.60	4.57	12.87	2.72	4.74
	norm	/	/	/	3.36	2.51	1.34	4.12	2.68	1.54	5.27	2.92	1.81	6.62	2.91	2.01	6.62	2.89	2.29	7.19	2.83	2.54	9.03	2.73	3.30	9.31	2.75	3.39	10.45	2.84	3.68	9.92	2.39	4.15	10.91	2.48	4.39	10.15	2.13	4.76	10.99	2.22	4.95
	min	/	/	/	1.76	1.14	1.55	2.17	1.21	1.79	2.77	1.32	2.10	3.07	1.32	2.33	3.48	1.31	2.66	3.78	1.28	2.95	4.79	1.23	3.88	4.94	1.24	3.98	5.54	1.28	4.33	6.10	1.33	4.60	6.70	1.38	4.87	7.31	1.44	5.06	7.91	1.50	5.26
55	max	/	/	/	/	/	/	4.84	3.89	1.24	6.25	4.29	1.46	6.96	4.29	1.62	7.91	4.27	1.85	8.61	4.19	2.05	10.73	3.93	2.73	11.08	3.95	2.80	12.46	4.09	3.05	12.14	3.57	3.40	13.36	3.71	3.60	11.73	2.93	4.00	12.71	3.06	4.15
	norm	/	/	/	/	/	/	3.93	2.92	1.35	5.08	3.21	1.58	5.66	3.22	1.76	6.43	3.20	2.01	7.00	3.14	2.23	8.55	3.72	2.30	9.12	3.08	2.96	10.26	3.18	3.22	9.76	2.69	3.63	10.74	2.80	3.84	10.01	2.40	4.17	10.85	2.51	4.33
	min	/	/	/	/	/	/	2.07	1.32	1.56	2.67	1.46	1.83	2.97	1.46	2.04	3.38	1.45	2.33	3.68	1.43	2.58	4.69	1.38	3.40	4.84	1.39	3.48	5.44	1.44	3.79	6.00	1.49	4.02	6.60	1.55	4.26	7.21	1.63	4.43	7.81	1.70	4.60
60	max	/	/	/	/	/	/	/	/	/	/	/	/	6.84	4.75	1.44	7.79	4.73	1.65	8.50	4.65	1.83	10.62	4.37	2.43	10.96	4.40	2.49	12.35	4.56	2.71	12.04	3.99	3.02	13.26	4.15	3.20	11.64	3.28	3.55	12.63	3.42	3.69
	norm	/	/	/	/	/	/	/	/	/	/	/	/	5.56	3.56	1.56	6.33	3.55	1.78	6.90	3.49	1.98	8.74	3.40	2.57	9.03	3.43	2.63	10.17	3.55	2.87	9.68	3.00	3.23	10.66	3.12	3.42	9.94	2.68	3.71	10.78	2.80	3.85
	min	/	/	/	/	/	/	/	/	/	/	/	/	2.92	1.61	1.81	3.33	1.61	2.07	3.63	1.58	2.29	4.64	1.54	3.02	4.79	1.55	3.09	5.39	1.60	3.37	5.95	1.66	3.58	6.55	1.73	3.79	7.16	1.82	3.94	7.76	1.90	4.09

GRS-CQ12Pd/NhH-E

Outlow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max	5.39	3.02	1.78	6.47	3.08	2.10	8.32	3.45	2.41	8.47	2.85	2.97	9.70	2.86	3.40	11.24	3.13	3.59	12.17	3.05	3.99	13.17	2.45	5.37	13.57	2.47	5.50	15.16	2.53	5.99	13.38	2.01	6.65	14.66	2.08	7.04	13.41	1.75	7.64	14.49	1.83	7.93
	norm	4.20	2.25	1.87	5.04	2.30	2.20	6.48	2.57	2.53	6.60	2.13	3.11	7.56	2.13	3.56	8.76	2.33	3.76	9.48	2.27	4.17	11.88	1.95	6.10	12.24	1.96	6.25	13.68	2.01	6.80	11.25	1.62	6.94	12.33	1.68	7.35	12.07	1.55	7.80	13.04	1.61	8.10
	min	2.35	1.12	2.09	2.81	1.14	2.46	3.62	1.28	2.83	3.69	1.06	3.48	4.22	1.06	3.99	4.89	1.16	4.22	5.29	1.13	4.68	6.63	1.08	6.16	6.83	1.08	6.32	7.64	1.11	6.87	8.38	1.15	7.30	9.18	1.19	7.73	9.98	1.24	8.04	10.79	1.29	8.35
30	max	5.54	3.39	1.64	6.62	3.44	1.93	8.47	3.82	2.22	8.62	3.18	2.71	9.86	3.14	3.29	11.40	3.45	3.30	12.32	3.37	3.66	13.30	2.70	4.93	13.70	2.71	5.05	15.30	2.78	5.49	13.48	2.21	6.11	14.77	2.28	6.47	13.50	1.92	7.02	14.58	2.00	7.28
	norm	4.32	2.52	1.71	5.16	2.56	2.02	6.60	2.85	2.32	6.72	2.37	2.84	7.68	2.34	3.29	8.88	2.57	3.45	9.60	2.51	3.83	12.00	2.14	5.60	12.36	2.15	5.74	13.80	2.15	6.24	11.34	1.78	6.37	12.42	1.84	6.75	12.15	1.70	7.16	13.12	1.76	7.44
	min	2.41	1.25	1.92	2.88	1.27	2.26	3.69	1.42	2.60	3.75	1.18	3.18	4.29	1.16	3.69	4.96	1.28	3.87	5.36	1.25	4.30	6.70	1.18	5.66	6.90	1.19	5.80	7.71	1.22	6.31	8.44	1.26	6.70	9.25	1.30	7.10	10.05	1.36	7.38	10.85	1.42	7.66
35	max	5.54	3.79	1.46	6.62	3.85	1.72	8.47	4.28	1.98	8.62	3.52	2.45	9.86	3.47	2.84	11.40	3.87	2.95	12.32	3.77	3.27	13.30	3.02	4.40	13.70	3.04	4.51	15.30	3.12	4.91	13.48	2.47	5.45	14.77	2.56	5.77	13.50	2.16	6.26	14.58	2.24	6.50
	norm	4.32	2.82	1.53	5.16	2.87	1.80	6.60	3.19	2.07	6.72	2.62	2.57	7.68	2.59	2.97	8.88	2.88	3.08	9.60	2.81	3.42	12.00	2.40	5.00	12.36	2.41	5.13	13.80	2.48	5.58	11.34	1.99	6.42	12.42	2.06	6.02	12.15	1.90	6.39	13.12	1.98	6.64
	min	2.41	1.40	1.72	2.88	1.43	2.02	3.69	1.59	2.32	3.75	1.30	2.88	4.29	1.29	3.33	4.96	1.43	3.46	5.36	1.40	3.84	6.70	1.33	5.05	6.90	1.33	5.18	7.71	1.37	5.63	8.44	1.41	5.98	9.25	1.46	6.34	10.05	1.52	6.59	10.85	1.59	6.84
40	max	5.54	4.31	1.29	6.62	4.38	1.51	8.47	4.87	1.74	8.62	3.93	2.19	9.86	3.88	2.54	11.40	4.40	2.59	12.32	4.28	2.88	13.30	3.43	3.87	13.70	3.45	3.97	15.30	3.54	4.32	13.48	2.81	4.80	14.77	2.91	5.08	13.50	2.45	5.51	14.58	2.55	5.72
	norm	4.32	3.21	1.35	5.16	3.26	1.58	6.60	3.62	1.82	6.72	2.93	2.30	7.68	2.89	2.66	8.88	3.27	2.71	9.60	3.19	3.01	12.00	2.73	4.40	12.36	2.74	4.51	13.80	2.81	4.91	11.34	2.27	5.01	12.42	2.34	5.30	12.15	2.16	5.63	13.12	2.25	5.84
	min	2.41	1.60	1.51	2.88	1.62	1.78	3.69	1.80	2.04	3.75	1.46	2.58	4.29	1.44	2.98	4.96	1.63	3.04	5.36	1.59	3.38	6.70	1.51	4.44	6.90	1.52	4.56	7.71	1.55	4.96	8.44	1.60	5.27	9.25	1.66	5.58	10.05	1.73	5.80	10.85	1.80	6.02
45	max	5.54	4.74	1.17	6.62	4.81	1.38	8.47	5.35	1.58	8.62	4.36	1.98	9.86	4.24	2.32	11.40	4.84	2.36	12.32	4.71	2.61	13.30	3.78	3.52	13.70	3.80	3.61	15.30	3.90	3.92	13.48	3.09	4.36	14.77	3.20	4.62	13.50	2.69	5.01	14.58	2.80	5.20
	norm	4.32	3.53	1.22	5.16	3.58	1.44	6.60	3.99	1.66	6.72	3.25	2.07	7.68	3.16	2.43	8.88	3.60	2.47	9.60	3.51	2.74	12.40	3.29	3.77	12.36	3.01	4.10	13.80	3.09	4.46	11.34	2.49	4.55	12.42	2.58	4.82	12.15	2.38	5.12	13.12	2.47	5.31
	min	2.41	1.76	1.37	2.88	1.78	1.62	3.69	1.98	1.86	3.75	1.62	2.32	4.29	1.57	2.73	4.96	1.79	2.77	5.36	1.75	3.07	6.70	1.66	4.04	6.90	1.67	4.14	7.71	1.71	4.50	8.44	1.76	4.79	9.25	1.82	5.07	10.05	1.91	5.27	10.85	1.98	5.47
50	max	/	/	/	6.47	5.22	1.24	8.32	5.84	1.42	8.47	4.69	1.81	9.70	4.60	2.11	11.24	5.30	2.12	12.17	5.17	2.35	13.17	4.16	3.17	13.57	4.18	3.25	15.16	4.29	3.53	13.38	3.41	3.92	14.66	3.53	4.16	13.41	2.97	4.51	14.43	3.08	4.68
	norm	/	/	/	5.04	3.89	1.30	6.48	4.35	1.49	6.60	3.49	1.89	7.56	3.43	2.21	8.76	3.95	2.22	9.48	3.85	2.46	11.88	3.30	3.60	12.24	3.32	3.69	13.68	3.41	4.01	11.25	2.75	4.10	12.33	2.84	4.34	12.07	2.62	4.60	12.99	2.72	4.78
	min	/	/	/	2.81	1.93	1.45	3.62	2.16	1.67	3.69	1.74	2.12	4.22	1.71	2.47	4.89	1.96	2.49	5.29	1.92	2.76	6.63	1.82	3.64	6.83	1.83	3.73	7.64	1.88	4.05	8.38	1.94	4.31	9.18	2.01	4.56	9.98	2.10	4.74	10.75	2.18	4.93
55	max	/	/	/	/	/	/	8.32	6.67	1.25	8.47	5.32	1.59	9.70	5.13	1.89	11.24	6.06	1.86	12.17	5.91	2.06	13.17	4.75	2.77	13.57	4.77	2.84	15.16	4.91	3.09	13.38	3.89	3.43	14.66	4.03	3.64	13.41	3.40	3.95	14.43	3.52	4.10
	norm	/	/	/	/	/	/	6.48	4.97	1.30	6.60	3.96	1.67	7.56	3.82	1.98	8.76	4.51	1.94	9.48	4.40	2.15	12.00	3.81	3.15	12.24	3.79	3.23	13.68	3.89	3.51	11.25	3.14	3.58	12.33	3.25	3.80	12.07	3.00	4.03	12.99	3.11	4.18
	min	/	/	/	/	/	/	3.62	2.47	1.46	3.69	1.97	1.87	4.22	1.90	2.22	4.89	2.24	2.18	5.29	2.19	2.42	6.63	2.08	3.18	6.83	2.10	3.26	7.64	2.15	3.55	8.38	2.22	3.77	9.18	2.30	3.99	9.98	2.40	4.15	10.75	2.49	4.31
60	max	/	/	/	/	/	/	/	/	/	/	/	/	9.55	5.55	1.72	11.09	6.72	1.65	12.01	6.56	1.83	13.03	5.29	2.46	13.43	5.32	2.53	14.99	5.46	2.75	13.21	4.33	3.05	14.47	4.48	3.23	13.23	3.77	3.51	14.29	3.92	3.64
	norm	/	/	/	/	/	/	/	/	/	/	/	/	7.44	4.13	1.80	8.64	5.01	1.73	9.36	4.89	1.92	11.76	4.20	2.80	12.11	4.22	2.87	13.52	4.33	3.12	11.11	3.49	3.19	12.17	3.61	3.37	11.91	3.33	3.58	12.86	3.46	3.72
	min	/	/	/	/	/	/	/	/	/	/	/	/	4.15	2.06	2.02	4.82	2.49	1.94	5.23	2.43	2.15	6.57	2.32	2.83	6.76	2.33	2.90	7.55	2.39	3.15	8.27	2.47	3.35	9.06	2.55	3.55	9.85	2.67	3.69	10.64	2.78	3.83

GRS-CQ14Pd/NhH-E

Outlow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		5.88	3.46	1.70	7.06	3.53	2.00	9.07	3.94	2.30	9.24	3.27	2.83	10.58	3.27	3.24	12.26	3.58	3.43	13.27	3.49	3.80	15.25	2.91	5.25	15.71	2.92	5.38	17.56	3.00	5.85	13.38	2.01	6.65	14.66	2.08	7.04	13.86	1.85	7.48	14.97	1.93	7.77
	norm		4.90	2.69	1.82	5.88	2.74	2.14	7.56	3.07	2.46	7.70	2.54	3.03	8.82	2.54	3.47	10.22	2.79	3.67	11.06	2.72	4.07	13.86	2.42	5.73	14.28	2.43	5.88	15.96	2.50	6.39	11.63	1.68	6.92	12.74	1.74	7.33	12.22	1.57	7.77	13.20	1.64	8.07
	min		2.35	1.12	2.09	2.81	1.14	2.46	3.62	1.28	2.83	3.69	1.06	3.48	4.22	1.06	3.99	4.89	1.16	4.22	5.29	1.13	4.68	6.63	1.08	6.16	6.83	1.08	6.32	7.64	1.11	6.87	8.38	1.15	7.30	9.18	1.19	7.73	9.98	1.24	8.04	10.79	1.29	8.35
30	max		6.05	3.87	1.56	7.22	3.93	1.84	9.24	4.37	2.11	9.41	3.64	2.58	10.75	3.59	3.99	12.43	3.95	3.15	13.44	3.85	3.49	15.40	3.20	4.82	15.86	3.21	4.94	17.71	3.30	5.37	13.48	2.21	6.11	14.77	2.28	6.47	13.95	2.03	6.87	15.07	2.11	7.13
	norm		5.04	3.01	1.67	6.02	3.06	1.97	7.70	3.40	2.26	7.84	2.83	3.00	8.96	2.80	3.20	10.36	3.08	3.37	11.20	3.00	3.74	14.00	2.66	5.26	14.42	2.67	5.40	16.10	2.74	5.87	11.72	1.84	6.36	12.83	1.91	6.73	12.30	1.72	7.13	13.28	1.79	7.41
	min		2.41	1.25	1.92	2.88	1.27	2.26	3.69	1.42	2.60	3.75	1.18	3.18	4.29	1.16	3.69	4.96	1.28	3.87	5.36	1.25	4.30	6.70	1.18	5.66	6.90	1.19	5.80	7.71	1.22	6.31	8.44	1.26	6.70	9.25	1.30	7.10	10.05	1.36	7.38	10.85	1.42	7.66
35	max		6.05	4.34	1.39	7.22	4.40	1.64	9.24	4.90	1.89	9.41	4.03	2.34	10.75	3.97	2.71	12.43	4.43	2.81	13.44	4.31	3.12	15.40	3.58	4.30	15.86	3.60	4.41	17.71	3.69	4.79	13.48	2.47	5.45	14.77	2.56	5.77	13.95	2.27	6.13	15.07	2.37	6.37
	norm		5.04	3.38	1.49	6.02	3.43	1.76	7.70	3.81	2.02	7.84	3.13	2.50	8.96	3.09	2.90	10.36	3.45	3.01	11.20	3.36	3.34	14.00	2.98	4.70	14.42	2.99	4.82	16.10	3.07	5.24	11.72	2.06	5.68	12.83	2.13	6.01	12.30	1.93	6.37	13.28	2.01	6.61
	min		2.41	1.40	1.72	2.88	1.43	2.02	3.69	1.59	2.32	3.75	1.30	2.88	4.29	1.29	3.33	4.96	1.43	3.46	5.36	1.40	3.84	6.70	1.33	5.05	6.90	1.33	5.18	7.71	1.37	5.63	8.44	1.41	5.98	9.25	1.46	6.34	10.05	1.52	6.59	10.85	1.59	6.84
40	max		6.05	4.93	1.23	7.22	5.01	1.44	9.24	5.57	1.66	9.41	4.50	2.09	10.75	4.44	2.42	12.43	5.03	2.47	13.44	4.90	2.74	15.40	4.07	3.78	15.86	4.09	3.88	17.71	4.20	4.22	13.48	2.81	4.80	14.77	2.91	5.08	13.95	2.58	5.40	15.07	2.69	5.60
	norm		5.04	3.84	1.31	6.02	3.90	1.55	7.70	4.33	1.78	7.84	3.50	2.24	8.96	3.46	2.59	10.36	3.91	2.65	11.20	3.81	2.94	14.00	3.38	4.14	14.42	3.40	4.24	16.10	3.49	4.61	11.72	2.35	5.00	12.83	2.43	5.29	12.30	2.19	5.60	13.28	2.28	5.82
	min		2.41	1.60	1.51	2.88	1.62	1.78	3.69	1.80	2.04	3.75	1.46	2.58	4.29	1.44	2.98	4.96	1.63	3.04	5.36	1.59	3.38	6.70	1.51	4.44	6.90	1.52	4.56	7.71	1.55	4.96	8.44	1.60	5.27	9.25	1.66	5.58	10.05	1.73	5.80	10.85	1.80	6.02
45	max		6.05	5.42	1.12	7.22	5.51	1.31	9.24	6.12	1.51	9.41	4.99	1.89	10.75	4.86	2.21	12.43	5.53	2.25	13.44	5.39	2.49	15.40	4.48	3.44	15.86	4.50	3.53	17.71	4.62	3.84	13.48	3.09	4.36	14.77	3.20	4.62	13.95	2.84	4.91	15.07	2.96	5.09
	norm		5.04	4.22	1.19	6.02	4.29	1.40	7.70	4.77	1.62	7.84	3.88	2.02	8.96	3.78	2.37	10.36	4.31	2.41	11.20	4.20	2.67	14.48	3.93	3.68	14.42	3.74	3.85	16.10	3.84	4.19	11.72	2.58	4.54	12.83	2.67	4.81	12.30	2.41	5.09	13.28	2.51	5.29
	min		2.41	1.76	1.37	2.88	1.78	1.62	3.69	1.98	1.86	3.75	1.62	2.32	4.29	1.57	2.73	4.96	1.79	2.77	5.36	1.75	3.07	6.70	1.66	4.04	6.90	1.67	4.14	7.71	1.71	4.50	8.44	1.76	4.79	9.25	1.82	5.07	10.05	1.91	5.27	10.85	1.98	5.47
50	max		/	/	/	7.06	5.98	1.18	9.07	6.68	1.36	9.24	5.37	1.72	10.58	5.27	2.01	12.26	6.06	2.02	13.27	5.92	2.24	15.25	4.92	3.10	15.71	4.95	3.17	17.56	5.09	3.45	13.38	3.41	3.92	14.66	3.53	4.16	13.86	3.14	4.42	14.92	3.25	4.59
	norm		/	/	/	5.88	4.65	1.26	7.56	5.20	1.45	7.70	4.18	1.84	8.82	4.10	2.15	10.22	4.72	2.17	11.06	4.60	2.40	13.86	4.10	3.38	14.28	4.12	3.47	15.96	4.23	3.77	11.63	2.84	4.09	12.74	2.94	4.33	12.22	2.66	4.59	13.15	2.76	4.76
	min		/	/	/	2.81	1.93	1.45	3.62	2.16	1.67	3.69	1.74	2.12	4.22	1.71	2.47	4.89	1.96	2.49	5.29	1.92	2.76	6.63	1.82	3.64	6.83	1.83	3.73	7.64	1.88	4.05	8.38	1.94	4.31	9.18	2.01	4.56	9.98	2.10	4.74	10.75	2.18	4.93
55	max		/	/	/	/	/	/	9.07	7.64	1.19	9.24	6.09	1.52	10.58	5.87	1.80	12.26	6.93	1.77	13.27	6.76	1.96	15.25	5.63	2.71	15.71	5.66	2.78	17.56	5.81	3.02	13.38	3.89	3.43	14.66	4.03	3.64	13.86	3.59	3.86	14.92	3.72	4.01
	norm		/	/	/	/	/	/	7.56	5.94	1.27	7.70	4.74	1.62	8.82	4.57	1.93	10.22	5.39	1.89	11.06	5.26	2.10	14.00	4.52	3.10	14.28	4.71	3.04	15.96	4.83	3.30	11.63	3.25	3.58	12.74	3.36	3.79	12.22	3.05	4.01	13.15	3.16	4.17
	min		/	/	/	/	/	/	3.62	2.47	1.46	3.69	1.97	1.87	4.22	1.90	2.22	4.89	2.24	2.18	5.29	2.19	2.42	6.63	2.08	3.18	6.83	2.10	3.26	7.64	2.15	3.55	8.38	2.22	3.77	9.18	2.30	3.99	9.98	2.40	4.15	10.75	2.49	4.31
60	max		/	/	/	/	/	/	/	/	/	/	/	/	10.42	6.35	1.64	12.10	7.69	1.57	13.10	7.51	1.74	15.09	6.27	2.41	15.54	6.30	2.47	17.36	6.46	2.68	13.21	4.33	3.05	14.47	4.48	3.23	13.67	3.98	3.43	14.76	4.14	3.57
	norm		/	/	/	/	/	/	/	/	/	/	/	/	8.68	4.94	1.76	10.08	5.99	1.68	10.92	5.84	1.87	13.72	5.21	2.63	14.13	5.24	2.70	15.78	5.38	2.93	11.48	3.61	3.18	12.58	3.74	3.37	12.05	3.38	3.57	13.02	3.52	3.70
	min		/	/	/	/	/	/	/	/	/	/	/	/	4.15	2.06	2.02	4.82	2.49	1.94	5.23	2.43	2.15	6.57	2.32	2.83	6.76	2.33	2.90	7.55	2.39	3.15	8.27	2.47	3.35	9.06	2.55	3.55	9.85	2.67	3.69	10.64	2.78	3.83

GRS-CQ16Pd/NhH-E

Outflow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		/	/	/	7.14	3.66	1.95	9.18	4.09	2.24	9.35	3.39	2.76	10.71	3.39	3.16	12.41	3.71	3.34	13.43	3.62	3.71	16.63	3.33	5.00	17.14	3.34	5.13	19.15	3.43	5.58	14.55	2.19	6.65	15.95	2.26	7.04	15.95	2.07	7.48	16.74	2.16	7.77
	norm		/	/	/	6.47	3.08	2.10	8.32	3.45	2.41	8.47	2.85	2.97	9.70	2.86	3.14	11.24	3.05	3.59	12.17	3.13	3.59	15.35	2.80	5.49	15.81	2.81	5.63	17.67	2.89	6.12	13.00	1.91	6.79	14.25	1.98	7.20	13.86	1.82	7.63	14.97	1.89	7.92
	min		/	/	/	2.81	1.14	2.46	3.62	1.28	2.83	3.69	1.06	3.48	4.22	1.06	3.99	4.89	1.16	4.22	5.29	1.13	4.68	6.63	1.08	6.16	6.83	1.08	6.32	7.64	1.11	7.30	8.38	1.15	7.30	9.18	1.19	7.73	9.98	1.24	8.04	10.79	1.29	8.35
30	max		6.12	4.02	1.52	7.31	4.08	1.79	9.35	4.54	2.06	9.52	3.78	2.52	10.88	3.73	2.92	12.58	4.10	3.07	13.60	3.99	3.40	16.80	3.66	4.59	17.30	3.68	4.71	19.32	3.77	5.12	14.67	2.40	6.11	16.06	2.48	6.47	15.60	2.27	6.87	16.85	2.36	7.13
	norm		5.54	3.39	1.64	6.62	3.44	1.93	8.47	3.82	2.22	8.62	3.18	2.71	9.86	3.14	3.14	11.40	3.45	3.30	12.32	3.37	3.87	15.50	3.08	5.04	15.97	3.09	5.17	17.83	3.17	5.62	13.10	2.10	6.24	14.35	2.17	6.61	13.95	1.99	7.00	15.07	2.07	7.27
	min		2.41	1.25	1.92	2.88	1.27	2.26	3.69	1.42	2.60	3.75	1.18	3.18	4.29	1.16	3.69	4.96	1.25	4.30	5.36	1.25	4.30	6.70	1.18	5.66	6.90	1.19	5.80	7.71	1.22	6.31	8.44	1.26	6.70	9.25	1.30	7.10	10.05	1.36	7.38	10.85	1.42	7.66
35	max		6.12	4.50	1.36	7.31	4.57	1.60	9.35	5.08	1.84	9.52	4.18	2.28	10.88	4.12	2.64	12.58	4.47	3.04	13.60	4.47	3.04	16.80	4.10	4.10	17.30	4.12	4.20	19.32	4.23	4.57	14.67	2.69	6.13	16.06	2.78	5.77	15.60	2.54	6.13	16.85	2.65	6.37
	norm		5.54	3.79	1.46	6.62	3.85	1.72	8.47	4.28	1.98	8.62	3.52	2.45	9.86	3.47	2.84	11.40	3.77	3.27	12.32	3.77	3.27	15.50	3.44	4.50	15.97	3.46	4.61	17.83	3.55	5.02	13.10	2.35	5.57	14.35	2.43	5.90	13.95	2.23	6.25	15.07	2.32	6.49
	min		2.41	1.40	1.72	2.88	1.43	2.02	3.69	1.59	2.32	3.75	1.30	2.88	4.29	1.29	3.33	4.96	1.43	3.84	5.36	1.40	3.84	6.70	1.33	5.05	6.90	1.33	5.18	7.71	1.37	5.63	8.44	1.41	5.98	9.25	1.46	6.34	10.05	1.52	6.59	10.85	1.59	6.84
40	max		6.12	5.11	1.20	7.31	5.19	1.41	9.35	5.77	1.62	9.52	4.67	2.04	10.88	4.61	2.36	12.58	5.22	2.41	13.60	5.08	2.68	16.80	4.66	3.61	17.30	4.68	3.70	19.32	4.80	4.02	14.67	3.06	4.80	16.06	3.16	5.08	15.60	2.89	5.40	16.85	3.01	5.60
	norm		5.54	4.31	1.29	6.62	4.38	1.51	8.47	4.87	1.74	8.62	3.93	2.19	9.86	3.88	2.54	11.40	4.40	2.59	12.32	4.28	2.88	15.50	3.91	3.96	15.97	3.93	4.06	17.83	4.04	4.42	13.10	2.67	4.90	14.35	2.76	5.19	13.95	2.54	5.50	15.07	2.64	5.71
	min		2.41	1.60	1.51	2.88	1.62	1.78	3.69	1.80	2.04	3.75	1.46	2.58	4.29	1.44	2.98	4.96	1.63	3.04	5.36	1.59	3.38	6.70	1.51	4.44	6.90	1.52	4.56	7.71	1.55	4.96	8.44	1.60	5.27	9.25	1.66	5.58	10.05	1.73	5.80	10.85	1.80	6.02
45	max		6.12	5.63	1.09	7.31	5.71	1.28	9.35	6.35	1.47	9.52	5.17	1.84	10.88	5.04	2.16	12.58	5.74	2.19	13.60	5.59	2.43	16.80	5.12	3.28	17.30	5.15	3.36	19.32	5.28	3.66	14.67	3.36	4.36	16.06	3.48	4.62	15.60	3.18	4.91	16.85	3.31	5.09
	norm		5.54	4.74	1.17	6.62	4.81	1.38	8.47	5.35	1.58	8.62	4.36	1.98	9.86	4.24	2.32	11.40	4.84	2.36	12.32	4.71	2.61	16.09	4.44	3.62	15.97	4.33	3.69	17.83	4.44	4.01	13.10	2.94	4.46	14.35	3.04	4.72	13.95	2.79	5.00	15.07	2.90	5.19
	min		2.41	1.76	1.37	2.88	1.78	1.62	3.69	1.98	1.86	3.75	1.62	2.32	4.29	1.57	2.73	4.96	1.79	2.77	5.36	1.75	3.07	6.70	1.66	4.04	6.90	1.67	4.14	7.71	1.71	4.50	8.44	1.76	4.79	9.25	1.82	5.07	10.05	1.91	5.27	10.85	1.98	5.47
50	max		/	/	/	7.14	6.20	1.15	9.18	6.93	1.32	9.35	5.57	1.68	10.71	5.46	1.96	12.41	6.29	1.97	13.43	6.14	2.19	16.63	5.63	2.95	17.14	5.66	3.03	19.15	5.82	3.29	14.55	3.71	3.92	15.95	3.84	4.16	15.50	3.51	4.42	16.68	3.64	4.59
	norm		/	/	/	6.47	5.22	1.24	8.32	5.84	1.42	8.47	4.69	1.81	9.70	4.60	2.11	11.24	5.30	2.12	12.17	5.17	2.35	15.35	4.74	3.24	15.81	4.76	3.32	17.67	4.89	3.61	13.00	3.24	4.01	14.25	3.35	4.25	13.86	3.08	4.50	14.92	3.19	4.67
	min		/	/	/	2.81	1.93	1.45	3.62	2.16	1.67	3.69	1.74	2.12	4.22	1.71	2.47	4.89	1.96	2.49	5.29	1.92	2.76	6.63	1.82	3.64	6.83	1.83	3.73	7.64	1.88	4.05	8.38	1.94	4.31	9.18	2.01	4.56	9.98	2.10	4.74	10.75	2.18	4.93
55	max		/	/	/	/	/	/	9.18	7.92	1.16	9.35	6.32	1.48	10.71	6.09	1.76	12.41	7.19	1.73	13.43	7.01	1.92	16.63	6.44	2.58	17.14	6.47	2.65	19.15	6.65	2.88	14.55	4.24	3.43	15.95	4.38	3.64	15.50	4.01	3.86	16.68	4.16	4.01
	norm		/	/	/	/	/	/	8.32	6.67	1.25	8.47	5.32	1.59	9.70	5.13	1.89	11.24	6.06	1.89	12.17	5.91	2.06	16.00	5.42	2.95	15.81	5.44	2.91	17.67	5.59	3.16	13.00	3.70	3.51	14.25	3.83	3.72	13.86	3.52	3.94	14.92	3.65	4.09
	min		/	/	/	/	/	/	3.62	2.47	1.46	3.69	1.97	1.87	4.22	1.90	2.22	4.89	2.24	2.18	5.29	2.19	2.42	6.63	2.08	3.18	6.83	2.10	3.26	7.64	2.15	3.55	8.38	2.22	3.77	9.18	2.30	3.99	9.98	2.40	4.15	10.75	2.49	4.31
60	max		/	/	/	/	/	/	/	/	/	/	/	/	10.54	6.59	1.60	12.24	7.98	1.53	13.26	7.79	1.70	16.46	7.17	2.30	16.96	7.21	2.35	18.93	7.40	2.56	14.37	4.71	3.05	15.74	4.87	3.23	15.29	4.45	3.43	16.51	4.63	3.57
	norm		/	/	/	/	/	/	/	/	/	/	/	/	9.55	5.55	1.72	11.09	6.72	1.65	12.01	6.56	1.83	15.19	6.03	2.52	15.65	6.06	2.58	17.47	6.22	2.81	12.84	4.12	3.12	14.06	4.26	3.30	13.67	3.91	3.50	14.76	4.06	3.63
	min		/	/	/	/	/	/	/	/	/	/	/	/	4.15	2.06	2.02	4.82	2.49	1.94	5.23	2.43	2.15	6.57	2.32	2.83	6.76	2.33	2.90	7.55	2.39	3.15	8.27	2.47	3.35	9.06	2.55	3.55	9.85	2.67	3.69	10.64	2.78	3.83

GRS-CQ4.0Pd/NhH2-E

Outlow Water (°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		2.21	1.10	2.00	2.69	1.14	2.36	3.24	1.27	2.56	4.07	1.28	3.18	4.49	1.27	3.54	5.04	1.25	4.04	5.45	1.22	4.48	6.42	1.08	5.95	6.62	1.08	6.10	7.39	1.11	6.64	6.50	0.89	7.27	7.12	0.93	7.70	5.81	0.70	8.25	6.28	0.73	8.56
	norm		1.66	0.80	2.09	2.03	0.83	2.45	2.44	0.92	2.67	3.07	0.93	3.31	3.38	0.92	3.68	3.80	0.90	4.20	4.11	0.88	4.66	3.96	0.62	6.34	4.08	0.63	6.50	4.56	0.64	7.07	4.88	0.65	7.93	5.34	0.67	7.93	4.92	0.59	8.36	5.31	0.61	8.68
	min		0.99	0.45	2.19	1.21	0.47	2.58	1.46	0.52	2.80	1.83	0.53	3.48	2.02	0.52	3.86	2.26	0.51	4.41	2.45	0.50	4.90	3.07	0.48	6.44	3.16	0.48	6.60	3.53	0.49	7.18	3.88	0.51	7.63	4.25	0.53	8.08	4.62	0.55	8.41	4.99	0.57	8.73
30	max		2.28	1.24	1.84	2.76	1.28	2.16	3.31	1.40	2.37	4.14	1.42	2.92	4.55	1.40	3.25	5.11	1.38	3.71	5.52	1.34	4.11	6.49	1.19	5.47	6.68	1.19	5.60	7.46	1.22	6.09	6.55	0.98	6.68	7.18	1.01	7.07	5.85	0.77	7.57	6.32	0.80	7.86
	norm		1.72	0.90	1.92	2.08	0.92	2.25	2.50	1.01	2.46	3.12	1.03	3.04	3.43	1.02	3.38	3.85	1.00	3.86	4.16	0.97	4.28	4.00	0.69	5.82	4.12	0.69	5.97	4.60	0.71	6.49	4.91	0.71	6.87	5.38	0.74	7.28	4.95	0.65	7.67	5.35	0.67	7.97
	min		1.02	0.51	2.01	1.24	0.52	2.37	1.49	0.58	2.59	1.86	0.58	3.19	2.05	0.58	3.55	2.29	0.57	4.05	2.48	0.55	4.49	3.10	0.52	5.91	3.19	0.53	6.06	3.57	0.54	6.59	3.91	0.56	7.01	4.28	0.58	7.42	4.65	0.60	7.72	5.02	0.63	8.01
35	max		2.28	1.39	1.64	2.76	1.43	1.93	3.31	1.59	2.08	4.14	1.59	2.61	4.55	1.57	2.90	5.11	1.54	3.31	5.52	1.50	3.67	6.49	1.33	4.88	6.68	1.34	5.00	7.46	1.37	5.44	6.55	1.10	5.96	7.18	1.14	6.31	5.85	0.87	6.76	6.32	0.90	7.02
	norm		1.72	1.00	1.71	2.08	1.03	2.01	2.50	1.15	2.16	3.12	1.15	2.72	3.43	1.14	3.02	3.85	1.12	3.45	4.16	1.09	3.82	4.00	0.77	5.20	4.12	0.77	5.33	4.60	0.79	5.80	4.91	0.80	6.14	5.38	0.83	6.50	4.95	0.72	6.85	5.35	0.75	7.11
	min		1.02	0.57	1.80	1.24	0.59	2.11	1.49	0.66	2.27	1.86	0.65	2.85	2.05	0.65	3.17	2.29	0.63	3.62	2.48	0.62	4.01	3.10	0.59	5.28	3.19	0.59	5.41	3.57	0.61	5.89	3.91	0.62	6.26	4.28	0.65	6.63	4.65	0.67	6.89	5.02	0.70	7.15
40	max		2.28	1.58	1.45	2.76	1.62	1.70	3.31	1.85	1.79	4.14	1.80	2.30	4.55	1.79	2.55	5.11	1.75	2.91	5.52	1.71	3.23	6.49	1.51	4.29	6.68	1.52	4.40	7.46	1.56	4.79	6.55	1.25	5.25	7.18	1.29	5.56	5.85	0.98	5.95	6.32	1.02	6.18
	norm		1.72	1.14	1.50	2.08	1.17	1.77	2.50	1.34	1.86	3.12	1.31	2.39	3.43	1.29	2.66	3.85	1.27	3.03	4.16	1.24	3.36	4.00	0.87	4.58	4.12	0.88	4.69	4.60	0.90	5.10	4.91	0.91	5.40	5.38	0.94	5.72	4.95	0.82	6.03	5.35	0.85	6.26
	min		1.02	0.65	1.58	1.24	0.67	1.86	1.49	0.76	1.95	1.86	0.74	2.51	2.05	0.73	2.79	2.29	0.72	3.18	2.48	0.70	3.53	3.10	0.67	4.65	3.19	0.67	4.76	3.57	0.69	5.18	3.91	0.71	5.51	4.28	0.73	5.83	4.65	0.77	6.06	5.02	0.80	6.30
45	max		2.28	1.73	1.31	2.76	1.79	1.55	3.31	2.02	1.64	4.14	1.98	2.09	4.55	1.96	2.32	5.11	1.93	2.65	5.52	1.88	2.94	6.49	1.66	3.90	6.68	1.67	4.00	7.46	1.71	4.35	6.55	1.37	4.77	7.18	1.42	5.05	5.85	1.08	5.41	6.32	1.13	5.62
	norm		1.72	1.25	1.37	2.08	1.29	1.61	2.50	1.46	1.71	3.12	1.44	2.17	3.43	1.42	2.41	3.85	1.40	2.76	4.16	1.36	3.06	4.10	1.04	3.94	4.12	0.97	4.26	4.60	0.99	4.64	4.91	1.00	4.91	5.38	1.03	5.20	4.95	0.90	5.48	5.35	0.94	5.69
	min		1.02	0.71	1.44	1.24	0.73	1.69	1.49	0.83	1.80	1.86	0.82	2.28	2.05	0.81	2.53	2.29	0.79	2.89	2.48	0.77	3.21	3.10	0.73	4.22	3.19	0.74	4.33	3.57	0.76	4.71	3.91	0.78	5.01	4.28	0.81	5.30	4.65	0.84	5.51	5.02	0.88	5.72
50	max		/	/	/	2.69	1.93	1.39	3.24	2.24	1.45	4.07	2.17	1.88	4.49	2.15	2.09	5.04	2.11	2.38	5.45	2.06	2.64	6.42	1.83	3.51	6.62	1.84	3.60	7.39	1.89	3.92	6.50	1.51	4.29	7.12	1.57	4.55	5.81	1.19	4.87	6.25	1.24	5.05
	norm		/	/	/	2.03	1.40	1.45	2.44	1.62	1.51	3.07	1.57	1.96	3.38	1.56	2.17	3.80	1.53	2.48	4.11	1.49	2.75	3.96	1.06	3.74	4.08	1.06	3.84	4.56	1.09	4.17	4.88	1.10	4.42	5.34	1.14	4.68	4.92	1.00	4.93	5.29	1.03	5.12
	min		/	/	/	1.21	0.80	1.52	1.46	0.92	1.58	1.83	0.89	2.05	2.02	0.88	2.28	2.26	0.87	2.60	2.45	0.85	2.89	3.07	0.81	3.80	3.16	0.81	3.90	3.53	0.83	4.24	3.88	0.86	4.50	4.25	0.89	4.77	4.62	0.93	4.96	4.97	0.97	5.15
55	max		/	/	/	/	/	3.24	2.58	1.26	4.07	2.48	1.64	4.49	2.46	1.83	5.04	2.42	2.08	5.45	2.36	2.31	6.42	2.09	3.07	6.62	2.10	3.15	7.39	2.16	3.43	6.50	1.73	3.76	7.12	1.79	3.98	5.81	1.36	4.26	6.25	1.41	4.42
	norm		/	/	/	/	/	2.44	1.87	1.31	3.07	1.79	1.71	3.38	1.78	1.90	3.80	1.75	2.42	4.11	1.71	2.41	3.60	1.40	2.57	4.08	1.22	3.36	4.56	1.25	3.65	4.88	1.26	3.87	5.34	1.30	4.10	4.92	1.14	4.32	5.29	1.18	4.48
	min		/	/	/	/	/	1.46	1.06	1.37	1.83	1.02	1.80	2.02	1.01	2.00	2.26	0.99	2.28	2.45	0.97	2.53	3.07	0.92	3.33	3.16	0.93	3.41	3.53	0.95	3.71	3.88	0.98	3.94	4.25	1.02	4.17	4.62	1.06	4.34	4.97	1.10	4.51
60	max		/	/	/	/	/	/	/	/	/	/	/	/	4.42	2.72	1.62	4.97	2.68	1.85	5.38	2.62	2.06	6.36	2.33	2.73	6.55	2.34	2.80	7.31	2.40	3.05	6.42	1.92	3.34	7.03	1.99	3.54	5.73	1.51	3.79	6.19	1.58	3.93
	norm		/	/	/	/	/	/	/	/	/	/	/	/	3.33	1.97	1.69	3.74	1.94	1.93	4.06	1.89	2.14	3.92	1.35	2.91	4.04	1.35	2.98	4.51	1.39	3.25	4.82	1.40	3.44	5.27	1.45	3.64	4.85	1.26	3.84	5.24	1.32	3.98
	min		/	/	/	/	/	/	/	/	/	/	/	/	1.98	1.12	1.77	2.23	1.10	2.03	2.42	1.08	2.25	3.04	1.03	2.96	3.13	1.03	3.03	3.49	1.06	3.30	3.83	1.09	3.50	4.19	1.13	3.71	4.56	1.18	3.86	4.92	1.23	4.01

GRS-CQ6.0Pd/NhH2-E

Outflow Water (°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		2.46	1.26	1.96	3.00	1.30	2.31	3.62	1.44	2.51	4.54	1.46	3.12	5.01	1.45	3.46	5.62	1.42	3.95	6.08	1.39	4.39	6.83	1.16	5.89	7.04	1.17	6.04	7.87	1.20	6.57	7.50	1.05	7.13	8.22	1.09	7.55	6.53	0.80	8.17	7.05	0.83	8.48
	norm		2.08	1.03	2.02	2.53	1.06	2.38	3.05	1.18	2.59	3.83	1.19	3.21	4.22	1.18	3.57	4.74	1.16	4.08	5.13	1.13	4.52	5.94	0.97	6.10	6.12	0.98	6.25	6.84	1.01	6.80	6.50	0.89	7.27	7.12	0.93	7.70	5.22	0.63	8.33	5.64	0.65	8.65
	min		0.99	0.45	2.19	1.21	0.47	2.58	1.46	0.52	2.80	1.83	0.53	3.48	2.02	0.52	3.86	2.26	0.51	4.41	2.45	0.50	4.90	3.07	0.48	6.44	3.16	0.48	6.60	3.53	0.49	7.18	3.88	0.51	7.63	4.25	0.53	8.08	4.62	0.55	8.41	4.99	0.57	8.73
30	max		2.54	1.41	1.80	3.08	1.45	2.12	3.70	1.59	2.32	4.62	1.61	2.86	5.08	1.60	3.18	5.70	1.57	3.63	6.16	1.53	4.03	6.90	1.28	5.41	7.11	1.28	5.54	7.94	1.32	6.03	7.56	1.16	6.54	8.28	1.19	6.93	6.57	0.88	7.50	7.10	0.91	7.79
	norm		2.14	1.15	1.86	2.60	1.19	2.19	3.12	1.30	2.39	3.89	1.32	2.95	4.28	1.31	3.28	4.80	1.28	3.74	5.19	1.25	4.15	6.00	1.07	5.60	6.18	1.08	5.74	6.90	1.11	6.24	6.55	0.98	6.68	7.18	1.01	7.07	5.25	0.69	7.64	5.67	0.71	7.94
	min		1.02	0.51	2.01	1.24	0.52	2.37	1.49	0.58	2.59	1.86	0.58	3.19	2.05	0.58	3.55	2.29	0.57	4.05	2.48	0.55	4.49	3.10	0.52	5.91	3.19	0.53	6.06	3.57	0.54	6.59	3.91	0.56	7.01	4.28	0.58	7.42	4.65	0.60	7.72	5.02	0.63	8.01
35	max		2.54	1.58	1.61	3.08	1.63	1.89	3.70	1.82	2.03	4.62	1.81	2.55	5.08	1.79	2.84	5.70	1.76	3.24	6.16	1.71	3.59	6.90	1.43	4.83	7.11	1.44	4.95	7.94	1.47	5.39	7.56	1.29	5.84	8.28	1.34	6.19	6.57	0.98	6.69	7.10	1.02	6.95
	norm		2.14	1.29	1.66	2.60	1.33	1.95	3.12	1.48	2.10	3.89	1.48	2.64	4.28	1.46	2.93	4.80	1.44	3.34	5.19	1.40	3.71	6.00	1.20	5.00	6.18	1.21	5.13	6.90	1.24	5.58	6.55	1.10	5.96	7.18	1.14	6.31	5.25	0.77	6.83	5.67	0.80	7.09
	min		1.02	0.57	1.80	1.24	0.59	2.11	1.49	0.66	2.27	1.86	0.65	2.85	2.05	0.65	3.17	2.29	0.63	3.62	2.48	0.62	4.01	3.10	0.59	5.28	3.19	0.59	5.41	3.57	0.61	5.89	3.91	0.62	6.26	4.28	0.65	6.63	4.65	0.67	6.89	5.02	0.70	7.15
40	max		2.54	1.80	1.42	3.08	1.85	1.66	3.70	2.11	1.75	4.62	2.06	2.25	5.08	2.03	2.50	5.70	2.00	2.85	6.16	1.95	3.16	6.90	1.62	4.25	7.11	1.63	4.36	7.94	1.67	4.74	7.56	1.47	5.14	8.28	1.52	5.44	6.57	1.12	5.89	7.10	1.16	6.12
	norm		2.14	1.47	1.46	2.60	1.51	1.72	3.12	1.73	1.81	3.89	1.68	2.32	4.28	1.66	2.58	4.80	1.63	3.26	5.19	1.59	3.26	6.00	1.36	4.40	6.18	1.37	4.51	6.90	1.41	4.91	6.55	1.25	5.25	7.18	1.29	5.56	5.25	0.87	6.01	5.67	0.91	6.24
	min		1.02	0.65	1.58	1.24	0.67	1.86	1.49	0.76	1.95	1.86	0.74	2.51	2.05	0.73	2.79	2.29	0.72	3.18	2.48	0.70	3.53	3.10	0.67	4.65	3.19	0.67	4.76	3.57	0.69	5.18	3.91	0.71	5.51	4.28	0.73	5.83	4.65	0.77	6.06	5.02	0.80	6.30
45	max		2.54	1.98	1.29	3.08	2.03	1.51	3.70	2.30	1.66	4.62	2.26	2.04	5.08	2.24	2.27	5.70	2.20	2.59	6.16	2.14	2.88	6.90	1.79	3.86	7.11	1.79	3.96	7.94	1.84	4.31	7.56	1.62	4.67	8.28	1.67	4.95	6.57	1.23	5.36	7.10	1.28	5.56
	norm		2.14	1.61	1.33	2.60	1.66	1.56	3.12	1.88	1.66	3.89	1.85	2.11	4.28	1.83	2.34	4.80	1.80	2.67	5.19	1.75	2.97	5.80	1.52	3.82	6.18	1.51	4.10	6.90	1.55	4.46	6.55	1.37	4.77	7.18	1.42	5.05	5.25	0.96	5.46	5.67	1.00	5.67
	min		1.02	0.71	1.44	1.24	0.73	1.69	1.49	0.83	1.80	1.86	0.82	2.28	2.05	0.81	2.53	2.29	0.79	2.89	2.48	0.77	3.21	3.10	0.73	4.22	3.19	0.74	4.33	3.57	0.76	4.71	3.91	0.78	5.01	4.28	0.81	5.30	4.65	0.84	5.51	5.02	0.88	5.72
50	max		/	/	/	3.00	2.20	1.36	3.62	2.55	1.42	4.54	2.47	1.84	5.01	2.45	2.04	5.62	2.41	2.33	6.08	2.35	2.59	6.83	1.96	3.48	7.04	1.97	3.56	7.87	2.03	3.88	7.50	1.78	4.21	8.22	1.85	4.45	6.53	1.35	4.82	7.02	1.40	5.00
	norm		/	/	/	2.53	1.80	1.41	3.05	2.08	1.46	3.83	2.02	1.90	4.22	2.00	2.11	4.74	1.97	2.41	5.13	1.92	2.67	5.94	1.65	3.60	6.12	1.66	3.69	6.84	1.70	4.01	6.50	1.51	4.29	7.12	1.57	4.55	5.22	1.06	4.91	5.61	1.10	5.10
	min		/	/	/	1.21	0.80	1.52	1.46	0.92	1.58	1.83	0.89	2.05	2.02	0.88	2.28	2.26	0.87	2.60	2.45	0.85	2.89	3.07	0.81	3.80	3.16	0.81	3.90	3.53	0.83	4.24	3.88	0.86	4.50	4.25	0.89	4.77	4.62	0.93	4.96	4.97	0.97	5.15
55	max		/	/	/	/	/	/	3.62	2.94	1.23	4.54	2.82	1.61	5.01	2.80	1.79	5.62	2.75	2.04	6.08	2.69	2.26	6.83	2.24	3.04	7.04	2.26	3.12	7.87	2.32	3.39	7.50	2.04	3.68	8.22	2.11	3.90	6.53	1.55	4.22	7.02	1.60	4.38
	norm		/	/	/	/	/	/	3.05	2.40	1.27	3.83	2.31	1.66	4.22	2.29	1.84	4.74	2.25	2.11	5.13	2.19	2.34	5.40	2.16	2.50	6.12	1.90	3.23	6.84	1.95	3.51	6.50	1.73	3.76	7.12	1.79	3.98	5.22	1.21	4.30	5.61	1.26	4.46
	min		/	/	/	/	/	/	1.46	1.06	1.37	1.83	1.02	/	2.02	1.01	2.00	2.26	0.99	2.28	2.45	0.97	2.53	3.07	0.92	3.33	3.16	0.93	3.41	3.53	0.95	3.71	3.88	0.98	3.94	4.25	1.02	4.17	4.62	1.06	4.34	4.97	1.10	4.51
60	max		/	/	/	/	/	/	/	/	/	/	/	/	4.93	3.10	1.59	5.54	3.06	1.81	6.01	2.98	2.01	6.76	2.50	2.70	6.96	2.51	2.77	7.78	2.58	3.02	7.41	2.26	3.27	8.11	2.34	3.46	6.44	1.72	3.75	6.95	1.79	3.89
	norm		/	/	/	/	/	/	/	/	/	/	/	/	4.15	2.53	1.64	4.67	2.50	1.87	5.06	2.44	2.08	5.88	2.10	2.80	6.06	2.11	2.87	6.76	2.17	3.12	6.42	1.92	3.34	7.03	1.99	3.54	5.15	1.35	3.82	5.56	1.40	3.97
	min		/	/	/	/	/	/	/	/	/	/	/	/	1.98	1.12	1.77	2.23	1.10	2.03	2.42	1.08	2.25	3.04	1.03	2.96	3.13	1.03	3.03	3.49	1.06	3.30	3.83	1.09	3.50	4.19	1.13	3.71	4.56	1.18	3.86	4.92	1.23	4.01

GRS-CQ8.0Pd/NhH2-E, GRS-CQ8.0Pd/NhH5-E

Outlow Water (°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		3.68	2.05	1.80	4.49	2.12	2.11	5.41	2.22	2.43	6.79	2.38	2.85	7.48	2.36	3.17	8.40	2.32	3.62	9.09	2.26	4.01	10.78	1.99	5.42	11.11	2.00	5.55	12.41	2.06	6.04	11.25	1.65	6.84	12.33	1.70	7.24	11.32	1.43	7.91	12.24	1.49	8.22
	norm		2.62	1.30	2.02	3.20	1.35	2.37	3.85	1.41	2.73	4.84	1.51	3.20	5.33	1.50	3.56	5.99	1.47	4.06	6.48	1.44	4.51	7.92	1.31	6.06	8.16	1.31	6.21	9.12	1.35	6.76	8.75	1.19	7.33	9.59	1.24	7.76	10.03	1.23	8.14	10.84	1.28	8.45
	min		1.61	0.72	2.24	1.97	0.75	2.63	2.37	0.78	3.02	2.97	0.84	3.55	3.28	0.83	3.95	3.68	0.82	4.50	3.98	0.80	5.00	4.99	0.76	6.58	5.14	0.76	6.74	5.75	0.78	7.33	6.30	0.81	7.79	6.90	0.84	8.25	7.51	0.88	8.58	8.11	0.91	8.91
30	max		3.80	2.30	1.65	4.60	2.37	1.94	5.52	2.47	2.23	6.90	2.63	2.62	7.59	2.61	2.91	8.51	2.56	3.32	9.20	2.50	3.69	10.89	2.19	4.97	11.22	2.20	5.10	12.52	2.26	5.54	11.34	1.81	6.28	12.42	1.87	6.65	11.40	1.57	7.26	12.31	1.63	7.54
	norm		2.71	1.46	1.85	3.28	1.51	2.18	3.94	1.57	2.50	4.92	1.67	2.94	5.41	1.66	3.27	6.07	1.63	3.73	6.56	1.59	4.14	8.00	1.44	5.57	8.24	1.44	5.71	9.20	1.48	6.21	8.82	1.31	6.73	9.66	1.36	7.13	10.10	1.35	7.47	10.90	1.41	7.75
	min		1.66	0.81	2.05	2.02	0.83	2.41	2.42	0.87	2.78	3.02	0.93	3.26	3.33	0.92	3.62	3.73	0.90	4.14	4.03	0.88	4.59	5.04	0.83	6.04	5.19	0.84	6.19	5.80	0.86	6.73	6.35	0.89	7.15	6.96	0.92	7.58	7.56	0.96	7.88	8.16	1.00	8.18
35	max		3.80	2.58	1.47	4.60	2.66	1.73	5.52	2.77	1.99	6.90	2.95	2.34	7.59	2.92	2.60	8.51	2.87	2.97	9.20	2.80	3.29	10.89	2.45	4.44	11.22	2.46	4.55	12.52	2.53	4.95	11.34	2.02	5.61	12.42	2.09	5.94	11.40	1.76	6.49	12.31	1.83	6.73
	norm		2.71	1.64	1.65	3.28	1.69	1.94	3.94	1.76	2.24	4.92	1.87	2.62	5.41	1.86	2.92	6.07	1.82	3.33	6.56	1.78	3.69	8.00	1.61	4.97	8.24	1.62	5.09	9.20	1.66	5.54	8.82	1.47	6.01	9.66	1.52	6.36	10.10	1.51	6.67	10.90	1.57	6.92
	min		1.66	0.91	1.83	2.02	0.94	2.16	2.42	0.98	2.48	3.02	1.04	2.91	3.33	1.03	3.23	3.73	1.01	3.69	4.03	0.98	4.10	5.04	0.94	5.39	5.19	0.94	5.52	5.80	0.96	6.01	6.35	0.99	6.39	6.96	1.03	6.76	7.56	1.07	7.03	8.16	1.12	7.30
40	max		3.80	2.93	1.30	4.60	3.02	1.52	5.52	3.15	1.75	6.90	3.35	2.06	7.59	3.32	2.29	8.51	3.26	2.61	9.20	3.18	2.90	10.89	2.79	3.91	11.22	2.80	4.00	12.52	2.87	4.36	11.34	2.30	4.93	12.42	2.38	5.22	11.40	2.00	5.71	12.31	2.08	5.93
	norm		2.71	1.86	1.45	3.28	1.92	1.71	3.94	2.00	1.97	4.92	2.13	2.31	5.41	2.11	2.57	6.07	2.07	2.93	6.56	2.02	3.25	8.00	1.83	4.37	8.24	1.84	4.48	9.20	1.89	4.88	8.82	1.67	5.29	9.66	1.72	5.60	10.10	1.72	5.87	10.90	1.79	6.09
	min		1.66	1.03	1.61	2.02	1.06	1.90	2.42	1.11	2.18	3.02	1.18	2.56	3.33	1.17	2.85	3.73	1.15	3.25	4.03	1.12	3.60	5.04	1.06	4.74	5.19	1.07	4.86	5.80	1.10	5.29	6.35	1.13	5.62	6.96	1.17	5.95	7.56	1.22	6.19	8.16	1.27	6.43
45	max		3.80	3.22	1.18	4.60	3.32	1.39	5.52	3.46	1.59	6.90	3.69	1.87	7.59	3.65	2.08	8.51	3.59	2.37	9.20	3.49	2.63	10.89	3.07	3.55	11.22	3.08	3.64	12.52	3.16	3.96	11.34	2.53	4.48	12.42	2.62	4.75	11.40	2.20	5.19	12.31	2.29	5.39
	norm		2.71	2.05	1.32	3.28	2.11	1.56	3.94	2.20	1.79	4.92	2.34	2.10	5.41	2.32	2.33	6.07	2.28	2.66	6.56	2.22	2.95	8.00	2.07	3.86	8.24	2.02	4.08	9.20	2.08	4.43	8.82	1.83	4.81	9.66	1.90	5.09	10.10	1.89	5.33	10.90	1.97	5.54
	min		1.66	1.13	1.47	2.02	1.17	1.72	2.42	1.22	1.98	3.02	1.30	2.33	3.33	1.29	2.59	3.73	1.26	2.95	4.03	1.23	3.28	5.04	1.17	4.31	5.19	1.17	4.42	5.80	1.21	4.81	6.35	1.24	5.11	6.96	1.29	5.41	7.56	1.34	5.63	8.16	1.40	5.84
50	max		/	/	/	4.49	3.60	1.25	5.41	3.77	1.43	6.79	4.03	1.68	7.48	4.00	1.87	8.40	3.93	2.14	9.09	3.83	2.37	10.78	3.37	3.20	11.11	3.39	3.28	12.41	3.48	3.56	11.25	2.79	4.04	12.33	2.88	4.27	11.32	2.42	4.67	12.19	2.51	4.85
	norm		/	/	/	3.20	2.28	1.40	3.85	2.39	1.61	4.84	2.56	1.89	5.33	2.54	2.10	5.99	2.50	2.40	6.48	2.44	2.66	7.92	2.21	3.58	8.16	2.22	3.67	9.12	2.29	3.99	8.75	2.02	4.33	9.59	2.09	4.58	10.03	2.09	4.80	10.79	2.17	4.99
	min		/	/	/	1.97	1.27	1.55	2.37	1.33	1.79	2.97	1.42	2.10	3.28	1.41	2.33	3.68	1.38	2.66	3.98	1.35	2.95	4.99	1.29	3.88	5.14	1.29	3.98	5.75	1.33	4.33	6.30	1.37	4.60	6.90	1.42	4.87	7.51	1.48	5.06	8.08	1.54	5.26
55	max		/	/	/	/	/	5.41	4.31	1.25	6.79	4.61	1.47	7.48	4.57	1.64	8.40	4.49	1.87	9.09	4.38	2.07	10.78	3.85	2.80	11.11	3.87	2.87	12.41	3.98	3.12	11.25	3.19	3.53	12.33	3.30	3.74	11.32	2.77	4.09	12.19	2.87	4.24
	norm		/	/	/	/	/	3.85	2.74	1.41	2.93	1.65	5.33	2.90	1.84	2.57	6.07	2.33	2.78	6.48	2.33	3.05	7.20	2.36	8.16	2.54	3.21	9.12	2.61	3.49	8.75	2.31	3.79	9.59	2.39	4.01	10.03	2.39	4.20	10.79	2.47	4.36
	min		/	/	/	/	/	2.37	1.52	1.56	1.83	2.97	1.62	1.83	3.28	1.61	2.04	3.68	1.58	2.33	3.98	1.54	2.58	4.99	1.47	3.40	5.14	1.48	3.48	5.75	1.52	3.79	6.30	1.57	4.02	6.90	1.62	4.26	7.51	1.69	4.43	8.08	1.76	4.60
60	max		/	/	/	/	/	/	/	/	/	/	/	/	7.36	5.06	1.45	8.28	4.98	1.66	8.97	4.87	1.84	10.67	4.29	2.49	10.99	4.31	2.55	12.27	4.43	2.77	11.11	3.54	3.14	12.17	3.66	3.32	11.17	3.08	3.63	12.07	3.20	3.77
	norm		/	/	/	/	/	/	/	/	/	/	/	/	5.25	3.21	1.63	5.90	3.17	1.86	6.40	3.09	2.07	7.84	2.82	2.78	8.08	2.83	2.85	9.02	2.91	3.10	8.64	2.57	3.37	9.47	2.66	3.56	9.89	2.65	3.73	10.68	2.76	3.88
	min		/	/	/	/	/	/	/	/	/	/	/	/	3.23	1.78	1.81	3.63	1.76	2.07	3.93	1.71	2.29	4.94	1.64	3.02	5.09	1.64	3.09	5.68	1.69	3.37	6.22	1.74	3.58	6.82	1.80	3.79	7.41	1.88	3.94	8.00	1.96	4.09

GRS-CQ10Pd/NhH2-E

Outflow Water (°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		3.78	2.12	1.78	4.60	2.20	2.09	5.55	2.30	2.41	6.96	2.46	2.83	7.67	2.44	3.14	8.61	2.40	3.59	9.32	2.34	3.98	11.42	2.16	5.29	11.77	2.17	5.43	13.16	2.23	5.90	12.75	1.94	6.58	13.97	2.01	6.97	12.22	1.58	7.74	13.20	1.64	8.03
	norm		3.07	1.59	1.93	3.74	1.65	2.27	4.51	1.73	2.61	5.66	1.85	2.85	6.23	1.83	3.40	7.00	1.80	3.89	7.58	1.76	4.31	9.90	1.70	5.81	10.20	1.71	5.95	11.40	1.76	6.48	10.25	1.46	7.03	11.23	1.51	7.44	10.43	1.29	8.07	11.27	1.34	8.38
	min		1.61	0.72	2.24	1.97	0.75	2.63	2.37	0.78	3.02	2.97	0.84	3.55	3.28	0.83	3.95	3.68	0.82	4.50	3.98	0.80	5.00	4.99	0.76	6.58	5.14	0.76	6.74	5.75	0.78	7.33	5.75	0.81	7.79	6.90	0.84	8.25	7.51	0.88	8.58	8.11	0.91	8.91
30	max		3.89	2.38	1.63	4.72	2.46	1.92	5.66	2.56	2.21	7.08	2.73	2.59	7.79	2.70	2.88	8.73	2.59	3.29	9.44	2.59	3.65	11.54	2.37	4.86	11.89	2.39	4.98	13.27	2.45	5.42	12.85	2.13	6.04	14.08	2.20	6.40	12.30	1.73	7.10	13.28	1.80	7.38
	norm		3.16	1.79	1.77	3.84	1.84	2.08	4.60	1.92	2.40	5.75	2.05	2.81	6.33	2.03	3.12	7.10	1.99	3.57	7.67	1.94	3.96	10.00	1.88	5.33	10.30	1.88	5.46	11.50	1.93	5.94	10.33	1.60	6.45	11.32	1.66	6.83	10.50	1.42	7.41	11.34	1.47	7.69
	min		1.66	0.81	2.05	2.02	0.83	2.41	2.42	0.87	2.78	3.02	0.93	3.26	3.33	0.92	3.62	3.73	0.90	4.14	4.03	0.88	4.59	5.04	0.83	6.04	5.19	0.84	6.19	5.80	0.86	6.73	6.35	0.89	7.15	6.96	0.92	7.58	7.56	0.96	7.88	8.16	1.00	8.18
35	max		3.89	2.67	1.46	4.72	2.75	1.72	5.66	2.87	1.97	7.08	3.06	2.32	7.79	3.03	2.57	8.73	2.97	2.94	9.44	2.90	3.26	11.54	2.66	4.34	11.89	2.67	4.45	13.27	2.74	4.84	12.85	2.38	5.39	14.08	2.47	5.71	12.30	1.94	6.34	13.28	2.02	6.59
	norm		3.16	2.00	1.58	3.84	2.06	1.86	4.60	2.15	2.14	5.75	2.29	2.51	6.33	2.27	2.79	7.10	2.23	3.19	7.67	2.17	3.53	10.00	2.10	4.76	10.30	2.11	4.88	11.50	2.17	5.31	10.33	1.79	5.76	11.32	1.86	6.10	10.50	1.59	6.62	11.34	1.65	6.87
	min		1.66	0.91	1.83	2.02	0.94	2.16	2.42	0.98	2.48	3.02	1.04	2.91	3.73	1.03	3.23	3.73	1.01	3.69	4.03	0.98	4.10	5.04	0.94	5.39	5.19	0.94	5.52	5.80	0.96	6.01	6.35	0.99	6.39	6.96	1.03	6.76	7.56	1.07	7.03	8.16	1.12	7.30
40	max		3.89	3.03	1.28	4.72	3.13	1.51	5.66	3.26	1.74	7.08	3.47	2.04	7.79	3.44	2.27	8.73	3.38	2.59	9.44	3.29	2.87	11.54	3.02	3.82	11.89	3.04	3.91	13.27	3.12	4.26	12.85	2.71	4.74	14.08	2.80	5.03	12.30	2.20	5.58	13.28	2.29	5.80
	norm		3.16	2.27	1.39	3.84	2.34	1.64	4.60	2.45	1.88	5.75	2.60	2.21	6.33	2.58	2.46	7.10	2.53	2.80	7.67	2.47	3.11	10.00	2.39	4.19	10.30	2.40	4.29	11.50	2.46	4.67	10.33	2.04	5.07	11.32	2.11	5.37	10.50	1.80	5.82	11.34	1.88	6.05
	min		1.66	1.03	1.61	2.02	1.06	1.90	2.42	1.11	2.18	3.02	1.18	2.56	3.33	1.17	2.85	3.73	1.15	3.25	4.03	1.12	3.60	5.04	1.06	4.74	5.19	1.07	4.86	5.80	1.10	5.29	6.35	1.13	5.62	6.96	1.17	5.95	7.56	1.22	6.19	8.16	1.27	6.43
45	max		3.89	3.34	1.17	4.72	3.44	1.37	5.66	3.59	1.58	7.08	3.82	1.85	7.79	3.78	2.06	8.73	3.71	2.35	9.44	3.62	2.61	11.54	3.32	3.47	11.89	3.34	3.56	13.27	3.43	3.87	12.85	2.98	4.31	14.08	3.08	4.57	12.30	2.42	5.07	13.28	2.52	5.27
	norm		3.16	2.50	1.26	3.84	2.58	1.49	4.60	2.69	1.71	5.75	2.86	2.01	6.33	2.84	2.23	7.10	2.78	2.55	7.67	2.71	2.83	10.20	2.78	3.67	10.30	2.64	3.90	11.50	2.71	4.25	10.33	2.24	4.61	11.32	2.32	4.88	10.50	1.98	5.29	11.34	2.06	5.50
	min		1.66	1.13	1.47	2.02	1.17	1.72	2.42	1.22	1.98	3.02	1.30	2.33	3.33	1.29	2.59	3.73	1.26	2.95	4.03	1.23	3.28	5.04	1.17	4.31	5.19	1.17	4.42	5.80	1.21	4.81	6.35	1.24	5.11	6.96	1.29	5.41	7.56	1.34	5.63	8.16	1.40	5.84
50	max		/	/	/	4.60	3.72	1.24	5.55	3.90	1.42	6.96	4.17	1.67	7.67	4.14	1.85	8.61	4.07	2.12	9.32	3.97	2.35	11.42	3.66	3.12	11.77	3.68	3.20	13.16	3.78	3.48	12.75	3.28	3.88	13.97	3.40	4.11	12.22	2.68	4.57	13.15	2.77	4.74
	norm		/	/	/	3.74	2.79	1.34	4.51	2.93	1.54	5.66	3.13	1.81	6.23	3.10	2.01	7.00	3.05	2.29	7.58	2.98	2.54	9.90	2.89	3.43	10.20	2.90	3.51	11.40	2.98	3.82	10.25	2.47	4.15	11.23	2.56	4.39	10.43	2.19	4.76	11.23	2.27	4.95
	min		/	/	/	1.97	1.27	1.55	2.37	1.33	1.79	2.97	1.42	2.10	3.28	1.41	2.33	3.68	1.38	2.66	3.98	1.35	2.95	4.99	1.29	3.88	5.14	1.29	3.98	5.75	1.33	4.33	6.30	1.37	4.60	6.90	1.42	4.87	7.51	1.48	5.06	8.08	1.54	5.26
55	max		/	/	/	/	/	/	5.55	4.46	1.24	6.96	4.77	1.46	7.67	4.73	1.62	8.61	4.65	1.85	9.32	4.54	2.05	11.42	4.18	2.73	11.77	4.20	2.80	13.16	4.32	3.05	12.75	3.75	3.40	13.97	3.88	3.60	12.22	3.06	4.00	13.15	3.17	4.15
	norm		/	/	/	/	/	/	4.51	3.34	1.35	5.66	3.58	1.58	6.23	3.55	1.76	7.00	3.49	2.01	7.58	3.40	2.23	8.55	3.72	2.30	10.20	3.32	3.07	11.40	3.41	3.34	10.25	2.83	3.63	11.23	2.92	3.84	10.43	2.50	4.17	11.23	2.59	4.33
	min		/	/	/	/	/	/	2.37	1.52	1.56	2.97	1.62	1.83	3.28	1.61	2.04	3.68	1.58	2.33	3.98	1.54	2.58	4.99	1.47	3.40	5.14	1.48	3.48	5.75	1.52	3.79	6.30	1.57	4.02	6.90	1.62	4.26	7.51	1.69	4.43	8.08	1.76	4.60
60	max		/	/	/	/	/	/	/	/	/	/	/	/	7.55	5.24	1.44	8.50	5.16	1.65	9.20	5.04	1.83	11.31	4.65	2.43	11.65	4.68	2.49	13.01	4.80	2.71	12.59	4.17	3.02	13.79	4.31	3.20	12.05	3.39	3.55	13.02	3.53	3.69
	norm		/	/	/	/	/	/	/	/	/	/	/	/	6.14	3.93	1.56	6.90	3.87	1.78	7.48	3.78	1.98	9.80	3.68	2.67	10.09	3.69	2.73	11.27	3.79	2.97	10.13	3.14	3.23	11.09	3.25	3.42	10.29	2.78	3.71	11.11	2.89	3.85
	min		/	/	/	/	/	/	/	/	/	/	/	/	3.23	1.78	1.81	3.63	1.76	2.07	3.93	1.71	2.29	4.94	1.64	3.02	5.09	1.64	3.09	5.68	1.69	3.37	6.22	1.74	3.58	6.82	1.80	3.79	7.41	1.88	3.94	8.00	1.96	4.09

(4) Heating capacity, power and efficiency for the 3-phase units

| GRS-CQ4.0Pd/NhH-E | | |

GRS-CQ6.0Pd/NhH-E

Outlow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		2.33	1.19	1.95	2.85	1.24	2.30	3.45	1.38	2.50	4.35	1.40	3.10	4.80	1.39	3.45	5.40	1.37	3.94	5.85	1.34	4.37	6.57	1.12	5.87	6.77	1.13	6.01	7.57	1.16	6.54	7.24	1.02	7.10	7.94	1.06	7.52	6.07	0.75	8.14	6.56	0.78	8.45
	norm		1.86	0.90	2.07	2.28	0.93	2.44	2.76	1.04	2.65	3.48	1.06	3.29	3.84	1.05	3.66	4.32	1.03	4.18	4.68	1.01	4.64	5.88	0.96	6.10	6.06	0.97	6.25	6.78	1.00	6.80	6.20	0.86	7.24	6.80	0.89	7.67	5.48	0.67	8.22	5.92	0.69	8.53
	min		0.90	0.41	2.18	1.10	0.43	2.57	1.33	0.48	2.79	1.68	0.49	3.47	1.86	0.48	3.85	2.09	0.48	4.40	2.26	0.46	4.88	2.84	0.44	6.42	2.93	0.45	6.58	3.28	0.46	7.16	3.60	0.47	7.60	3.94	0.49	8.05	4.29	0.51	8.37	4.64	0.53	8.70
30	max		2.40	1.34	1.79	2.93	1.39	2.11	3.53	1.53	2.31	4.43	1.55	3.53	4.88	1.54	3.17	5.48	1.52	3.61	5.93	1.48	4.01	6.63	1.23	5.39	6.83	1.24	5.52	7.64	1.27	6.01	7.30	1.12	6.52	8.00	1.16	6.90	6.11	0.82	7.47	6.60	0.85	7.75
	norm		1.92	1.01	1.90	2.34	1.04	2.24	2.82	1.15	2.45	3.54	1.17	3.02	3.90	1.16	3.36	4.38	1.14	3.84	4.74	1.11	4.26	5.94	1.06	5.60	6.12	1.07	5.74	6.84	1.10	6.24	6.25	0.94	6.65	6.85	0.97	7.04	5.51	0.73	7.54	5.96	0.76	7.83
	min		0.93	0.46	2.00	1.13	0.48	2.36	1.36	0.53	2.58	1.71	0.54	3.18	1.89	0.53	3.53	2.12	0.52	4.04	2.29	0.51	4.48	2.87	0.49	5.89	2.96	0.49	6.04	3.31	0.50	6.57	3.63	0.52	6.98	3.97	0.54	7.39	4.32	0.56	7.69	4.67	0.58	7.98
35	max		2.48	1.55	1.60	3.00	1.59	1.88	3.60	1.78	2.03	4.50	1.77	2.54	4.95	1.75	2.83	5.55	1.72	3.23	6.00	1.68	3.58	6.70	1.39	4.81	6.90	1.40	4.93	7.71	1.44	5.36	7.36	1.26	5.82	8.06	1.31	6.16	6.15	0.92	6.67	6.64	0.96	6.92
	norm		1.98	1.16	1.70	2.40	1.20	2.00	2.88	1.34	2.15	3.60	1.33	2.70	3.96	1.32	3.00	4.44	1.30	3.43	4.80	1.26	3.80	6.00	1.20	5.00	6.18	1.21	5.13	6.90	1.24	5.58	6.30	1.06	5.94	6.90	1.10	6.29	5.55	0.82	6.73	5.99	0.86	6.99
	min		0.96	0.54	1.79	1.16	0.55	2.10	1.39	0.62	2.26	1.74	0.61	2.84	1.91	0.61	3.16	2.15	0.60	3.60	2.32	0.58	4.00	2.90	0.55	5.26	2.99	0.55	5.39	3.34	0.57	5.86	3.65	0.59	6.23	4.00	0.61	6.60	4.35	0.63	6.86	4.70	0.66	7.13
40	max		2.40	1.70	1.41	2.93	1.76	1.66	3.53	2.02	1.74	4.43	1.98	2.24	4.88	1.96	2.49	5.48	1.93	2.84	5.93	1.88	3.15	6.83	1.57	4.23	6.83	1.58	4.34	7.64	1.62	4.72	7.30	1.43	5.12	8.00	1.48	5.42	6.11	1.04	5.87	6.60	1.08	6.09
	norm		1.92	1.28	1.50	2.34	1.33	1.76	2.82	1.52	1.85	3.54	1.49	2.38	3.90	1.48	2.64	4.38	1.45	3.01	4.74	1.42	3.34	5.94	1.35	4.40	6.12	1.36	4.51	6.84	1.39	4.91	6.25	1.20	5.22	6.85	1.24	5.53	5.51	0.93	5.93	5.96	0.97	6.15
	min		0.93	0.59	1.57	1.13	0.61	1.85	1.36	0.70	1.95	1.71	0.68	2.50	1.89	0.68	2.78	2.12	0.67	3.17	2.29	0.65	3.52	2.87	0.62	4.63	2.96	0.62	4.74	3.31	0.64	5.16	3.63	0.66	5.49	3.97	0.68	5.81	4.32	0.72	6.04	4.67	0.74	6.27
45	max		2.25	1.76	1.28	2.78	1.84	1.51	3.38	2.11	1.60	4.28	2.10	2.03	4.73	2.09	2.26	5.33	2.06	2.58	5.78	2.02	2.86	6.50	1.69	3.85	6.70	1.70	3.94	7.50	1.75	4.29	7.18	1.54	4.65	7.88	1.60	4.93	6.03	1.13	5.33	6.52	1.18	5.54
	norm		1.80	1.32	1.36	2.22	1.39	1.60	2.70	1.59	1.70	3.42	1.58	2.16	3.78	1.58	2.40	4.26	1.55	2.74	4.62	1.52	3.04	5.90	1.51	3.91	6.00	1.46	4.10	6.72	1.51	4.46	6.15	1.29	4.75	6.75	1.34	5.03	5.44	1.01	5.39	5.88	1.05	5.59
	min		0.87	0.61	1.43	1.07	0.64	1.68	1.31	0.73	1.79	1.65	0.73	2.27	1.83	0.72	2.52	2.06	0.71	2.88	2.23	0.70	3.20	2.81	0.67	4.21	2.90	0.67	4.31	3.25	0.69	4.69	3.57	0.72	4.99	3.92	0.74	5.28	4.26	0.78	5.49	4.61	0.81	5.70
50	max		/	/	/	2.63	1.94	1.36	3.23	2.28	1.41	4.13	2.25	1.83	4.58	2.25	2.32	5.18	2.23	2.32	5.63	2.18	2.58	6.37	1.84	3.46	6.57	1.85	3.55	7.37	1.91	3.86	7.07	1.69	4.19	7.77	1.75	4.44	5.95	1.24	4.80	6.44	1.29	4.99
	norm		/	/	/	2.10	1.46	1.44	2.58	1.72	1.50	3.30	1.70	1.94	3.66	1.69	2.16	4.14	1.68	2.47	4.50	1.64	2.74	5.70	1.58	3.60	5.88	1.59	3.69	6.60	1.64	4.01	6.05	1.42	4.27	6.65	1.47	4.53	5.37	1.11	4.85	5.81	1.15	5.03
	min		/	/	/	1.02	0.67	1.51	1.25	0.79	1.58	1.60	0.78	2.05	1.77	0.78	2.27	2.00	0.77	2.59	2.18	0.76	2.88	2.76	0.73	3.79	2.84	0.73	3.88	3.19	0.76	4.22	3.51	0.78	4.49	3.86	0.81	4.75	4.21	0.85	4.94	4.55	0.89	5.13
55	max		/	/	/	/	/	/	3.08	2.51	1.22	3.98	2.48	1.60	4.43	2.49	1.78	5.03	2.47	2.03	5.48	2.43	2.26	6.23	2.06	3.03	6.43	2.07	3.11	7.24	2.14	3.38	6.95	1.90	3.67	7.65	1.97	3.88	5.86	1.40	4.20	6.36	1.46	4.36
	norm		/	/	/	/	/	/	2.46	1.89	1.30	3.18	1.87	1.70	3.54	1.87	1.89	4.02	1.86	2.16	4.38	1.83	2.39	5.40	2.16	2.50	5.76	1.78	3.23	6.48	1.84	3.51	5.95	1.59	3.74	6.55	1.65	3.96	5.29	1.25	4.24	5.74	1.30	4.40
	min		/	/	/	/	/	/	1.19	0.87	1.37	1.54	0.86	1.79	1.71	0.86	1.99	1.94	0.86	2.27	2.12	0.84	2.52	2.70	0.81	3.31	2.78	0.82	3.40	3.13	0.85	3.69	3.45	0.88	3.93	3.80	0.91	4.16	4.15	0.96	4.32	4.50	1.00	4.49
60	max		/	/	/	/	/	/	/	/	/	/	/	/	4.35	2.75	1.58	4.95	2.74	1.81	5.40	2.69	2.00	6.16	2.29	2.69	6.37	2.31	2.76	7.17	2.39	3.00	6.89	2.11	3.26	7.59	2.20	3.45	5.82	1.56	3.73	6.31	1.63	3.88
	norm		/	/	/	/	/	/	/	/	/	/	/	/	3.48	2.07	1.68	3.96	2.06	1.92	4.32	2.03	2.13	5.52	1.97	2.80	5.70	1.99	2.87	6.42	2.06	3.12	5.90	1.77	3.32	6.50	1.85	3.52	5.25	1.39	3.77	5.70	1.46	3.92
	min		/	/	/	/	/	/	/	/	/	/	/	/	1.68	0.95	1.77	1.91	0.95	2.02	2.09	0.93	2.24	2.67	0.91	2.95	2.76	0.91	3.02	3.10	0.94	3.28	3.42	0.98	3.49	3.77	1.02	3.70	4.12	1.07	3.84	4.47	1.12	3.99

GRS-CQ8.0Pd/NhH-E

Outflow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		3.57	1.98	1.80	4.37	2.07	2.11	5.29	2.18	2.43	6.67	2.34	2.85	7.36	2.32	3.17	8.28	2.29	3.62	8.97	2.23	4.01	10.67	1.97	5.42	11.00	1.98	5.55	12.31	2.04	6.04	11.16	1.63	6.84	12.24	1.69	7.24	11.25	1.42	7.91	12.16	1.48	8.22
	norm		2.54	1.26	2.02	3.12	1.31	2.37	3.77	1.38	2.73	4.76	1.49	3.20	5.25	1.48	3.56	5.90	1.45	4.06	6.40	1.42	4.51	7.84	1.36	5.75	8.08	1.37	5.89	9.04	1.41	6.41	8.68	1.18	7.33	9.52	1.23	7.76	9.96	1.22	8.14	10.77	1.27	8.45
	min		1.56	0.70	2.24	1.92	0.73	2.63	2.32	0.77	3.02	2.92	0.82	3.55	3.23	0.82	3.95	3.63	0.81	4.50	3.93	0.79	5.00	4.94	0.75	6.58	5.09	0.76	6.74	5.70	0.78	7.33	6.25	0.80	7.79	6.85	0.83	8.25	7.46	0.87	8.58	8.06	0.91	8.91
30	max		3.68	2.23	1.65	4.49	2.31	1.94	5.41	2.42	2.23	6.79	2.59	2.62	7.48	2.57	2.91	8.40	2.53	3.32	9.09	2.46	3.69	10.78	2.17	4.97	11.11	2.18	5.10	12.41	2.24	5.54	11.25	1.79	6.28	12.33	1.85	6.65	11.32	1.56	7.26	12.24	1.62	7.54
	norm		2.62	1.42	1.85	3.20	1.47	2.18	3.85	1.54	2.50	4.84	1.65	2.94	5.33	1.63	3.27	5.99	1.61	3.73	6.48	1.57	4.14	7.92	1.50	5.28	8.16	1.51	5.41	9.12	1.55	5.88	8.75	1.30	6.73	9.59	1.35	7.13	10.03	1.34	7.47	10.84	1.40	7.75
	min		1.61	0.79	2.05	1.97	0.81	2.41	2.37	0.85	2.78	2.97	0.91	3.26	3.28	0.90	3.62	3.68	0.89	4.14	4.98	0.87	4.59	4.99	0.83	6.04	5.14	0.83	6.19	5.75	0.85	6.73	6.30	0.88	7.15	6.90	0.91	7.58	7.51	0.95	7.88	8.11	0.99	8.18
35	max		3.80	2.58	1.47	4.60	2.66	1.73	5.52	2.77	1.99	6.90	2.95	2.34	7.59	2.92	2.60	8.51	2.87	2.97	9.20	2.80	3.29	10.89	2.45	4.44	11.22	2.46	4.55	12.52	2.53	4.95	11.34	2.02	5.61	12.42	2.09	5.94	11.40	1.76	6.49	12.31	1.83	6.73
	norm		2.71	1.64	1.65	3.28	1.69	1.94	3.94	1.76	2.24	4.92	1.87	2.62	5.41	1.86	2.92	6.07	1.82	3.33	6.56	1.78	3.69	8.00	1.70	4.71	8.24	1.71	4.83	9.20	1.75	5.25	8.82	1.47	6.01	9.66	1.52	6.36	10.10	1.51	6.67	10.90	1.57	6.92
	min		1.66	0.91	1.83	2.02	0.94	2.16	2.42	0.98	2.48	3.02	1.04	2.91	3.33	1.03	3.23	3.73	1.01	3.69	4.03	0.98	4.10	5.04	0.94	5.39	5.19	0.94	5.52	5.80	0.96	6.01	6.35	0.99	6.39	6.96	1.03	6.76	7.56	1.07	7.03	8.16	1.12	7.30
40	max		3.68	2.84	1.30	4.49	2.94	1.52	5.41	3.08	1.75	6.79	3.30	2.06	7.48	3.27	2.29	8.40	3.22	2.61	9.09	3.14	2.90	10.78	2.76	3.91	11.11	2.77	4.00	12.41	2.85	4.36	11.25	2.28	4.93	12.33	2.36	5.22	11.32	1.98	5.71	12.24	2.06	5.93
	norm		2.62	1.80	1.45	3.20	1.87	1.71	3.85	1.96	1.97	4.84	2.09	2.31	5.33	2.08	2.57	5.99	2.04	2.93	6.48	1.99	3.25	7.92	1.91	4.14	8.16	1.92	4.25	9.12	1.97	4.62	8.75	1.65	5.29	9.59	1.71	5.60	10.03	1.71	5.87	10.84	1.78	6.09
	min		1.61	1.00	1.61	1.97	1.04	1.90	2.37	1.09	2.18	2.97	1.16	2.56	3.28	1.15	2.85	3.68	1.13	3.25	3.98	1.10	3.60	4.99	1.05	4.74	5.14	1.06	4.86	5.75	1.09	5.29	6.30	1.12	5.62	6.90	1.16	5.95	7.51	1.21	6.19	8.11	1.26	6.43
45	max		3.45	2.93	1.18	4.26	3.07	1.39	5.18	3.25	1.59	6.56	3.50	1.87	7.25	3.49	2.08	8.17	3.44	2.37	8.86	3.36	2.63	10.56	2.97	3.55	10.89	2.99	3.64	12.20	3.08	3.96	11.07	2.47	4.48	12.15	2.56	4.75	11.17	2.15	5.19	12.08	2.24	5.39
	norm		2.46	1.86	1.32	3.03	1.95	1.56	3.69	2.06	1.79	4.67	2.23	2.10	5.17	2.21	2.33	5.82	2.19	2.66	6.31	2.14	2.95	7.00	1.87	3.74	8.00	2.07	3.86	8.96	2.13	4.20	8.61	1.79	4.81	9.45	1.86	5.09	9.89	1.85	5.33	10.70	1.93	5.54
	min		1.51	1.03	1.47	1.86	1.08	1.72	2.27	1.14	1.98	2.87	1.23	2.33	3.18	1.23	2.59	3.58	1.21	2.95	3.88	1.18	3.28	4.89	1.13	4.31	5.04	1.14	4.42	5.64	1.17	4.81	6.20	1.21	5.11	6.80	1.26	5.41	7.41	1.32	5.63	8.01	1.37	5.84
50	max		/	/	/	4.03	3.23	1.25	4.95	3.45	1.43	6.33	3.76	1.68	7.02	3.75	2.38	7.94	3.72	2.14	8.63	3.64	2.37	10.35	3.24	3.20	10.67	3.26	3.28	11.98	3.36	3.56	10.89	2.70	4.04	11.97	2.80	4.27	11.02	2.36	4.67	11.93	2.46	4.85
	norm		/	/	/	2.87	2.05	1.40	3.53	2.19	1.61	4.51	2.39	1.89	5.00	2.38	2.10	5.66	2.36	2.40	6.15	2.31	2.66	7.60	2.24	3.39	7.84	2.26	3.48	8.80	2.33	3.78	8.47	1.96	4.33	9.31	2.03	4.58	9.76	2.03	4.80	10.57	2.12	4.99
	min		/	/	/	1.76	1.14	1.55	2.17	1.21	1.79	2.77	1.32	2.10	3.07	1.32	2.33	3.48	1.31	2.66	3.78	1.28	2.95	4.79	1.23	3.88	4.94	1.24	3.98	5.54	1.28	4.33	6.10	1.33	4.60	6.70	1.38	4.87	7.31	1.44	5.06	7.91	1.50	5.26
55	max		/	/	/	/	/	/	4.72	3.76	1.25	6.10	4.14	1.47	6.79	4.15	1.64	7.71	4.12	1.87	8.40	4.05	2.07	10.13	3.62	2.80	10.45	3.65	2.87	11.76	3.77	3.12	10.71	3.03	3.53	11.79	3.15	3.74	10.87	2.66	4.09	11.78	2.78	4.24
	norm		/	/	/	/	/	/	3.36	2.39	1.41	4.35	2.63	1.65	4.84	2.63	1.84	5.49	2.62	2.10	5.99	2.57	2.33	7.20	3.05	2.36	7.68	2.53	3.04	8.64	2.61	3.31	8.33	2.20	3.79	9.17	2.29	4.01	9.62	2.29	4.20	10.43	2.39	4.36
	min		/	/	/	/	/	/	2.07	1.32	1.56	2.67	1.46	1.83	2.97	1.46	2.04	3.38	1.45	2.33	3.68	1.43	2.58	4.69	1.38	3.40	4.84	1.39	3.48	5.44	1.44	3.79	6.00	1.49	4.02	6.60	1.55	4.26	7.21	1.63	4.43	7.81	1.70	4.60
60	max		/	/	/	/	/	/	/	/	/	/	/	/	6.67	4.58	1.45	7.59	4.57	1.66	8.28	4.49	1.84	10.02	4.03	2.49	10.35	4.06	2.55	11.65	4.20	2.77	10.62	3.38	3.14	11.70	3.52	3.32	10.79	2.97	3.63	11.70	3.10	3.77
	norm		/	/	/	/	/	/	/	/	/	/	/	/	4.76	2.91	1.63	5.41	2.90	1.86	5.90	2.85	2.07	7.36	2.79	2.64	7.60	2.81	2.70	8.56	2.91	2.94	8.26	2.45	3.37	9.10	2.55	3.56	9.56	2.56	3.73	10.36	2.67	3.88
	min		/	/	/	/	/	/	/	/	/	/	/	/	2.92	1.61	1.81	3.33	1.61	2.07	3.63	1.58	2.29	4.64	1.54	3.02	4.79	1.55	3.09	5.39	1.60	3.37	5.95	1.66	3.58	6.55	1.73	3.79	7.16	1.82	3.94	7.76	1.90	4.09

GRS-CQ10.0Pd/NhH-E

Outflow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max	3.66	2.06	1.78	4.48	2.14	2.09	5.43	2.25	2.41	6.84	2.42	2.83	7.55	2.40	3.14	8.50	2.37	3.59	9.20	2.31	3.98	11.31	2.14	5.29	11.66	2.15	5.43	13.04	2.21	5.90	12.65	1.92	6.58	13.87	1.99	6.97	12.14	1.57	7.74	13.12	1.63	8.03
	norm	2.97	1.54	1.93	3.64	1.61	2.27	4.41	1.69	2.61	5.56	1.82	3.06	6.14	1.80	3.40	6.90	1.78	3.89	7.48	1.73	4.31	9.31	1.66	5.60	9.60	1.67	5.74	10.74	1.72	6.24	10.17	1.45	7.03	11.15	1.50	7.44	10.36	1.28	8.07	11.20	1.34	8.38
	min	1.56	0.70	2.24	1.92	0.73	2.63	2.32	0.77	3.02	2.92	0.82	3.55	3.23	0.82	3.95	3.63	0.81	4.50	3.93	0.79	5.00	7.48	0.75	6.58	5.09	0.76	6.74	5.70	0.78	7.33	6.25	0.80	7.79	6.85	0.83	8.25	7.46	0.87	8.58	8.06	0.91	8.91
30	max	3.78	2.31	1.63	4.60	2.39	1.92	5.55	2.51	2.21	6.96	2.68	2.59	7.67	2.66	2.88	8.61	2.62	3.29	9.32	2.55	3.65	11.42	2.35	4.86	11.77	2.36	4.98	13.16	2.43	5.42	12.75	2.11	6.04	13.97	2.18	6.40	12.22	1.72	7.10	13.20	1.79	7.38
	norm	3.07	1.73	1.77	3.74	1.80	2.08	4.51	1.88	2.40	5.66	2.01	2.81	6.23	1.99	3.12	7.00	1.96	3.57	7.58	1.91	3.96	9.41	1.83	5.14	9.69	1.84	5.27	10.83	1.89	5.73	10.25	1.59	6.45	10.43	1.64	6.83	10.43	1.41	7.41	11.27	1.46	7.69
	min	1.61	0.79	2.05	1.97	0.81	2.41	2.37	0.85	2.78	2.97	0.91	3.26	3.28	0.90	3.62	3.68	0.89	4.14	3.98	0.87	4.59	4.99	0.83	6.04	5.14	0.83	6.19	5.75	0.85	6.73	6.30	0.88	7.15	7.51	0.91	7.58	7.51	0.95	7.88	8.11	0.99	8.18
35	max	3.89	2.67	1.46	4.72	2.75	1.97	5.66	2.87	2.14	7.08	3.06	2.32	7.79	3.03	2.57	8.73	2.97	2.94	9.44	2.90	3.26	11.54	2.66	4.34	11.89	2.67	4.45	13.27	2.74	4.84	12.85	2.38	5.39	14.08	2.47	5.71	12.30	1.94	6.34	13.28	2.02	6.59
	norm	3.16	2.00	1.58	3.84	2.06	1.86	4.60	2.15	2.14	5.75	2.29	2.51	6.33	2.27	2.79	7.10	2.23	3.19	7.67	2.17	3.53	9.50	2.07	4.59	9.79	2.08	4.70	10.93	2.13	5.12	10.33	1.79	5.76	11.32	1.86	6.10	10.50	1.59	6.62	11.34	1.65	6.87
	min	1.66	0.91	1.83	2.02	0.94	2.16	2.42	0.98	2.48	3.02	1.04	2.91	3.33	1.03	3.23	3.73	1.01	3.69	4.03	0.98	4.10	5.04	0.94	5.39	5.19	0.94	5.52	5.80	0.96	6.01	6.35	0.99	6.39	6.96	1.03	6.76	7.56	1.07	7.03	8.16	1.12	7.30
40	max	3.78	2.94	1.28	4.60	3.05	1.51	5.55	3.19	1.74	6.96	3.42	2.04	7.67	2.54	3.39	8.61	3.33	2.59	9.32	3.25	2.87	11.42	2.99	3.82	11.77	3.01	3.91	13.16	3.09	4.26	12.75	2.69	4.74	13.97	2.78	5.03	12.22	2.19	5.58	13.20	2.28	5.80
	norm	3.07	2.21	1.39	3.74	2.29	1.64	4.51	2.39	1.88	5.66	2.56	2.21	6.23	2.54	2.46	7.00	2.50	2.80	7.58	2.44	3.11	9.41	2.33	4.04	9.69	2.34	4.14	10.83	2.40	4.50	10.25	2.02	5.07	10.25	2.09	5.37	10.43	1.79	5.82	11.27	1.86	6.05
	min	1.61	1.00	1.61	1.97	1.04	1.90	2.37	1.09	2.18	2.97	1.16	2.56	3.28	1.15	2.85	3.68	1.13	3.25	3.98	1.10	3.60	4.99	1.05	4.74	5.14	1.06	4.86	5.75	1.09	5.29	6.30	1.12	5.62	6.90	1.16	5.95	7.51	1.21	6.19	8.11	1.26	6.43
45	max	3.54	3.03	1.17	4.37	3.18	1.37	5.31	3.36	1.58	6.73	3.63	1.85	7.43	3.61	2.06	8.38	3.56	2.35	9.09	3.48	2.61	11.19	3.22	3.47	11.54	3.24	3.56	12.92	3.34	3.87	12.55	2.91	4.31	13.77	3.01	4.57	12.05	2.38	5.07	13.04	2.47	5.27
	norm	2.88	2.27	1.26	3.55	2.38	1.49	4.32	2.52	1.71	5.47	2.72	2.01	6.04	2.71	2.23	6.81	2.67	2.55	7.38	2.61	2.83	8.50	2.36	3.60	9.50	2.52	3.76	10.64	2.60	4.09	10.09	2.19	4.61	11.07	2.27	4.88	10.29	1.94	5.29	11.13	2.03	5.50
	min	1.51	1.03	1.47	1.86	1.08	1.72	2.27	1.14	1.98	2.87	1.23	2.33	3.18	1.23	2.59	3.58	1.21	2.95	3.88	1.18	3.28	4.89	1.13	4.31	5.04	1.14	4.42	5.64	1.17	4.81	6.20	1.21	5.11	6.80	1.26	5.41	7.41	1.32	5.63	8.01	1.37	5.84
50	max	/	/	/	4.13	3.34	1.24	5.07	3.57	1.42	6.49	3.89	1.67	7.20	3.88	1.85	8.14	3.85	2.12	8.85	3.77	2.35	10.96	3.51	3.12	11.31	3.53	3.20	12.69	3.64	3.48	12.34	3.18	3.88	13.57	3.30	4.11	11.89	2.60	4.57	12.87	2.72	4.74
	norm	/	/	/	3.36	2.51	1.34	4.12	2.68	1.54	5.27	2.92	1.81	5.85	2.91	2.01	6.62	2.89	2.29	7.19	2.83	2.54	9.03	2.73	3.30	9.31	2.75	3.39	10.45	2.84	3.68	9.92	2.39	4.15	10.91	2.48	4.39	10.15	2.13	4.76	10.99	2.22	4.95
	min	/	/	/	1.76	1.14	1.55	2.17	1.21	1.79	2.77	1.32	2.10	3.07	1.32	2.33	3.48	1.31	2.66	3.78	1.28	2.95	4.79	1.23	3.88	4.94	1.24	3.98	5.54	1.28	4.33	6.10	1.33	4.60	6.70	1.38	4.87	7.31	1.44	5.06	7.91	1.50	5.26
55	max	/	/	/	/	/	/	4.84	3.89	1.24	6.25	4.29	1.46	6.96	4.29	1.62	7.91	4.27	1.85	8.61	4.19	2.05	10.73	3.93	2.73	11.08	3.95	2.80	12.46	4.09	3.05	12.14	3.57	3.40	13.36	3.71	3.60	11.73	2.93	4.00	12.71	3.06	4.15
	norm	/	/	/	/	/	/	3.93	2.92	1.35	5.08	3.21	1.58	5.66	3.22	1.76	6.43	3.20	2.01	7.00	3.14	2.23	8.55	3.72	2.30	9.12	3.08	2.96	10.26	3.18	3.22	9.76	2.69	3.63	10.74	2.80	3.84	10.01	2.40	4.17	10.85	2.51	4.33
	min	/	/	/	/	/	/	2.07	1.32	1.56	2.67	1.46	1.83	6.84	1.46	2.04	3.38	1.45	2.33	3.68	1.43	2.58	4.69	1.38	3.40	4.84	1.39	3.48	5.44	1.44	3.79	6.00	1.49	4.02	6.60	1.55	4.26	7.21	1.63	4.43	7.81	1.70	4.60
60	max	/	/	/	/	/	/	/	/	/	/	/	/	5.56	3.56	1.56	6.33	3.55	1.78	6.90	3.49	1.98	8.74	3.40	2.57	9.03	3.43	2.63	10.17	3.55	2.87	9.68	3.00	3.23	10.66	3.12	3.42	9.94	2.68	3.71	10.78	2.80	3.85
	norm	/	/	/	/	/	/	/	/	/	/	/	/	2.92	1.61	1.81	3.33	1.61	2.07	3.63	1.58	2.29	4.64	1.54	3.02	4.79	1.55	3.09	5.39	1.60	3.37	5.95	1.66	3.58	6.55	1.73	3.79	7.16	1.82	3.94	7.76	1.90	4.09
	min	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

GRS-CQ12Pd/NhH-E

Outflow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		5.39	3.02	1.78	6.47	3.08	2.10	8.32	3.45	2.41	8.47	2.85	2.97	9.70	2.86	3.40	11.24	3.13	3.59	12.17	3.05	3.99	13.17	2.45	5.37	13.57	2.47	5.50	15.16	2.53	5.99	13.38	2.01	6.65	14.66	2.08	7.04	13.41	1.75	7.64	14.49	1.83	7.93
	norm		4.20	2.25	1.87	5.04	2.30	2.20	6.48	2.57	2.53	6.60	2.13	3.11	7.56	2.13	3.76	8.76	2.33	3.76	9.48	2.27	4.17	11.88	1.95	6.10	12.24	1.96	6.25	13.68	2.01	6.80	11.25	1.62	6.94	12.33	1.68	7.35	12.07	1.55	7.80	13.04	1.61	8.10
	min		2.35	1.12	2.09	2.81	1.14	2.46	3.62	1.28	2.83	3.69	1.06	3.48	4.22	1.06	3.56	4.89	1.16	4.22	5.29	1.13	4.68	6.63	1.08	6.16	6.83	1.08	6.32	7.64	1.11	6.87	8.38	1.15	7.30	9.18	1.19	7.73	9.98	1.24	8.04	10.79	1.29	8.35
30	max		5.54	3.39	1.64	6.62	3.44	1.93	8.47	3.82	2.22	8.62	3.18	2.71	9.86	3.14	3.29	11.40	3.45	3.30	12.32	3.37	3.66	13.30	2.70	4.93	13.70	2.71	5.05	15.30	2.78	5.49	13.48	2.21	6.11	14.77	2.28	6.47	13.50	1.92	7.02	14.58	2.00	7.28
	norm		4.32	2.52	1.71	5.16	2.56	2.02	6.60	2.85	2.32	6.72	2.37	2.84	7.68	2.34	3.29	8.88	2.57	3.45	9.60	2.51	3.83	12.00	2.14	5.60	12.36	2.15	5.74	13.80	2.21	6.24	11.34	1.78	6.37	12.42	1.84	6.75	12.15	1.70	7.16	13.12	1.76	7.44
	min		2.41	1.25	1.92	2.88	1.27	2.26	3.69	1.42	2.60	3.75	1.18	3.18	4.29	1.16	3.69	4.96	1.28	3.87	5.36	1.25	4.30	6.70	1.18	5.66	6.90	1.19	5.80	7.71	1.22	6.31	8.44	1.26	6.70	9.25	1.30	7.10	10.05	1.36	7.38	10.85	1.42	7.66
35	max		5.54	3.79	1.46	6.62	3.85	1.72	8.47	4.28	1.98	8.62	3.52	2.45	9.86	3.47	2.84	11.40	3.87	2.95	12.32	3.77	3.27	13.30	3.02	4.40	13.70	3.04	4.51	15.30	3.12	4.91	13.48	2.47	5.45	14.77	2.56	5.77	13.50	2.16	6.26	14.58	2.24	6.50
	norm		4.32	2.82	1.53	5.16	2.87	1.80	6.60	3.19	2.07	6.72	2.62	2.57	7.68	2.59	2.97	8.88	2.88	3.08	9.60	2.81	3.42	12.00	2.40	5.00	12.36	2.41	5.13	13.80	2.48	5.58	11.34	1.99	5.69	12.42	2.06	6.02	12.15	1.90	6.39	13.12	1.98	6.64
	min		2.41	1.40	1.72	2.88	1.43	2.02	3.69	1.59	2.32	3.75	1.30	2.88	4.29	1.29	3.33	4.96	1.43	3.46	5.36	1.40	3.84	6.70	1.33	5.05	6.90	1.33	5.18	7.71	1.37	5.63	8.44	1.41	5.98	9.25	1.46	6.34	10.05	1.52	6.59	10.85	1.59	6.84
40	max		5.54	4.31	1.29	6.62	4.38	1.51	8.47	4.87	1.74	8.62	3.93	2.19	9.86	3.88	2.54	11.40	4.40	2.59	12.32	4.28	2.88	13.30	3.43	3.87	13.70	3.45	3.97	15.30	3.54	4.32	13.48	2.81	5.08	14.77	2.91	5.08	13.50	2.45	5.51	14.58	2.55	5.72
	norm		4.32	3.21	1.35	5.16	3.26	1.58	6.60	3.62	1.82	6.72	2.93	2.30	7.68	2.89	2.66	8.88	3.27	2.71	9.60	3.19	3.01	12.00	2.73	4.40	12.36	2.74	4.51	13.80	2.81	4.91	11.34	2.27	5.01	12.42	2.34	5.30	12.15	2.16	5.63	13.12	2.25	5.84
	min		2.41	1.60	1.51	2.88	1.62	1.78	3.69	1.80	2.04	3.75	1.46	2.58	4.29	1.44	2.98	4.96	1.63	3.04	5.36	1.59	3.38	6.70	1.51	4.44	6.90	1.52	4.56	7.71	1.55	4.96	8.44	1.60	5.27	9.25	1.66	5.58	10.05	1.73	5.80	10.85	1.80	6.02
45	max		5.54	4.74	1.17	6.62	4.81	1.38	8.47	5.35	1.58	8.62	4.36	1.98	9.86	4.24	2.32	11.40	4.84	2.36	12.32	4.71	2.61	13.30	3.78	3.52	13.70	3.80	3.61	15.30	3.90	3.92	13.48	3.09	4.36	14.77	3.20	4.62	13.50	2.69	5.01	14.58	2.80	5.20
	norm		4.32	3.53	1.22	5.16	3.58	1.44	6.60	3.99	1.66	6.72	3.25	2.07	7.68	3.16	2.43	8.88	3.60	2.47	9.60	3.51	2.74	12.40	3.29	3.77	12.36	3.01	4.10	13.80	3.09	4.46	11.34	2.49	4.55	12.42	2.58	4.82	12.15	2.38	5.12	13.12	2.47	5.31
	min		2.41	1.76	1.37	2.88	1.78	1.62	3.69	1.98	1.86	3.75	1.62	2.32	4.29	1.57	2.73	4.96	1.79	2.77	5.36	1.75	3.07	6.70	1.66	4.04	6.90	1.67	4.14	7.71	1.71	4.50	8.44	1.76	4.79	9.25	1.82	5.07	10.05	1.91	5.27	10.85	1.98	5.47
50	max		/	/	/	6.47	/	/	8.32	5.84	1.42	8.47	4.69	1.81	9.70	4.60	2.11	11.24	5.30	2.12	12.17	5.17	2.35	13.17	4.16	3.17	13.57	4.18	3.25	15.16	4.29	3.53	13.38	3.41	3.92	14.66	3.53	4.16	13.41	2.97	4.51	14.43	3.08	4.68
	norm		/	/	/	5.04	3.89	1.30	6.48	4.35	1.49	6.60	3.49	1.89	7.56	3.43	2.21	8.76	3.95	2.22	9.48	3.85	2.46	11.88	3.30	3.60	12.24	3.32	3.69	13.68	3.41	4.01	11.25	2.75	4.10	12.33	2.84	4.34	12.07	2.62	4.60	12.99	2.72	4.78
	min		/	/	/	2.81	1.93	1.45	3.62	2.16	1.67	3.69	1.74	2.12	4.22	1.71	2.47	4.89	1.96	2.49	5.29	1.92	2.76	6.63	1.82	3.64	6.83	1.83	3.73	7.64	1.88	4.05	8.38	1.94	4.31	9.18	2.01	4.56	9.98	2.10	4.74	10.75	2.18	4.93
55	max		/	/	/	/	/	/	8.32	6.67	1.25	8.47	5.32	1.59	9.70	5.13	1.89	11.24	6.06	1.86	12.17	5.91	2.06	13.17	4.75	2.77	13.57	4.77	2.84	15.16	4.91	3.09	13.38	3.89	3.43	14.66	4.03	3.64	13.41	3.40	3.95	14.43	3.52	4.10
	norm		/	/	/	/	/	/	6.48	4.97	1.30	6.60	3.96	1.67	7.56	3.82	1.98	8.76	4.51	1.94	9.48	4.40	2.15	12.00	3.81	3.15	12.24	3.79	3.23	13.68	3.89	3.51	11.25	3.14	3.58	12.33	3.25	3.80	12.07	3.00	4.03	12.99	3.11	4.18
	min		/	/	/	/	/	/	3.62	2.47	1.46	3.69	1.97	1.87	4.22	1.90	2.22	4.89	2.24	2.18	5.29	2.19	2.42	6.63	2.08	3.18	6.83	2.10	3.26	7.64	2.15	3.55	8.38	2.22	3.77	9.18	2.30	3.99	9.98	2.40	4.15	10.75	2.49	4.31
60	max		/	/	/	/	/	/	/	/	/	/	/	/	9.55	5.55	1.72	11.09	6.72	1.65	12.01	6.56	1.83	13.03	5.29	2.46	13.43	5.32	2.53	14.99	5.46	2.75	13.21	4.33	3.05	14.47	4.48	3.23	13.23	3.77	3.51	14.29	3.92	3.64
	norm		/	/	/	/	/	/	/	/	/	/	/	/	7.44	4.13	1.80	8.64	5.01	1.73	9.36	4.89	1.92	11.76	4.20	2.80	12.11	4.22	2.87	13.52	4.33	3.12	11.11	3.49	3.19	12.17	3.61	3.37	11.91	3.33	3.58	12.86	3.46	3.72
	min		/	/	/	/	/	/	/	/	/	/	/	/	4.15	2.06	2.02	4.82	2.49	1.94	5.23	2.43	2.15	6.57	2.32	2.83	6.76	2.33	2.90	7.55	2.39	3.15	8.27	2.47	3.35	9.06	2.55	3.55	9.85	2.67	3.69	10.64	2.78	3.83

GRS-CQ14Pd/NhH-E

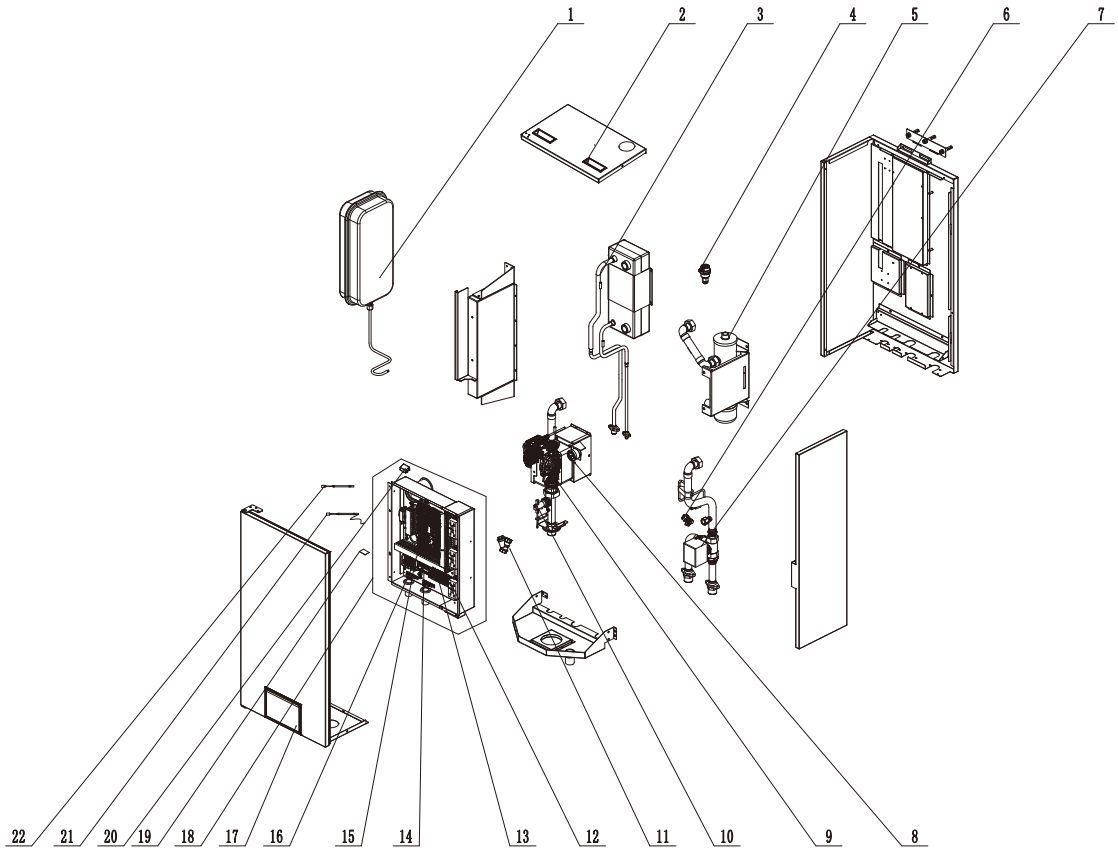
Outflow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		5.88	3.46	1.70	7.06	3.53	2.00	9.07	3.94	2.30	9.24	3.27	2.83	10.58	3.27	3.24	12.26	3.58	3.43	13.27	3.49	3.80	15.25	2.91	5.25	15.71	2.92	5.38	17.56	3.00	5.85	13.38	2.01	6.65	14.66	2.08	7.04	13.86	1.85	7.48	14.97	1.93	7.77
	norm		4.90	2.69	1.82	5.88	2.74	2.14	7.56	3.07	2.46	7.70	2.54	3.03	8.82	2.54	3.47	10.22	2.79	3.67	11.06	2.72	4.07	13.86	2.42	5.73	14.28	2.43	5.88	15.96	2.50	6.39	11.63	1.68	6.92	12.74	1.74	7.33	12.22	1.57	7.77	13.20	1.64	8.07
	min		2.35	1.12	2.09	2.81	1.14	2.46	3.62	1.28	2.83	3.69	1.06	3.48	4.22	1.06	3.99	4.89	1.16	4.22	5.29	1.13	4.68	6.63	1.08	6.16	6.83	1.08	6.32	7.64	1.11	6.87	8.38	1.15	7.30	9.18	1.19	7.73	9.98	1.24	8.04	10.79	1.29	8.35
30	max		6.05	3.87	1.56	7.22	3.93	1.84	9.24	4.37	2.11	9.41	3.64	2.58	10.75	3.59	2.99	12.43	3.95	3.15	13.44	3.85	3.49	15.40	3.20	4.82	15.86	3.21	4.94	17.71	3.30	5.37	13.48	2.21	6.11	14.77	2.28	6.47	13.95	2.03	6.87	15.07	2.11	7.13
	norm		5.04	3.01	1.67	6.02	3.06	1.97	7.70	3.40	2.26	7.84	2.83	2.77	8.96	2.80	3.20	10.36	3.08	3.37	11.20	3.00	3.74	14.00	2.66	5.26	14.42	2.67	5.40	16.10	2.74	5.87	11.72	1.84	6.36	12.83	1.91	6.73	12.30	1.72	7.13	13.28	1.79	7.41
	min		2.41	1.25	1.92	2.88	1.27	2.26	3.69	1.42	2.60	3.75	1.18	3.18	4.29	1.16	3.69	4.96	1.28	3.87	5.36	1.25	4.30	6.70	1.18	5.66	6.90	1.19	5.80	7.71	1.22	6.31	8.44	1.26	6.70	9.25	1.30	7.10	10.05	1.36	7.38	10.85	1.42	7.66
35	max		6.05	4.34	1.39	7.22	4.40	1.64	9.24	4.90	1.89	9.41	4.03	2.34	10.75	3.97	2.71	12.43	4.43	2.81	13.44	4.31	3.12	15.40	3.58	4.30	15.86	3.60	4.41	17.71	3.69	4.79	13.48	2.47	5.45	14.77	2.56	5.77	13.95	2.27	6.13	15.07	2.37	6.37
	norm		5.04	3.38	1.49	6.02	3.43	1.76	7.70	3.81	2.02	7.84	3.13	2.50	8.96	3.09	2.90	10.36	3.45	3.01	11.20	3.36	3.46	14.00	2.98	4.70	14.42	2.99	4.82	16.10	3.07	5.24	11.72	2.06	5.68	12.83	2.13	6.01	12.30	1.93	6.37	13.28	2.01	6.61
	min		2.41	1.40	1.72	2.88	1.43	2.02	3.69	1.59	2.32	3.75	1.30	2.88	4.29	1.29	3.33	4.96	1.43	3.46	5.36	1.40	3.84	6.70	1.33	5.05	6.90	1.33	5.18	7.71	1.37	5.63	8.44	1.41	5.98	9.25	1.46	6.34	10.05	1.52	6.59	10.85	1.59	6.84
40	max		6.05	4.93	1.23	7.22	5.01	1.44	9.24	5.57	1.66	9.41	4.50	2.09	10.75	4.44	2.42	12.43	5.03	2.47	13.44	4.90	2.74	15.40	4.07	3.78	15.86	4.09	3.88	17.71	4.20	4.22	13.48	2.81	4.80	14.77	2.91	5.08	13.95	2.58	5.40	15.07	2.69	5.60
	norm		5.04	3.84	1.31	6.02	3.90	1.55	7.70	4.33	1.78	7.84	3.50	2.24	8.96	3.46	2.59	10.36	3.91	2.65	11.20	3.81	2.94	14.00	3.38	4.14	14.42	3.40	4.24	16.10	3.49	4.61	11.72	2.35	5.00	12.83	2.43	5.29	12.30	2.19	5.60	13.28	2.28	5.82
	min		2.41	1.60	1.51	2.88	1.62	1.78	3.69	1.80	2.04	3.75	1.46	2.58	4.29	1.44	2.98	4.96	1.63	3.04	5.36	1.59	3.38	6.70	1.51	4.44	6.90	1.52	4.56	7.71	1.55	4.96	8.44	1.60	5.27	9.25	1.66	5.58	10.05	1.73	5.80	10.85	1.80	6.02
45	max		6.05	5.42	1.12	7.22	5.51	1.31	9.24	6.12	1.51	9.41	4.99	1.89	10.75	4.86	2.21	12.43	5.53	2.25	13.44	5.39	2.49	15.40	4.48	3.44	15.86	4.50	3.53	17.71	4.62	3.84	13.48	3.09	4.36	14.77	3.20	4.62	13.95	2.84	4.91	15.07	2.96	5.09
	norm		5.04	4.22	1.19	6.02	4.29	1.40	7.70	4.77	1.62	7.84	3.88	2.02	8.96	3.78	2.37	10.36	4.31	2.41	11.20	4.20	2.67	14.48	3.93	3.68	14.42	3.74	3.85	16.10	3.84	4.19	11.72	2.58	4.54	12.83	2.67	4.81	12.30	2.41	5.09	13.28	2.51	5.29
	min		2.41	1.76	1.37	2.88	1.78	1.62	3.69	1.98	1.86	3.75	1.62	2.32	4.29	1.57	2.73	4.96	1.79	2.77	5.36	1.75	3.07	6.70	1.66	4.04	6.90	1.67	4.14	7.71	1.71	4.50	8.44	1.76	4.79	9.25	1.82	5.07	10.05	1.91	5.27	10.85	1.98	5.47
50	max		/	/	/	7.06	5.98	1.18	9.07	6.68	1.36	9.24	5.37	1.72	10.58	5.27	2.01	12.26	6.06	2.02	13.27	5.92	2.24	15.25	4.92	3.10	15.71	4.95	3.17	17.56	5.09	3.45	13.38	3.41	3.92	14.66	3.53	4.16	13.86	3.14	4.42	14.92	3.25	4.59
	norm		/	/	/	5.88	4.65	1.26	7.56	5.20	1.45	7.70	4.18	1.84	8.82	4.10	2.15	10.22	4.72	2.17	11.06	4.60	2.40	13.86	4.10	3.38	14.28	4.12	3.47	15.96	4.23	3.77	11.63	2.84	4.09	12.74	2.94	4.33	12.22	2.66	4.59	13.15	2.76	4.76
	min		/	/	/	2.81	1.93	1.45	3.62	2.16	1.67	3.69	1.74	2.12	4.22	1.71	2.47	4.89	1.96	2.49	5.29	1.92	2.76	6.63	1.82	3.64	6.83	1.83	3.73	7.64	1.88	4.05	8.38	1.94	4.31	9.18	2.01	4.56	9.98	2.10	4.74	10.75	2.18	4.93
55	max		/	/	/	/	/	/	9.07	7.64	1.19	9.24	6.09	1.52	10.58	5.87	1.80	12.26	6.93	1.77	13.27	6.76	1.96	15.25	5.63	2.71	15.71	5.66	2.78	17.56	5.81	3.02	13.38	3.89	3.43	14.66	4.03	3.64	13.86	3.59	3.86	14.92	3.72	4.01
	norm		/	/	/	/	/	/	7.56	5.94	1.27	7.70	4.74	1.62	8.82	4.57	1.93	10.22	5.39	1.89	11.06	5.26	2.10	14.00	4.52	3.10	14.28	4.71	3.04	15.96	4.83	3.30	11.63	3.25	3.58	12.74	3.36	3.79	12.22	3.05	4.01	13.15	3.16	4.17
	min		/	/	/	/	/	/	3.62	2.47	1.46	3.69	1.97	1.87	4.22	1.90	2.22	4.89	2.24	2.18	5.29	2.19	2.42	6.63	2.08	3.18	6.83	2.10	3.26	7.64	2.15	3.55	8.38	2.22	3.77	9.18	2.30	3.99	9.98	2.40	4.15	10.75	2.49	4.31
60	max		/	/	/	/	/	/	/	/	/	/	/	/	10.42	6.35	1.64	12.10	7.69	1.57	13.10	7.51	1.74	15.09	6.27	2.41	15.54	6.30	2.47	17.36	6.46	2.68	13.21	4.33	3.05	14.47	4.48	3.23	13.67	3.98	3.43	14.76	4.14	3.57
	norm		/	/	/	/	/	/	/	/	/	/	/	/	8.68	4.94	1.76	10.08	5.99	1.68	10.92	5.84	1.87	13.72	5.21	2.63	14.13	5.24	2.70	15.78	5.38	2.93	11.48	3.61	3.18	12.58	3.74	3.37	12.05	3.38	3.57	13.02	3.52	3.70
	min		/	/	/	/	/	/	/	/	/	/	/	/	4.15	2.06	2.02	4.82	2.49	1.94	5.23	2.43	2.15	6.57	2.32	2.83	6.76	2.33	2.90	7.55	2.39	3.15	8.27	2.47	3.35	9.06	2.55	3.55	9.85	2.67	3.69	10.64	2.78	3.83

GRS-CQ16Pd/NhH-E

Outlow Water(°C)	Capacity level	Ambient Temp.(°C)	-25			-20			-15			-10			-7			-2			2			7			10			15			20			25			30			35		
			Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency	Capacity	Power	Efficiency
25	max		5.95	3.59	1.66	7.14	3.66	1.95	9.18	4.09	2.24	9.35	3.39	2.76	10.71	3.39	3.16	12.41	3.71	3.34	13.43	3.62	3.71	16.63	3.33	5.00	17.14	3.34	5.13	19.15	3.43	5.58	14.55	2.19	6.65	15.95	2.26	7.04	15.50	2.07	7.48	16.74	2.16	7.77
	norm		5.39	3.02	1.78	6.47	3.08	2.10	8.32	3.45	2.41	8.47	2.85	2.97	9.70	2.86	3.40	11.24	3.13	3.59	12.17	3.05	3.99	15.35	2.80	5.49	15.81	2.81	5.63	17.67	2.89	6.12	13.00	1.91	6.79	14.25	1.98	7.20	13.86	1.82	7.63	14.97	1.89	7.92
	min		2.35	1.12	2.09	2.81	1.14	2.46	3.62	1.28	2.83	3.69	1.06	3.48	4.22	1.06	3.99	4.89	1.16	4.22	5.29	1.13	4.68	6.63	1.08	6.16	6.83	1.08	6.32	7.64	1.11	6.87	8.38	1.15	7.30	9.18	1.19	7.73	9.98	1.24	8.04	10.79	1.29	8.35
30	max		6.12	4.02	1.52	7.31	4.08	1.79	9.35	4.54	2.06	9.52	3.78	2.52	10.88	3.73	2.92	12.58	4.10	3.07	13.60	3.99	3.40	16.80	3.66	4.59	17.30	3.68	4.71	19.32	3.77	5.12	14.67	2.40	6.11	16.06	2.48	7.77	15.60	2.27	6.87	16.85	2.36	7.13
	norm		5.54	3.39	1.64	6.62	3.44	1.93	8.47	3.82	2.22	8.62	3.18	2.71	9.86	3.14	3.14	11.40	3.45	3.30	12.32	3.37	3.66	15.50	3.08	5.04	15.97	3.09	5.17	17.83	3.17	5.62	13.10	2.10	6.24	14.35	2.17	7.10	13.95	1.99	7.00	15.07	2.07	7.27
	min		2.41	1.25	1.92	2.88	1.27	2.26	3.69	1.42	2.60	3.75	1.18	3.18	4.29	1.16	3.69	4.96	1.28	3.87	5.36	1.25	4.30	6.70	1.18	5.66	6.90	1.19	5.80	7.71	1.22	6.31	8.44	1.26	6.70	9.25	1.30	7.10	10.05	1.36	7.38	10.85	1.42	7.66
35	max		6.12	4.50	1.36	7.31	4.57	1.60	9.35	5.08	1.84	9.52	4.18	2.28	10.88	4.12	2.64	12.58	4.59	2.74	13.60	4.47	3.04	16.80	4.10	4.10	17.30	4.12	4.20	19.32	4.23	4.57	14.67	2.69	5.45	16.06	2.78	5.77	15.60	2.54	6.13	16.85	2.65	6.37
	norm		5.54	3.79	1.46	6.62	3.85	1.72	8.47	4.28	1.98	8.62	3.52	2.45	9.86	3.47	2.84	11.40	3.87	2.95	12.32	3.77	3.27	15.50	3.44	4.50	15.97	3.46	4.61	17.83	3.55	5.02	13.10	2.35	5.57	14.35	2.43	5.90	13.95	2.23	6.25	15.07	2.32	6.49
	min		2.41	1.40	1.72	2.88	1.43	2.02	3.69	1.59	2.32	3.75	1.30	2.88	4.29	1.29	3.33	4.96	1.43	3.46	5.36	1.40	3.84	6.70	1.33	5.05	6.90	1.33	5.18	7.71	1.37	5.63	8.44	1.41	5.98	9.25	1.46	6.34	10.05	1.52	6.59	10.85	1.59	6.84
40	max		6.12	5.11	1.20	7.31	5.19	1.41	9.35	5.77	1.62	9.52	4.67	2.04	10.88	4.61	2.36	12.58	5.22	2.41	13.60	5.08	2.68	16.80	4.66	3.61	17.30	4.68	3.70	19.32	4.80	4.02	14.67	3.06	4.80	16.06	3.16	5.08	15.60	2.89	5.40	16.85	3.01	5.60
	norm		5.54	4.31	1.29	6.62	4.38	1.51	8.47	4.87	1.74	8.62	3.93	2.19	9.86	3.88	2.54	11.40	4.40	2.59	12.32	4.28	2.88	15.50	3.91	3.96	15.97	3.93	4.06	17.83	4.04	4.42	13.10	2.67	4.90	14.35	2.76	5.19	13.95	2.54	5.50	15.07	2.64	5.71
	min		2.41	1.60	1.51	2.88	1.62	1.78	3.69	1.80	2.04	3.75	1.46	2.58	4.29	1.44	2.98	4.96	1.63	3.04	5.36	1.59	3.38	6.70	1.51	4.44	6.90	1.52	4.56	7.71	1.55	4.96	8.44	1.60	5.27	9.25	1.66	5.58	10.05	1.73	5.80	10.85	1.80	6.02
45	max		6.12	5.63	1.09	7.31	5.71	1.28	9.35	6.35	1.47	9.52	5.17	1.84	10.88	5.04	2.16	12.58	5.74	2.19	13.60	5.59	2.43	16.80	5.12	3.28	17.30	5.15	3.36	19.32	5.28	3.66	14.67	3.36	4.36	16.06	3.48	4.62	15.60	3.18	4.91	16.85	3.31	5.09
	norm		5.54	4.74	1.17	6.62	4.81	1.38	8.47	5.35	1.58	8.62	4.36	1.98	9.86	4.24	2.32	11.40	4.84	2.36	12.32	4.71	2.61	16.09	4.44	3.62	15.97	4.33	3.69	17.83	4.44	4.01	13.10	2.94	4.46	14.35	3.04	4.72	13.95	2.79	5.00	15.07	2.90	5.19
	min		2.41	1.76	1.37	2.88	1.78	1.62	3.69	1.98	1.86	3.75	1.62	2.32	4.29	1.57	2.73	4.96	1.79	2.77	5.36	1.75	3.07	6.70	1.66	4.04	6.90	1.67	4.14	7.71	1.71	4.50	8.44	1.76	4.79	9.25	1.82	5.07	10.05	1.91	5.27	10.85	1.98	5.47
50	max		/	/	/	7.14	6.20	1.15	9.18	6.93	1.32	9.35	5.57	1.68	10.71	5.46	1.96	12.41	6.29	1.97	13.43	6.14	2.19	16.63	5.63	2.95	17.14	5.66	3.03	19.15	5.82	3.29	14.55	3.71	3.92	15.95	3.84	4.16	15.50	3.51	4.42	16.68	3.64	4.59
	norm		/	/	/	6.47	5.22	1.24	8.32	5.84	1.42	8.47	4.69	1.81	9.70	4.60	2.11	11.24	5.30	2.12	12.17	5.17	2.35	15.35	4.74	3.24	15.81	4.76	3.32	17.67	4.89	3.61	13.00	3.24	4.01	14.25	3.35	4.25	13.86	3.08	4.50	14.92	3.19	4.67
	min		/	/	/	2.81	1.93	1.45	3.62	2.16	1.67	3.69	1.74	2.12	4.22	1.71	2.47	4.89	1.96	2.49	5.29	1.92	2.76	6.63	1.82	3.64	6.83	1.83	3.73	7.64	1.88	4.05	8.38	1.94	4.31	9.18	2.01	4.56	9.98	2.10	4.74	10.75	2.18	4.93
55	max		/	/	/	/	/	/	9.18	7.92	1.16	9.35	6.32	1.48	10.71	6.09	1.76	12.41	7.19	1.73	13.43	7.01	1.92	16.63	6.44	2.58	17.14	6.47	2.65	19.15	6.65	2.88	14.55	4.24	3.43	15.95	4.38	3.64	15.50	4.01	3.86	16.68	4.16	4.01
	norm		/	/	/	/	/	/	8.32	6.67	1.25	8.47	5.32	1.59	9.70	5.13	1.89	11.24	6.06	1.96	12.17	5.91	2.06	16.00	5.42	2.95	15.81	5.44	2.91	17.67	5.59	3.16	13.00	3.70	3.51	14.25	3.83	3.72	13.86	3.52	3.94	14.92	3.65	4.09
	min		/	/	/	/	/	/	3.62	2.47	1.46	3.69	1.97	1.87	4.22	1.90	2.22	4.89	2.24	2.18	5.29	2.19	2.42	6.63	2.08	3.18	6.83	2.10	3.26	7.64	2.15	3.55	8.38	2.22	3.77	9.18	2.30	3.99	9.98	2.40	4.15	10.75	2.49	4.31
60	max		/	/	/	/	/	/	/	/	/	/	/	/	10.54	6.59	1.60	12.24	7.98	1.53	13.26	7.79	1.70	16.46	7.17	2.30	16.96	7.21	2.35	18.93	7.40	2.56	14.37	4.71	3.05	15.74	4.87	3.23	15.29	4.45	3.43	16.51	4.63	3.57
	norm		/	/	/	/	/	/	/	/	/	/	/	/	9.55	5.55	1.72	11.09	6.72	1.65	12.01	6.56	1.83	15.19	6.03	2.52	15.65	6.06	2.58	17.47	6.22	2.81	12.84	4.12	3.12	14.06	4.26	3.30	13.67	3.91	3.50	14.76	4.06	3.63
	min		/	/	/	/	/	/	/	/	/	/	/	/	4.15	2.06	2.02	4.82	2.49	1.94	5.23	2.43	2.15	6.57	2.32	2.83	6.76	2.33	2.90	7.55	2.39	3.15	8.27	2.47	3.35	9.06	2.55	3.55	9.85	2.67	3.69	10.64	2.78	3.83

1.6 Explosive Views and Part Lists

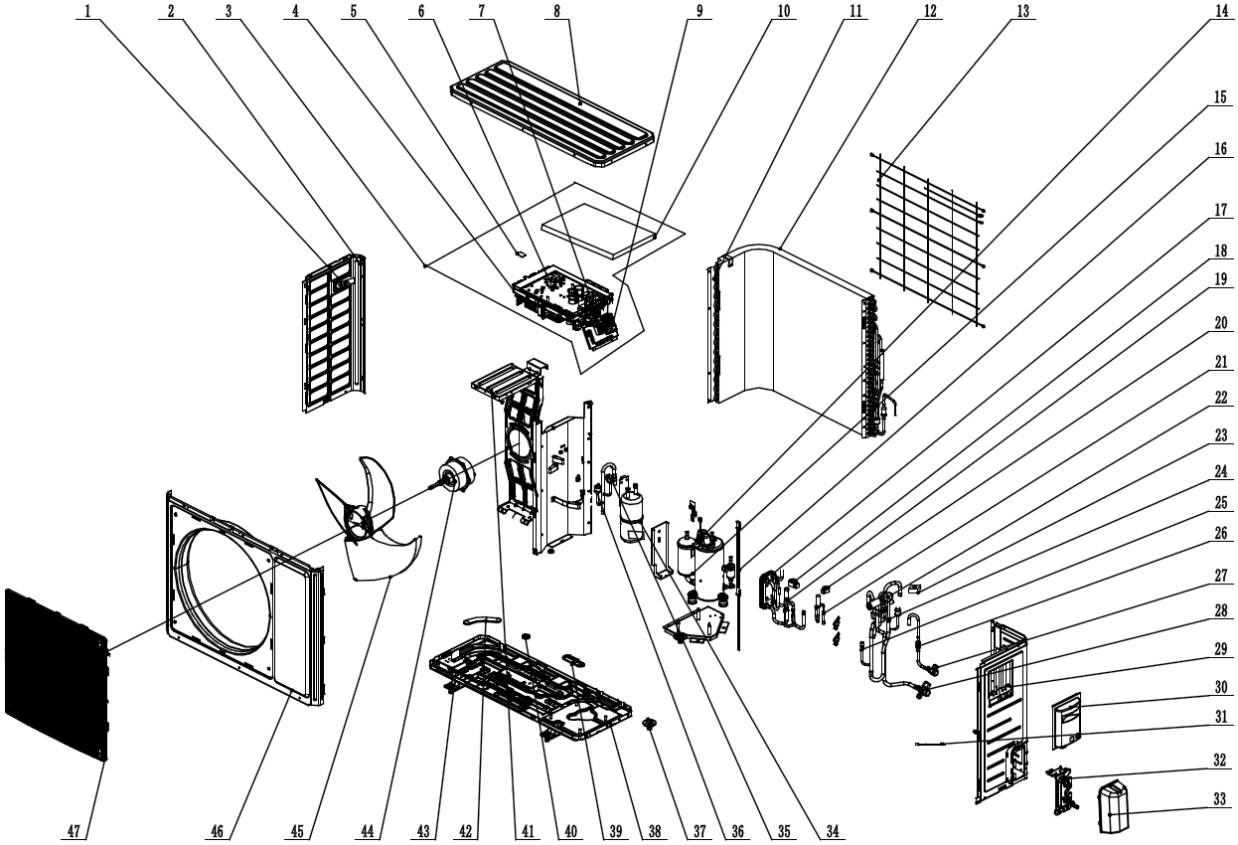
(1) GRS-CQ4.0Pd/NhH-E(I), GRS-CQ4.0Pd/NhH2-E(I), GRS-CQ6.0Pd/NhH-E(I),GRS-CQ6.0Pd/NhH2-E(I)



Parts List of GRS-CQ4.0Pd/NhH-E(I), GRS-CQ4.0Pd/NhH2-E(I), GRS-CQ6.0Pd/NhH-E(I),GRS-CQ6.0Pd/NhH2-E(I)

No.	Name of part	Quantity
1	Expansion Drum	1
2	Handle	2
3	Plate-type Heat Exchanger Sub-Assy	1
4	Auto Air Outlet Valve	1
5	Electric Heater	1
6	Relief Valve	1
7	Electric starter of water valve	1
8	Water Pressure Gauge	1
9	Water Pump	1
10	Steam current Switch	1
11	Strainer	1
12	Bipolar AC Contactor	3
13	Terminal Board	1
14	Terminal Board	1
15	Terminal Board	1
16	Main Board	1
17	Display Board	1
18	Electric Box Assy	1
19	Jumper	1
20	Thermostat	1
21	Sensor Sub-assy	1
22	Temperature Sensor	1

(2) GRS-CQ4.0Pd/NhH-E(O), GRS-CQ4.0Pd/NhH2-E(O), GRS-CQ6.0Pd/NhH-E(O), GRS-CQ6.0Pd/NhH2-E(O)

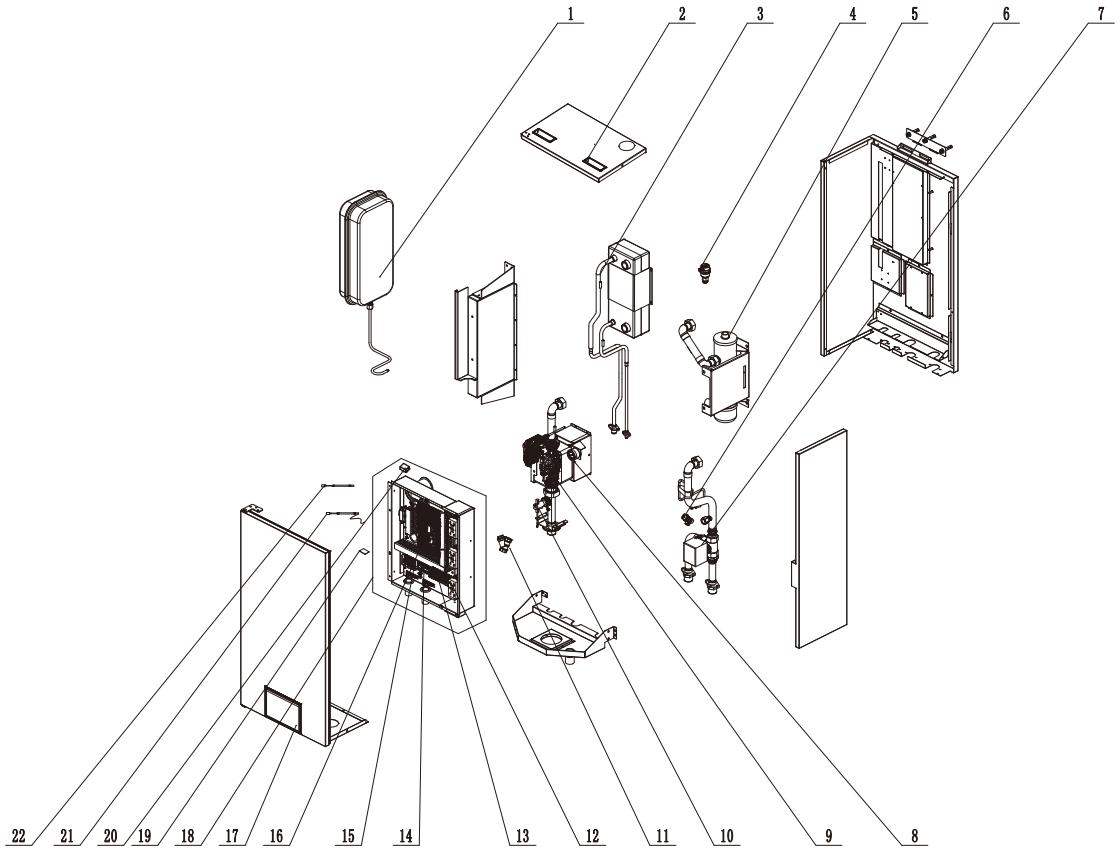


Parts List of GRS-CQ4.0Pd/NhH-E(O), GRS-CQ4.0Pd/NhH2-E(O), GRS-CQ6.0Pd/NhH-E(O), GRS-CQ6.0Pd/NhH2-E(O)

No.	Name of part	Quantity
1	Handle	1
2	Left Side Plate	1
3	Electric Box Assy	1
4	Radiator	1
5	Jumper	1
6	Main Board	1
7	Terminal Board	1
8	Top Cover Sub-Assy	1
9	Communication Interface Board	1
10	Electric Box Cover	1
11	Supporting Board(Condenser)	1
12	Condenser Assy	1
13	Rear Grill	1
14	Pressure Sensor	1
15	Compressor and Fittings	1
16	Electrical Heater	1
17	Plate-type Heat Exchanger	1
18	Electric Expand Valve Fitting	1
19	Electronic Expansion Valve	1
20	Electric Expand Valve Fitting	1
21	Electronic Expansion Valve	1
22	4-Way Valve	1

No.	Name of part	Quantity
23	Magnet Coil	1
24	Pressure Protect Switch	1
25	Nozzle for Adding Freon	1
26	Strainer	1
27	Cut-off valve 1/4(N)	1
28	Cut-off valve 1/2(N)	1
29	Right Side Plate Assy	1
30	Handle	1
31	Sensor Sub-assy	1
32	Valve Support Sub-Assy	1
33	Valve Cover	1
34	Gas-liquid Separator Assy	1
35	Pressure Protect Switch	1
36	Pressure Protect Switch	1
37	Drainage Joint	1
38	Chassis Sub-assy	1
39	Drainage hole Cap	1
40	Drainage hole Cap	1
41	Motor Support Sub-Assy	1
42	Drainage hole Cap	1
43	Electrical Heater (Chassis)	1
44	Fan Motor	1
45	Axial Flow Fan	1
46	Front Panel Assy	1
47	Front Grill	1

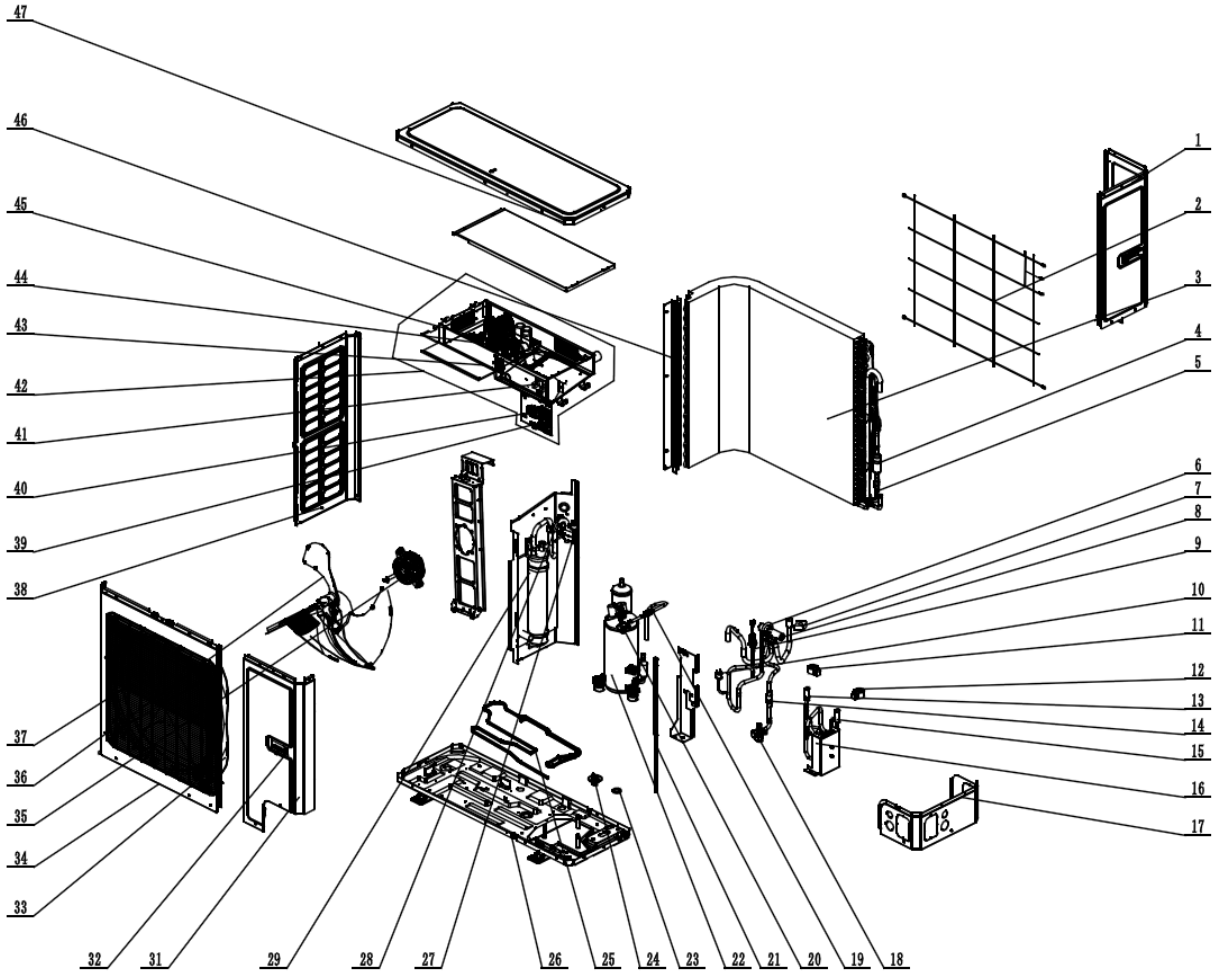
(3) GRS-CQ8.0Pd/NhH-E(I), GRS-CQ8.0Pd/NhH2-E(I), GRS-CQ8.0Pd/NhH5-E(I), GRS-CQ10Pd/NhH-E(I), GRS-CQ10Pd/NhH2-E(I),GRS-CQ10Pd/NhH5-E(I)



Parts List of GRS-CQ8.0Pd/NhH-E(I), GRS-CQ8.0Pd/NhH2-E(I), GRS-CQ8.0Pd/NhH5-E(I), GRS-CQ10Pd/NhH-E(I), GRS-CQ10Pd/NhH2-E(I),GRS-CQ10Pd/NhH5-E(I)

No.	Name of part	Quantity
1	Expansion Drum	1
2	Handle	2
3	Plate-type Heat Exchanger Sub-Assy	1
4	Auto Air Outlet Valve	1
5	Electric Heater	1
6	Relief Valve	1
7	Electric starter of water valve	1
8	Water Pressure Gauge	1
9	Water Pump	1
10	Steam current Switch	1
11	Strainer	1
12	Bipolar AC Contactor	3
13	Terminal Board	1
14	Terminal Board	1
15	Terminal Board	1
16	Main Board	1
17	Display Board	1
18	Electric Box Assy	1
19	Jumper	1
20	Thermostat	1
21	Sensor Sub-assy	1
22	Temperature Sensor	1

(4) GRS-CQ8.0Pd/NhH-E(O), GRS-CQ8.0Pd/NhH2-E(O), GRS-CQ10Pd/NhH-E(O),GRS-CQ10Pd/NhH2-E(O)

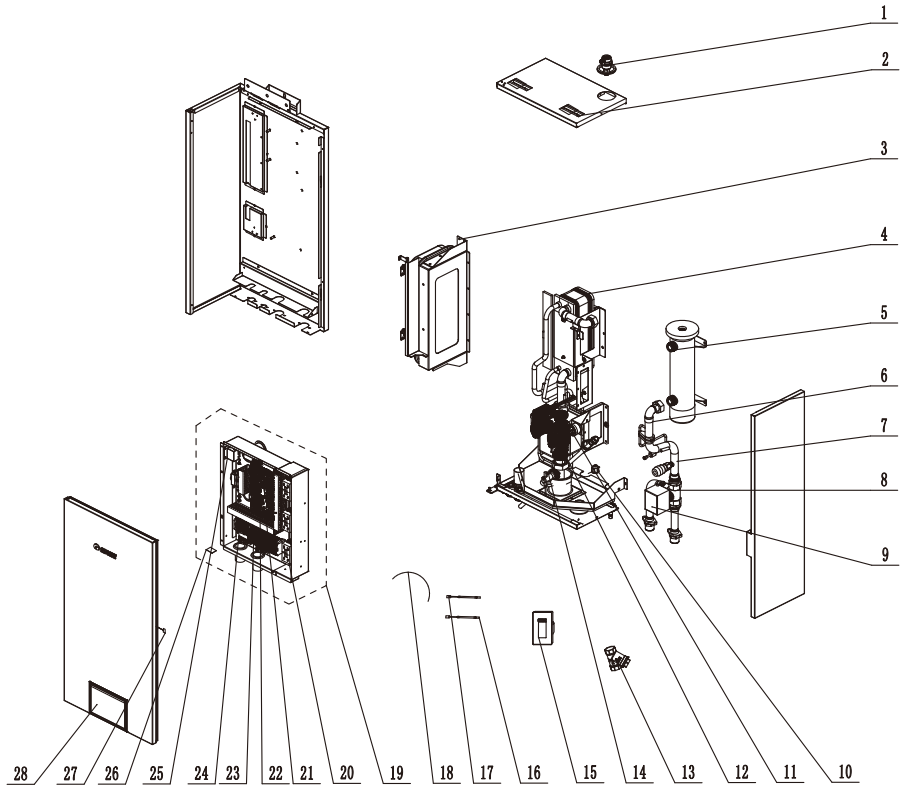


Parts List of GRS-CQ8.0Pd/NhH-E(O), GRS-CQ8.0Pd/NhH2-E(O), GRS-CQ10Pd/NhH-E(O),GRS-CQ10Pd/NhH2-E(O)

No.	Name of part	Quantity
1	Rear Side Plate	1
2	Rear Grill	1
3	Condenser Assy	1
4	Silencer	1
5	Strainer	1
6	4-Way Valve Assy	1
7	Magnet Coil	1
8	4-way Valve	1
9	Pressure Sensor	1
10	Pressure Protect Switch	1
11	Electric Expand Valve Fitting	1
12	Electric Expand Valve Fitting	1
13	Electronic Expansion Valve	1
14	Strainer	1
15	Electronic Expansion Valve	1
16	Plate-type Heat Exchanger	1
17	Right Side Plate Sub-Assy	1
18	Cut off Valve	1
19	Filter	1
20	Cut-off valve 1/4(N)	1

No.	Name of part	Quantity
21	Electric Heater(Compressor)	1
22	Compressor and Fittings	1
23	Drainage hole Cap	3
24	Drainage Joint	1
25	Electrical Heater	1
26	Chassis	1
27	Pressure Protect Switch	1
28	Pressure Protect Switch	1
29	Gas-liquid Separator	1
30	Motor Support Sub-Assy	1
31	Front Side Plate	1
32	Handle	2
33	Diversion Circle	1
34	Cabinet	1
35	BrushlessDCMotor	1
36	Axial Flow Fan	1
37	Front Grill	1
38	Left Side Plate	1
39	Communication Board	1
40	Terminal Board	1
41	Filter Board	1
42	Electric Box Assy	1
43	Radiator	1
44	Main Board	1
45	Main Board	1
46	Supporting Strip(Condenser)	1
47	Coping	1

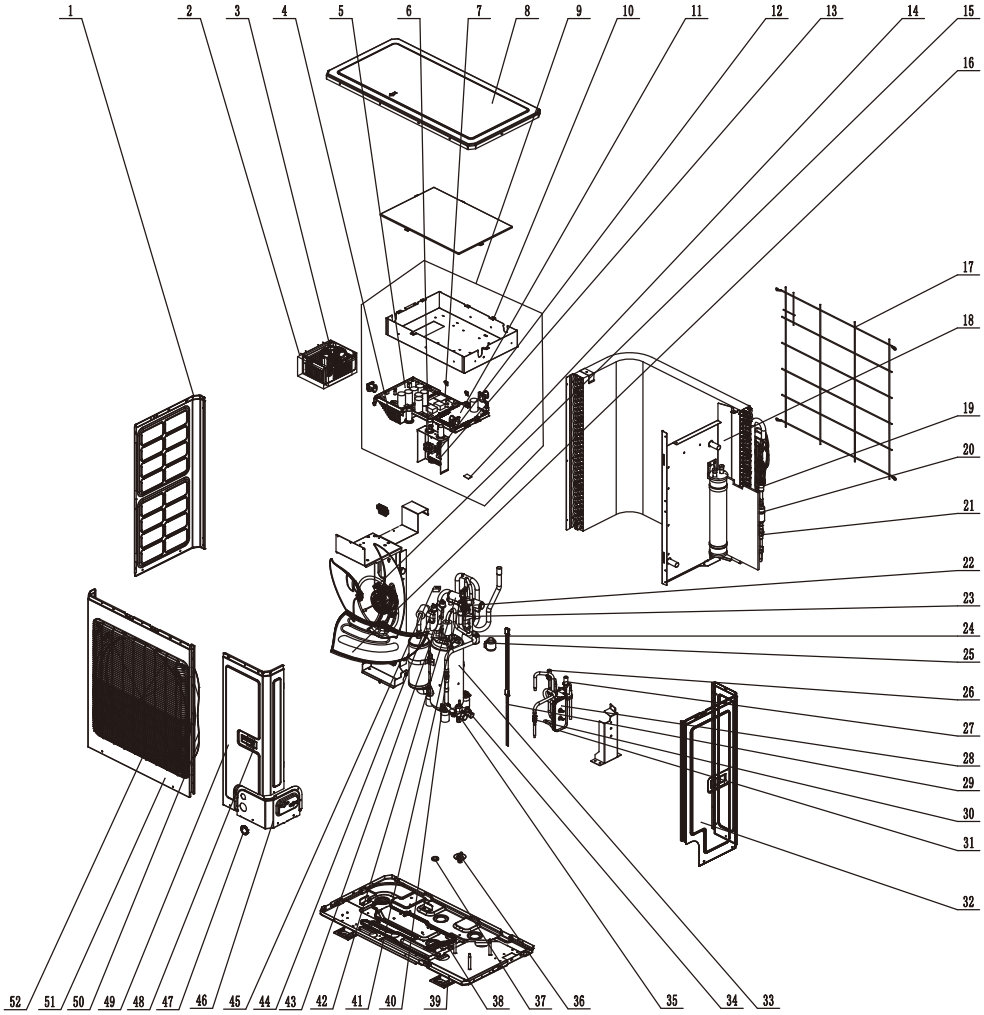
(5) GRS-CQ12Pd/NhH-E(I), GRS-CQ14Pd/NhH-E(I), GRS-CQ16Pd/NhH-E(I)



Parts List of GRS-CQ12Pd/NhH-E(I), GRS-CQ14Pd/NhH-E(I), GRS-CQ16Pd/NhH-E(I)

No.	Name of part	Quantity
1	Auto Air Outlet Valve	1
2	Handle	2
3	Expansion Drum	1
4	Plate-type Heat Exchanger Sub-Assy	1
5	Electric Heater	1
6	Drainage Pipe Sub-assy	1
7	Relief Valve	1
8	Electric three-way ball valve body	1
9	Electric starter of water valve	1
10	Sealing Cap(Pressure Warning)	1
11	Water Pressure Gauge	1
12	Water Pump	1
13	Strainer	1
14	Flow switch	1
15	Remote room temperature sensor	1
16	Temperature Sensor	1
17	Temperature Sensor	1
18	Signal Wire	1
19	Electric Box Assy	1
20	Bipolar AC Contactor	3
21	mounting card(main board)	1
22	Main Board	1
23	Terminal Board	1
24	Terminal Board	1
25	Thermostat	1
26	Jumper	1
27	Magnet Sub-assy	2
28	Display Board	1

(6) GRS-CQ12Pd/NhH-E(O), GRS-CQ14Pd/NhH-E(O), GRS-CQ16Pd/NhH-E(O)

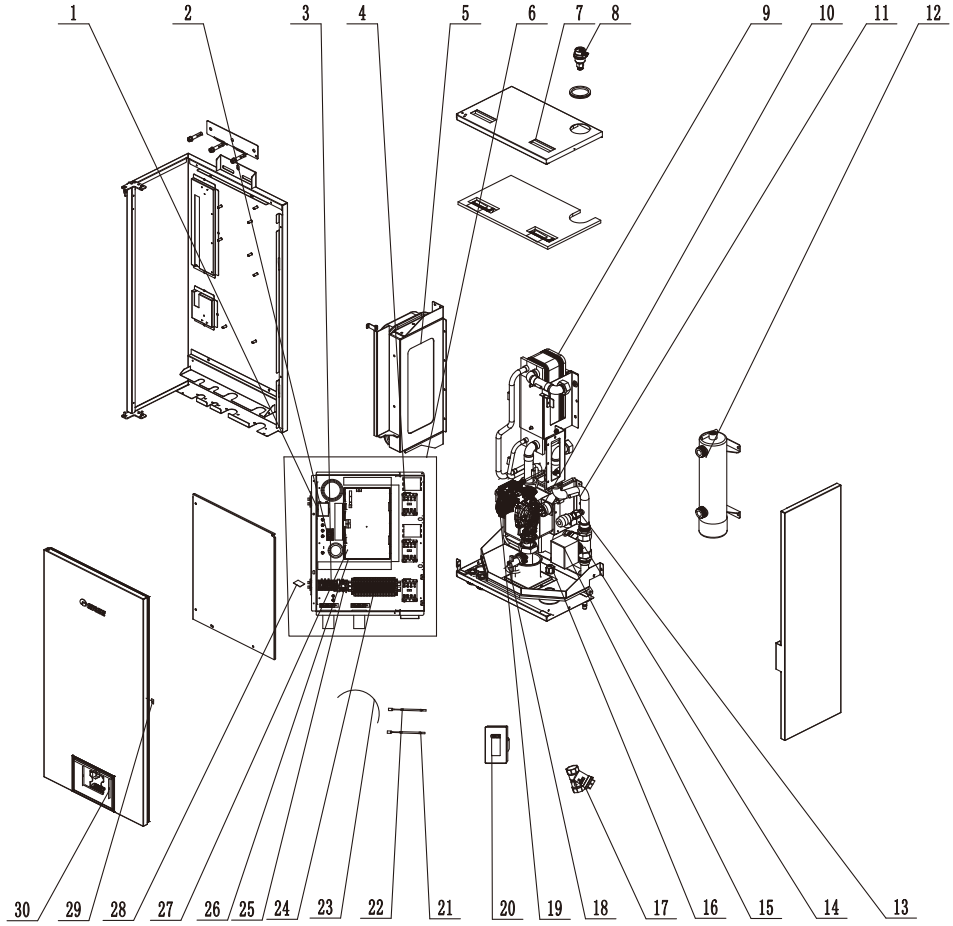


Parts List of GRS-CQ12Pd/NhH-E(O), GRS-CQ14Pd/NhH-E(O), GRS-CQ16Pd/NhH-E(O)

No.	Name of part	Quantity
1	Left Side Plate	1
2	Inductance Box Assy	1
3	Inductance	1
4	Radiator	1
5	Drive Board	1
6	Terminal board	1
7	Filter Board	1
8	Coping	1
9	Electric Box Assy	1
10	Electric Box	1
11	Main Board	1
12	Communication Interface Board	1
13	Electrical Retaining Plate	1
14	Jumper	1
15	Brushless DC Motor	1
16	Axial Flow Fan	1
17	Rear Grill	1
18	Condenser Assy	1
19	Current Divider	1
20	Silencer	1
21	Strainer	1
22	Pressure Sensor	1
23	Nozzle for Adding Freon	1

No.	Name of part	Quantity
24	Electric Expand Valve Fitting	1
25	Electric Expand Valve Fitting	1
26	Electronic Expansion Valve	1
27	Electronic Expansion Valve	1
28	Plate-type Heat Exchanger	1
29	Electrical Heater	1
30	Strainer	1
31	Energy saver sub-assy	1
32	Rear Side Plate	1
33	Compressor and Fittings	1
34	Cut-off valve 1/4(N)	1
35	Cut-off valve 5/8	1
36	Drainage Joint	1
37	Drainage hole Cap	3
38	Electrical Heater	1
39	Foot	2
40	Filter	1
41	Pressure Protect Switch	1
42	4-Way Valve	1
43	Pressure Protect Switch	1
44	Pressure Protect Switch	1
45	Magnet Coil	1
46	Valve Support Sub-Assy	1
47	Gland Bush	1
48	Handle	2
49	Front Side Plate	1
50	Diversion Circle	1
51	Cabinet	1
52	Front Grill	1

(7) GRS-CQ8Pd/NhH-M(I), GRS-CQ10Pd/NhH-M(I)

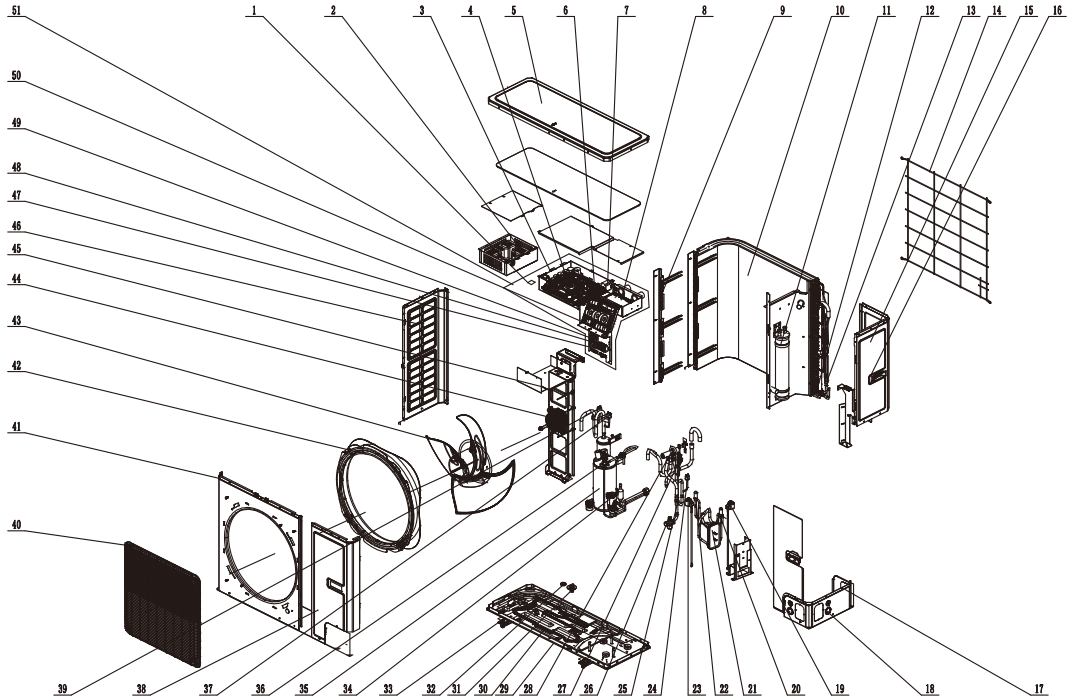


Parts List of GRS-CQ8Pd/NhH-M(I), GRS-CQ10Pd/NhH-M(I)

No	Name of part	Quantity
1	Display Board	1
2	Magnet Sub-assy	2
3	Jumper	1
4	Main Board	1
5	Mounting board	1
6	Terminal Board	1
7	Terminal Board	1
8	Communication line	1
9	Temperature Sensor	1
10	Temperature Sensor	1
11	Remote room temperature sensor	1
12	Water Pump	1
13	Flow switch	1
14	Strainer	1
15	Sealing Cap(Pressure Warning)	1
16	Electric starter of water valve	1
17	Electric three-way ball valve body	1
18	Relief Valve	1
19	Electric Heater	1
20	Drainage Pipe Sub-assy	1
21	Water Pressure Gauge	1
22	Plate-type Heat Exchanger Sub-Assy	1

No	Name of part	Quantity
23	Auto Air Outlet Valve	1
24	Handle	2
25	Electric Box Assy	1
26	Expansion Drum	1
27	AC Contactor	3
28	Terminal Board	1
29	Terminal Board	1
30	Thermostat	1

(8) GRS-CQ8Pd/NhH-M(O), GRS-CQ10Pd/NhH-M(O)

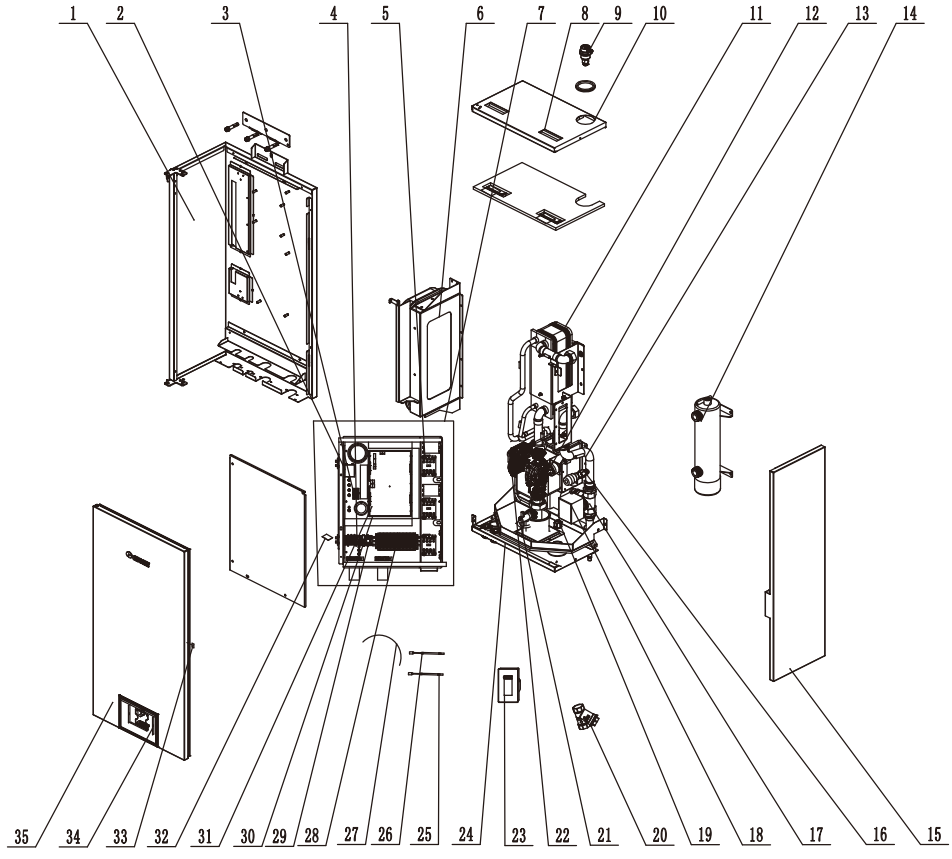


Parts List of GRS-CQ8Pd/NhH-M(O), GRS-CQ10Pd/NhH-M(O)

No.	Name of part	Quantity
1	Jumper	1
2	Reactor	3
3	Electric Box	1
4	Drive Board	1
5	Coping	1
6	Mouting plate	1
7	Inductance	1
8	Main Board	1
9	Supporting Strip(Condenser)	1
10	Condenser Assy	1
11	Gas-liquid Separator	1
12	Current Divider	2
13	Strainer	1
14	Rear Grill	1
15	Rear Side Plate	1
16	Handle	2
17	Right Side Plate Sub-Assy	1
18	Gland Bush	2
19	Electric Expand Valve Fitting	1
20	Electronic Expansion Valve	1
21	Plate-type Heat Exchanger	1
22	Electronic Expansion Valve	1

No.	Name of part	Quantity
23	Electric Expand Valve Fitting	1
24	Pressure Protect Switch	1
25	Filter	1
26	Cut off Valve	1
27	Pressure Sensor	1
28	4-Way Valve Sub-Assy	1
29	Chassis	1
30	Electrical Heater	1
31	Drainage Joint	1
32	Drainage hole Cap	3
33	Foot	2
34	Strainer	1
35	Compressor and Fittings	1
36	Cut-off valve 1/4(N)	1
37	Pressure Protect Switch	1
38	Front Side Plate	1
39	Pressure Protect Switch	1
40	Front Grill	1
41	Cabinet Assy	1
42	Diversion Circle	1
43	Axial Flow Fan	1
44	Brushless DC Motor	1
45	Motor Support Sub-Assy	1
46	Left Side Plate	1
47	Terminal Board	1
48	Communication Interface Board	1
49	Electrical Retaining Plate	1
50	Filter Board	1
51	Electric Box Assy	1

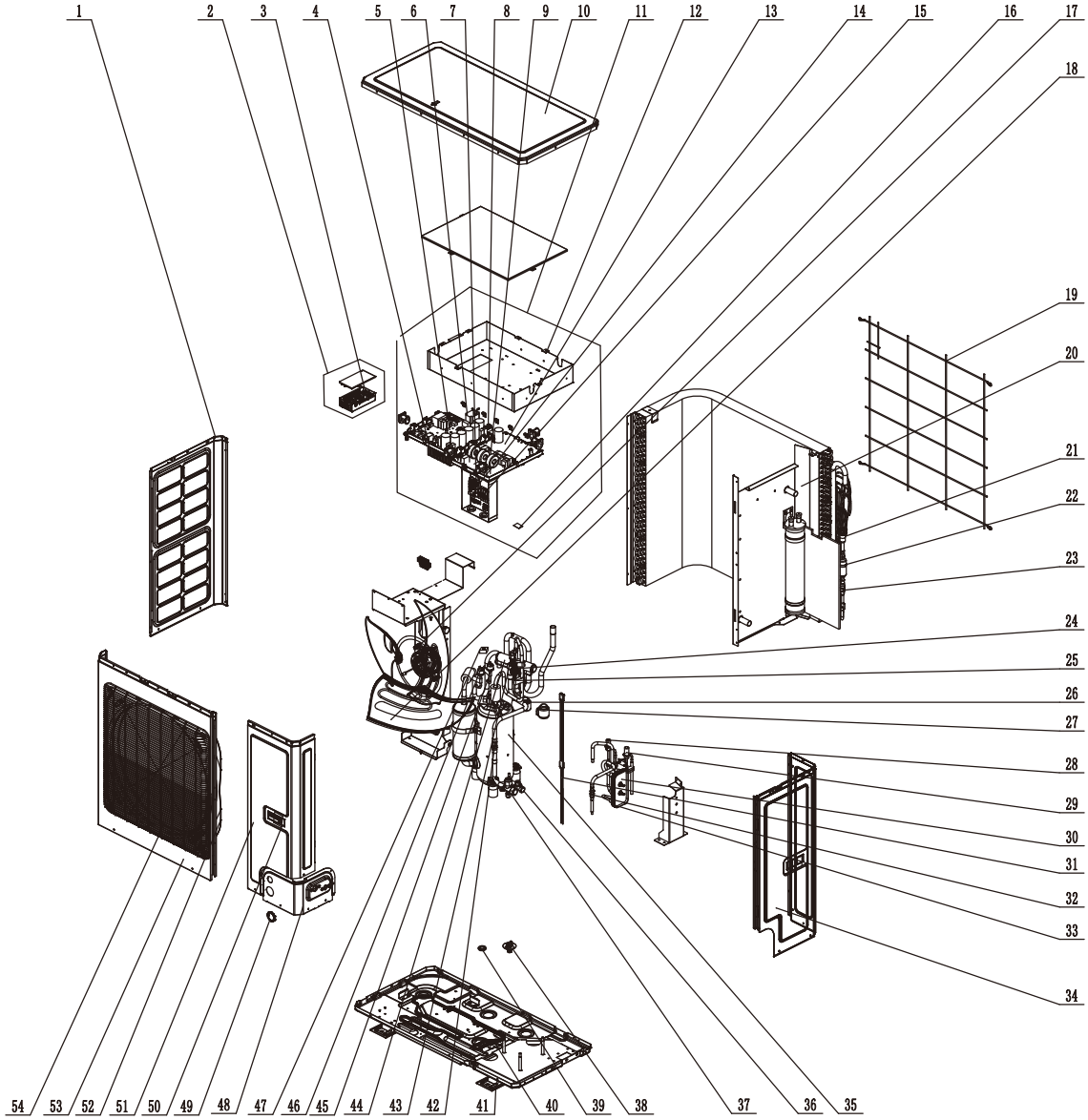
(9) GRS-CQ12Pd/NhH-M(I), GRS-CQ14Pd/NhH-M(I), GRS-CQ16Pd/NhH-M(I)



Parts List of GRS-CQ12Pd/NhH-M(I), GRS-CQ14Pd/NhH-M(I), GRS-CQ16Pd/NhH-M(I)

No	Name of part	Quantity
1	Chassis Sub-as	1
2	Thermostat	1
3	Terminal Board	1
4	Terminal Board	1
5	AC Contactor	3
6	Expansion Drum	1
7	Electric Box Assy	1
8	Handle	2
9	Auto Air Outlet Valve	1
10	Cover Plate	1
11	Plate-type Heat Exchanger Sub-Assy	1
12	Water Pressure Gauge	1
13	Drainage Pipe Sub-assy	1
14	Electric Heater	1
15	Right Side Plate	1
16	Relief Valve	1
17	Electric three-way ball valve body	1
18	Electric starter of water valve	1
19	Sealing Cap(Pressure Warning)	1
20	Strainer	1
21	Flow switch	1
22	Water Pump	1
23	Remote room temperature sensor	1
24	Connection Board	1
25	Temperature Sensor	1
26	Temperature Sensor	1
27	Communication line	1
28	Terminal Board	1
29	Terminal Board	1
30	Mounting board	1
31	Main Board	1
32	Jumper	1
33	Magnet Sub-assy	2
34	Display Board	1
35	Front Panel Sub-Assy	1

(10) GRS-CQ12Pd/NhH-M(O), GRS-CQ14Pd/NhH-M(O), GRS-CQ16Pd/NhH-M(O)



Parts List of GRS-CQ12Pd/NhH-M(O), GRS-CQ14Pd/NhH-M(O), GRS-CQ16Pd/NhH-M(O)

No	Name of part	Quantity
1	Left Side Plate	1
2	Inductance Box Assy	1
3	Reactor	3
4	Radiator	1
5	Main Board	1
6	Inductance	1
7	Communication Interface Board	1
8	Terminal board	1
9	Filter Board	1
10	Coping	1
11	Electric Box Assy	1
12	Electric Box	1
13	Main Board	1
14	Electrical Retaining Plate	1
15	Terminal board	1
16	Jumper	1

No	Name of part	Quantity
17	Brushless DC Motor	1
18	Axial Flow Fan	1
19	Rear Grill	1
20	Condenser Assy	1
21	Current Divider	1
22	Silencer	1
23	Strainer	1
24	Pressure Sensor	1
25	Nozzle for Adding Freon	1
26	Electric Expand Valve Fitting	1
27	Electric Expand Valve Fitting	1
28	Electronic Expansion Valve	1
29	Electronic Expansion Valve	1
30	Plate-type Heat Exchanger	1
31	Electrical Heater	1
32	Strainer	1
33	Energy saver sub-assy	1
34	Rear Side Plate	1
35	Compressor and Fittings	1
36	Cut-off valve 1/4(N)	1
37	Cut-off valve 5/8	1
38	Drainage Joint	1
39	Drainage hole Cap	3
40	Electrical Heater	1
41	Foot	2
42	Filter	1
43	Pressure Protect Switch	1
44	4-Way Valve	1
45	Pressure Protect Switch	1
46	Pressure Protect Switch	1
47	Magnet Coil	1
48	Valve Support Sub-Assy	1
49	Gland Bush	1
50	Handle	2
51	Front Side Plate	1
52	Diversion Circle	1
53	Cabinet	1
54	Front Grill	1

1.7 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	√	/	/

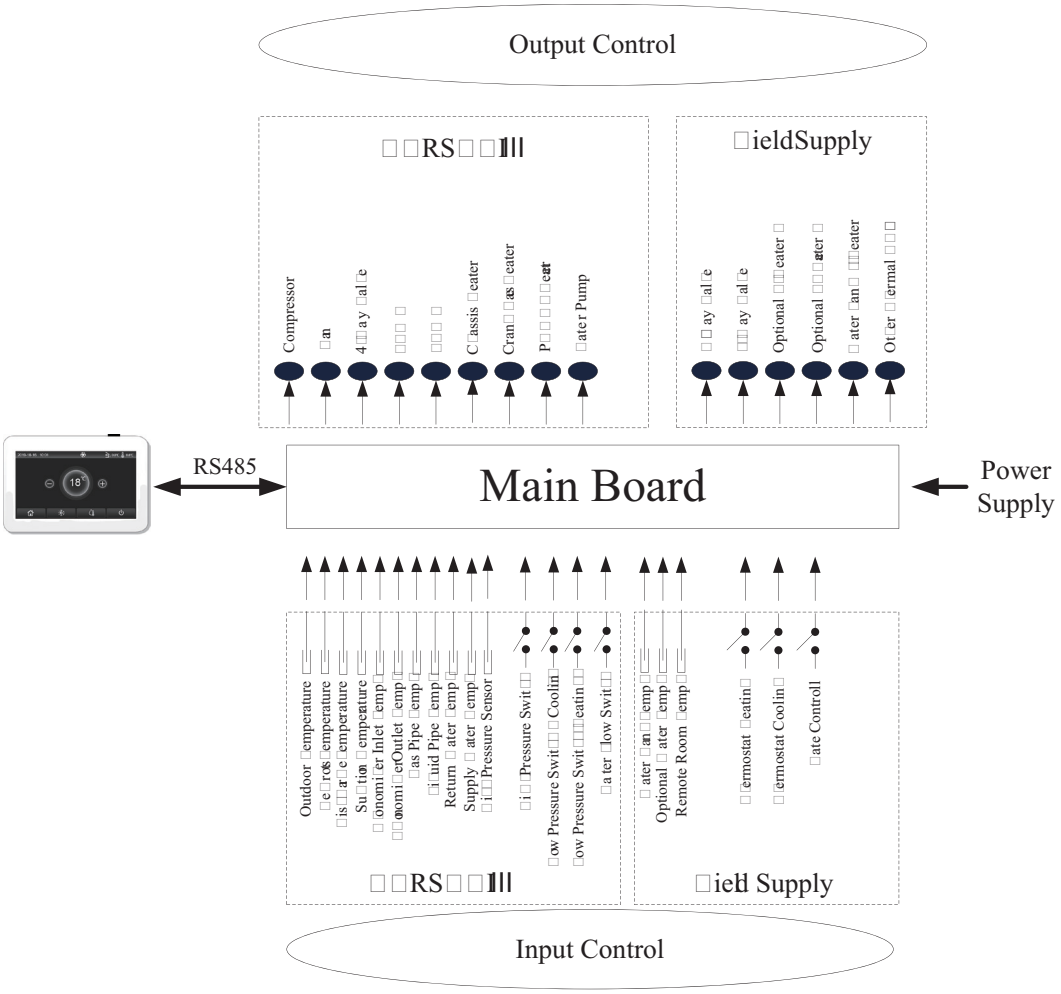
Name	Standard	Optional	Field Supplied
Water Tank Temperature Sensor	√	/	/
Expansion Bolt	√	/	/
Other thermal	/	/	√
Optional Electric Heater	√	/	/

Name	Standard Part Code
Owner's Manual for the Main Unit	600005062359
Owner’s Manual for the Control	600005060789
3-way Valve	4504800101(actuator) 072005000003(valve)
Remote Temperature Sensor	30261014
Wired Controller	300001060562
Communication Cable	4003014308(between indoor and outdoor units) 400300412(between the display panel and the indoor unit) 40038006(between the indoor unit and the remote room temperature sensor)
Water Tank Temperature Sensor	3900028316G
Support hook	012045060004P
Expansion Bolt	70110066
Optional Electric Heater	32000406007502(1.5+1.5kW): standard models GRS-CQ4.0Pd/NhH-E, GRS-CQ6.0Pd/NhH-E, GRS-CQ8.0Pd/NhH5-E, GRS-CQ10Pd/NhH5-E 32000406006302(3+3kW): standard models GRS-CQ8.0Pd/NhH-E, GRS-CQ10Pd/NhH-E.

2 Control

2.1 Control Principle Diagram

◆ Control Diagram



(1) The outdoor temperature is detected by the sensor installed at fins of the finned heat exchanger, which is mainly used to control the initialization steps of the fan and the electrostatic expansion valve and also limit the maximum running frequency of the compressor. When this sensor fails, the main board will detect it and deliver this error message to the controller and then the unit will fail to start up or shut down.

(2) The defrost temperature is detected by the sensor installed at the defrosting pipes of the finned heat exchanger, which is mainly used to control defrosting. When this sensor fails at the heating or water heating mode, the compressor will stop and this error will be displayed at the controller. When it fails at the cooling mode, the compressor continues to run but this error will be displayed at the controller.

(3) The discharge temperature is detected by the sensor installed at the discharge pipe of the compressor, which is mainly used for high discharge temperature protection. When this sensor fails, this error will be displayed at the controller, all loads except the water pump of the solar system and the electric heater of the water tank will stop. Then, the main unit will resume normal running when this error is eliminated.

(4) The suction temperature is detected by the sensor installed at the suction pipe of the compressor, which is mainly used to control superheating degree. When this sensor fails, this error will be displayed at the controller, all loads except the water pump of the solar system and the electric heater of the water tank will stop. Then, the main unit will resume normal running when this error is eliminated.

(5) The temperature sensor at the economizer is used to detect the temperature of the economizer after throttling via the electrostatic expansion 2. Under the Heating or Hot Water mode, this sensor and that at the economizer outlet both are used to control the opening angle of the electrostatic expansion valve 2. Under the Cooling mode, the electrostatic expansion valve 2 is fully closed.

(6) The temperature sensor at the economizer outlet is used to detect the tmpeature of the outlet of the economizer. Under the Heating or Hot Water mode, this sensor and that at the economser inlet both are used to control the opening angle of the electrostatic expansion valve 2. Under the Cooling mode, the electrostatic expansion valve 2 is fully closed.

(7) The high pressure is detected by the sensor installed at the discharge pipe of the compressor, the low pressure is detected by the sensor installed at the suction pipe of the compressor, and the enhanced vapor injection pressure is detected by the sensor installed at the enhanced vapor injection pipe. The first one is mainly used for high pressure protection, the second one is mainly used to control defrosting, freeze protection and superheating degree, and all of three are used to together to control the intermediate pressure ratio of the compressor. When any of these sensors fails, it will be displayed at the controller, all loads except the water pump of the solar system and the electric heater of the water tank will stop. Among them, the water pump will stop 120 seconds later than the compressor. Then, the main unit will resume normal running when this error is eliminated.

Component	Range
High pressure sensor	4.5/3.8MPa(gauge)
Low pressure switch (cooling)	0.45/0.55MPa(gauge)
Low pressure switch (heating)	0.1/0.2 MPa(gauge)

(8) The return water temperature of the plate heat exchanger is detected by the sensor installed at the inlet pipe of the plate heat exchanger, which is mainly used for freeze protection. When this sensor fails, this error will be displayed at the controller but the unit will resume normal operation.

(9) The supply water temperature of the plate heat exchanger is detected by the sensor installed at the outlet pipe of the plate heat exchanger, which is mainly used for freeze protection at the water side. When this sensor fails, this error will be displayed at the controller and the unit will continues to operate.

(10) The optional water temperature is detected by the sensor installed at the outlet pipe of the optional E-heater, which is mainly used to control the supply water temperature. When this sensor fails, this error will be displayed at the controller, all loads except the electric heater of the water tank will stop (the 2-way electric and 3-way electric valves will be closed).

(11) The tempeaure sensor for the vapor line is used to detect the temperature of the vapor refrigerant line. Under the Cooling mode, it and that for the liquid line together are used to control the opening angle of the electronic expansion valve 1.

(12) The tempeaure sensor for the liquid line is used to detect the temperature of the liquid refrigerant line. Under the Cooling mode, it and that for the vapor line together are used to control the opening angle of the electronic expansion valve 1.

(13) The hi-pressure switch is used to judge the system pressure. When the pressure is too high, this switch will disconnect and the unit will shut down.

(14) The flow switch of the main unit is mainly used to judge the water flow. When the flow rate is too low, this switch will be disconnected; all loads except the water tank heater and the water pump of the solar system will stop. This error will be displayed at the controller and will be unrecoverable. The unit can restart only when it is repowered on and this error does not be displayed again.

Items from 1~14 listed above are control parameters input by the main unit.

(15) The water tank temperature is detected by sensors immersed inside the water tank. These sensors can be divided into two groups. Group 1 is used to control the water tank temperature and group 2 is used to display the water tank temperature. When group 1 fails at the heating mode, this error will be displayed at the controller, and all loads except the water pump of the main unit will stop. When group 2 fails, this error also will be displayed at the controller but the unit continues normal operation.

(16) The leaving and entering water temperature of the solar panel and also the solar panel temperature are detected by sensors installed at the inlet pipe, outlet pipe and solar panel of the solar system respectively. Theses sensors are mainly used to control the water pump of the hot water of the solar system. When the entering water temperature sensor fails, this error will be displayed at the controller and the unit continues normal operation. When other two sensors fail, this error also will be displayed at the controller and the water pump of the solar system will stop.

(17) The remote room temperature is detected by the sensor installed at the room, which is mainly used to control the input capacity of the compressor through room temperature setting. When the main unit is controlled through the room temperature and this sensor fails, all loads except the water pump of the solar system and the electric heater of the water tank will stop. However, when the main unit is controlled through the leaving water temperature, if this sensor fails, this error will be displayed but the main unit will resume normal operation.

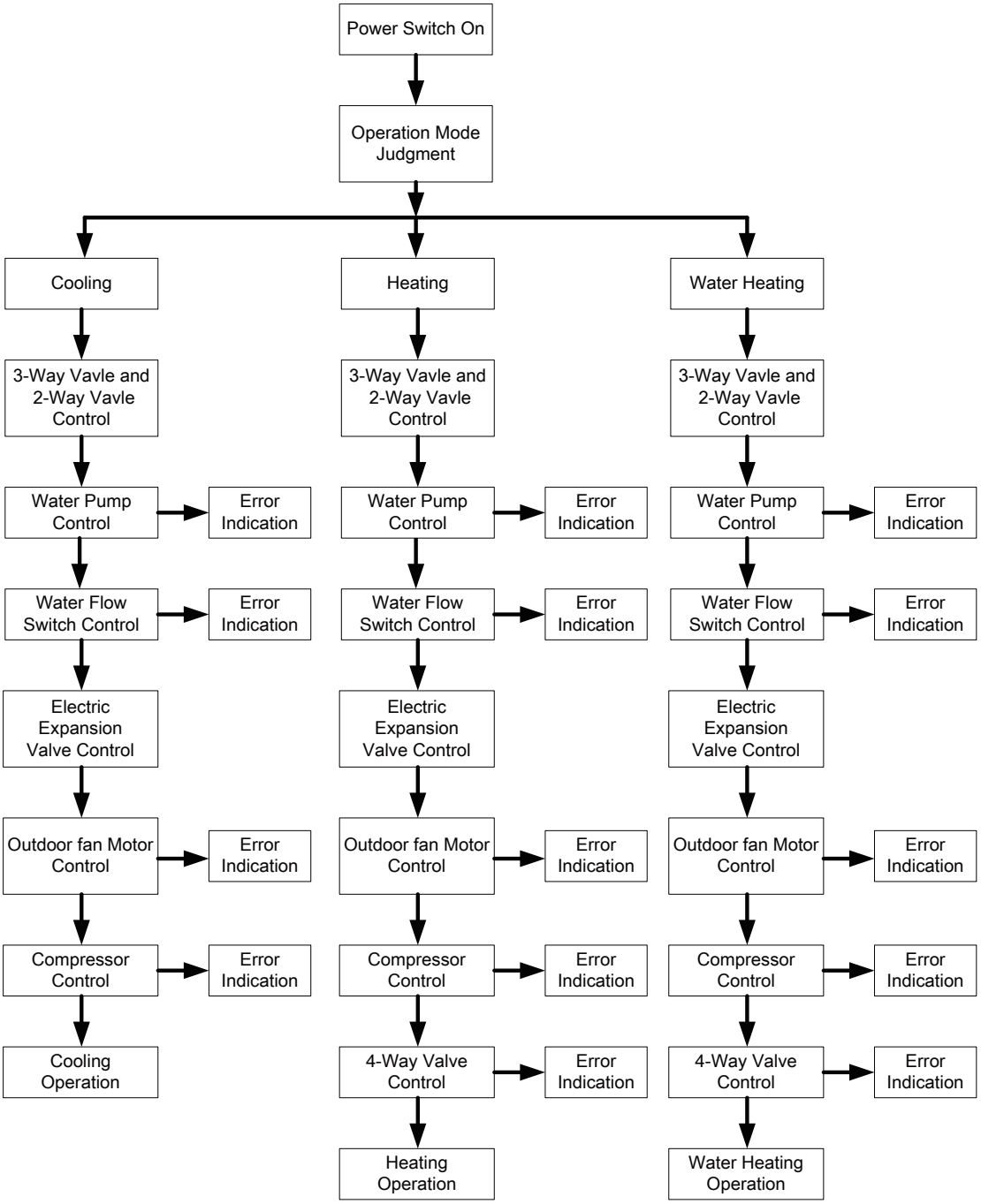
(18) Only when the control function of the thermostat has been activated through the wired controller, then the thermostat can switch run modes among cooling, heating and shutdown, otherwise, the unit will run as per the run mode set by the wired controller.

(19) The gate control function can be set to be “On” or “Off” at the function setting page of the wired controller. When this function has been activated and it is detected that the gate control card has been drawn out, the unit will shut down and will tell any key operation of the controller is invalid. Then, if it is detected that the gate control card has been inserted in, the unit will resume normal operation.

(20) The flow switch of the solar system is mainly used to judge the water flow. When the flow rate is too low, the flow switch will disconnect and immediately the water pump of the solar system will stop. This error will be displayed at the controller and is unrecoverable. When this error is cleared, upon power on again, the unit will restart.

Items 15~ 20 are control parameters input by the field installed equipment.

2.2 Control Flowchart



2.3 Control to Cooling

2.1.1 Control to the Compressor

When the unit is controlled by the leaving water temperature, the compressor operating frequency will be adjusted according to the temperature difference in direct proportion. (Temperature difference= actual leaving water temperature-leaving water temperature set point).

2.1.2 Freeze Protection

When it is detected that the leaving water temperature of the plate heat exchanger is lower than the freeze protection temperature, the compressor will drop its operating frequency until it reaches the minimum operating frequency. Then if it is still detected that the leaving water temperature is lower than the freeze protection temperature, the main unit will stop as per the shutdown frequency but the water pump keeps normal operation.

When it is detected that the leaving water temperature of the plate heat exchanger is equal to or larger than the freeze protection withdrawing temperature, freeze protection will stop. At this point, once the compressor has stopped for three minutes and conditions for startup have been satisfied, the compressor will run for cooling.

2.4 Control to Heating

2.2.1 Control to the Compressor

When the unit is controlled by the leaving water temperature, the operating frequency of the compressor will be adjusted by the temperature difference in the way that it increases as the temperature difference goes up and it decreases as the temperature difference goes down. When the compressor reaches the minimum frequency but the temperature frequency is still quite large, the unit will shut down (temperature difference= actual leaving water temperature-leaving water temperature set point).

2.2.2 Over-temperature Protection

When the compressor is running and it is detected that the leaving water temperature of the auxiliary electric heater is higher than the over-temperature protection temperature, the compressor will lower its frequency to the minimal. Then if it is still detected that the leaving water temperature of the auxiliary electric heater is higher than the over-temperature protection temperature, all loads except the water pump of the main unit and the 4-way valve will stop. Over-temperature protection will stop until the leaving water temperature of the auxiliary electric heater is lower than the over-temperature withdrawing temperature. After that, the unit will resume normal operation.

2.2.3 Control to the Optional Electric Heater

When the Optional electric heater is deactivated through the wired controller, it will never come into operation. When it is activated, it will run based on the outdoor temperature.

2.5 Control to Water Heating

Water heating can be achieved by either the solar system or the main unit (heat pump).

2.3.1 Water Heating by the Main Unit

(1) When the outdoor temperature is out of the operation range, the compressor will not start, and water heating will be done by the water tank heater.

(2) When the outdoor temperature is within the operation range, water heating will be done by the main unit. The output frequency of the compressor will be adjusted by the difference between the water tank temperature set point and the actual water tank temperature.

(3) Control to the Water Tank Electric Heater

- when the water tank temperature set point is lower than the maximum value of the water heating range of the main unit, the auxiliary electric heater of the main unit will run depending on the temperature difference, and the water tank keeps shut-down.
- when the water tank temperature set point is higher than the maximum value of the water heating range of the main unit but the actual water tank temperature is lower than the maximum value of the water heating range of the main unit, the auxiliary electric heater of the main unit will run depending on the temperature difference. If the actual water tank temperature is higher than the maximum value of the water heating range of the main unit, the water tank heater will start. At any time, only one between the auxiliary electric heater and the water tank heater is allowed to run.

(4) Over-temperature Protection for Water Heating

When the compressor is running, if it is detected that the leaving water temperature of the auxiliary electric heater of the main unit is higher than the over-temperature protection temperature, the compressor will lower its operating frequency until it reaches the minimal operating frequency. At this point, if it is still detected that leaving water temperature is still lower than the over-temperature protection, all loads except the water pump of the main unit and the 4-way valve will stop. Over-temperature protection will exit when the leaving water temperature is lower than the over-temperature protection temperature. Then, the main unit will resume normal operation.

2.3.2 Water Heating by the Solar System

When the solar water heating system is equipped but temperature difference value (it is the difference of solar panel temperature and the actual water tank temperature) for startup is not reached, the water pump of the solar system will not start. When the temperature difference value is reached, the water pump will start. However, when it is detected that the water tank temperature reaches the set point, or the entering/leaving water temperature difference of the solar panel is too small, then this water pump will stop running.

2.6 Control to Shutdown

There are three kinds of shutdown conditions: normal shutdown, shutdown with some error, shutdown for protection

Shutdown sequence: for normal shutdown, the compressor lowers its frequency firstly to the minmum value, while for shutdown with some error or for protection, the compressor will stop directly.Then, the electronic expansion valve turns to the maximum opening angle; the fan stops after the compressor has stopped; the water pump of the main unit stops after the compressor has stopped; the electronic expansion valve turns the maximum opening angle to the fixed opening angle.

During shutdown under the heating and water heating modes, the 4-way valve will be powered off after the compressor has stopped.

For shutdown owing to some error (except the communication error) or protection, the 4-way valve will keep the power-on status.

For shutdown owing to communication between the unit and the wired controller, the 4-way valve will be powered off some timer later.

For shutdown with some error or for protection, the electrostatic expansion valve will keep the maximum opening angle.

2.7 Control to the Compressor

When the unit is controlled by the leaving water temperature, the output frequency of the compressor is adjusted by the difference between the actual water temperature and the leaving water temperature set point. When the unit is controlled by the room temperature, the output frequency of the compressor is adjusted by the difference between the actual room temperature and the room temperature set point.

2.8 Control to the Fan

Under the cooling mode, the operating frequency of the fan is adjusted according to pressure at the high pressure side. Under the heating or water heating mode, the operating frequency of the fan is adjusted according to the pressure at the low pressure side. During defrosting, the fan stops and resumes operation when defrosting ends up.

2.9 Control to the 4-way Valve

The 4-way valve always keeps on under the cooling mode and will off after the compressor starts up under the heating or water heating mode. When the unit comes into defrosting, the 4-way valve will be on and resume the off status when defrosting ends up. For shutdown under the heating mode, the 4-way valve will be closed after the compressor stops.

2.10 Control to the Water Pump

The water pump firstly will run at the initialized speed and then adjust the speed according to the entering/leaving water temperature difference. When the temperature difference is large, the fan runs at the high speed. When the temperature difference is small, the fan runs at the low speed.

2.11 Control the Electronic Expansion Valve

There are two electronic expansion valves for two-stage throttling control. The opening angle of the first-stage electronic expansion valve is adjusted based on the ratio of readings of the high-pressure sensor, low-pressure sensor and enthalpy-adding sensor. The opening angle of the second-stage is adjusted based on the suction superheating degree.

2.12 Protection Control

(1) Compressor Low-pressure Protection

When it is detected continuously that pressure at the low side is too low, then low-pressure protection will occur and this error will be displayed at the controller, all loads act as per the shutdown sequence. This error is unrecoverable and can be cleared unless repowered on.

(2) High Discharge Temperature Protection

When it is detected continuously that the discharge temperature is higher than the recoverable temperature, the electrostatic expansion valve will turn to the maximum opening angle with large step until the discharge temperature is lower than the recoverable temperature. However, if this condition remains, the compressor will restrict the frequency output or lower its frequency three times. At any time, if it is detected that the discharge temperature is higher than the set point for protection for three seconds, the compressor will stop and the unit comes into high discharge temperature protection.

(3) Compressor Hi-pressure Protection

In any case, when it is detected that the high-pressure switch acts, the unit will come into high-pressure protection three seconds later. This protection is unrecoverable.

(4) Flow Switch Protection

In any case, when it is detected that the flow switch of the main unit disconnects, then all loads except the water pump of the solar system and the auxiliary electric heater of the water tank will stop. This protection is unrecoverable. The unit is allowed to be restart only after this error is cleared and the unit is repowered on.

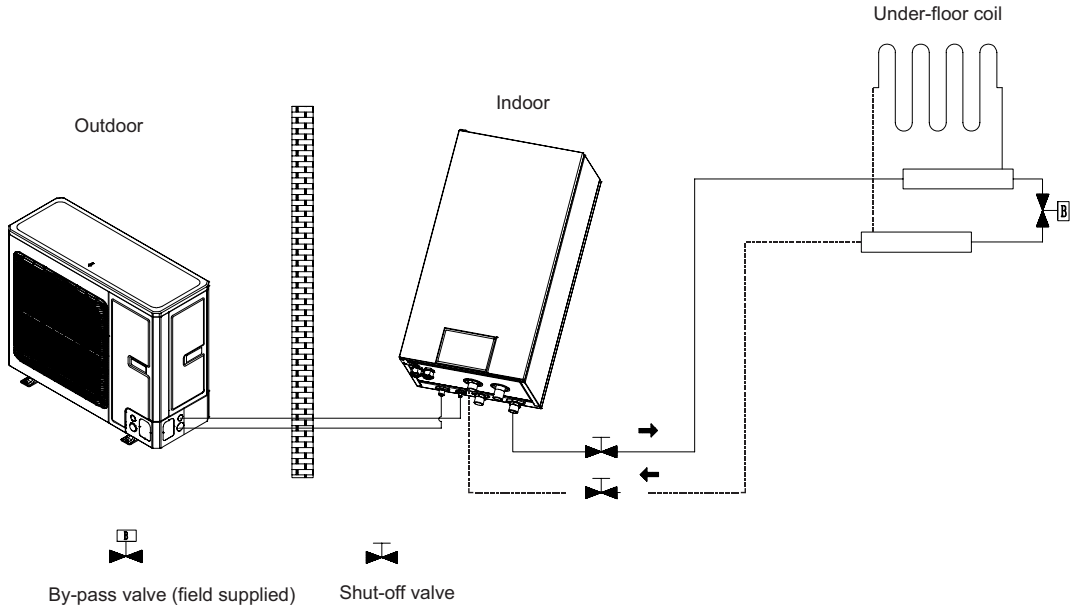
(5) Communication Error

When the indoor unit main board or drive board does not receive correctly any data from the unit main board, all loads will stop.

3 Installation Instructions

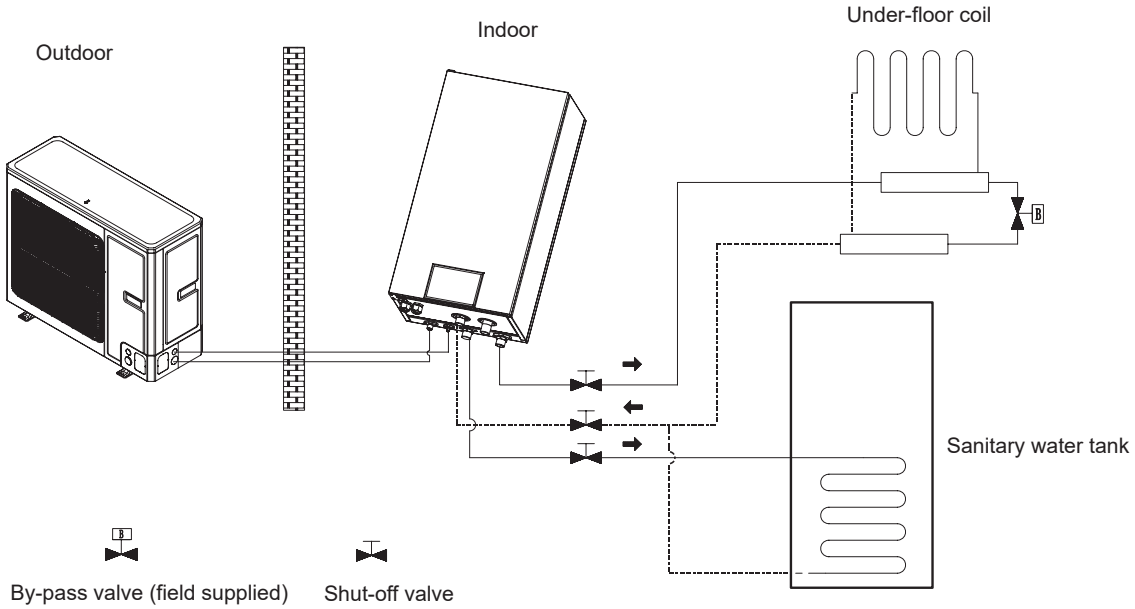
3.1 Installation Examples

CASE 1: Connecting Under-floor Coil for Heating and Cooling



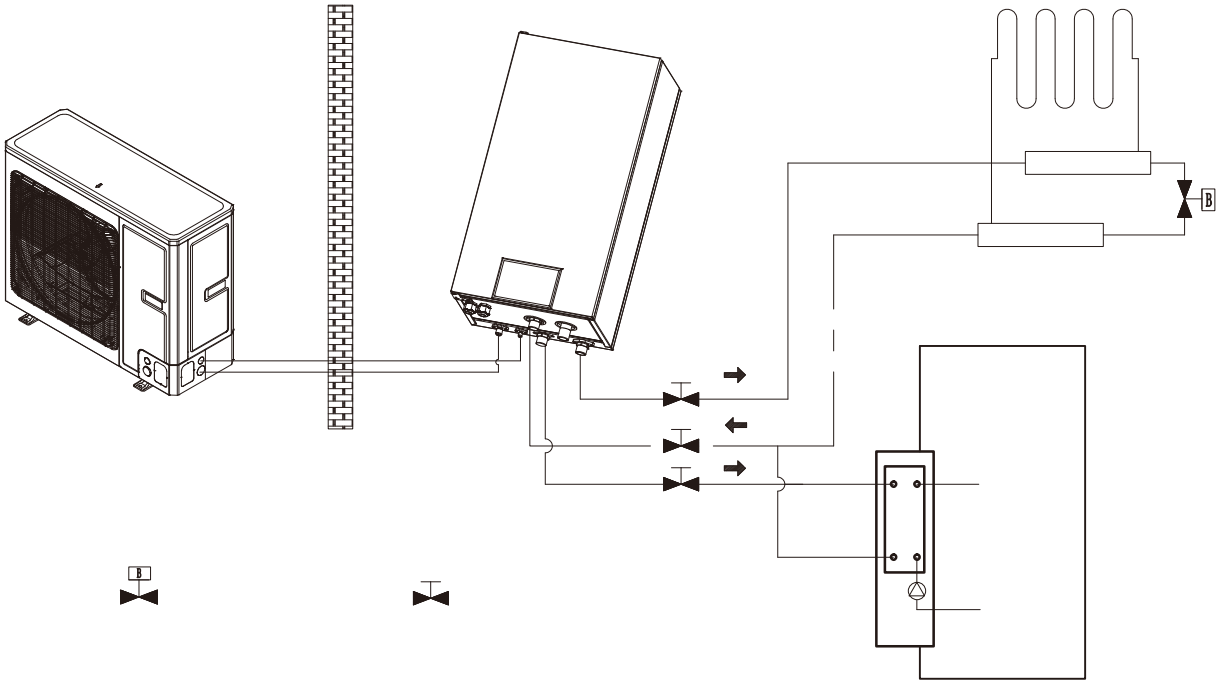
Note: the bypass valve must be installed to secure enough water flow rate, and should be installed at the collector.

CASE 2: Connecting Sanitary Water Tank (with Internal Coils) and Under-floor Coil



Note: sanitary water tank should be equipped with internal electric heater to secure enough heat energy in the very cold days.

CASE 3: Connecting Sanitary Water Tank (with External Heat Exchanger) and Under-floor Coil



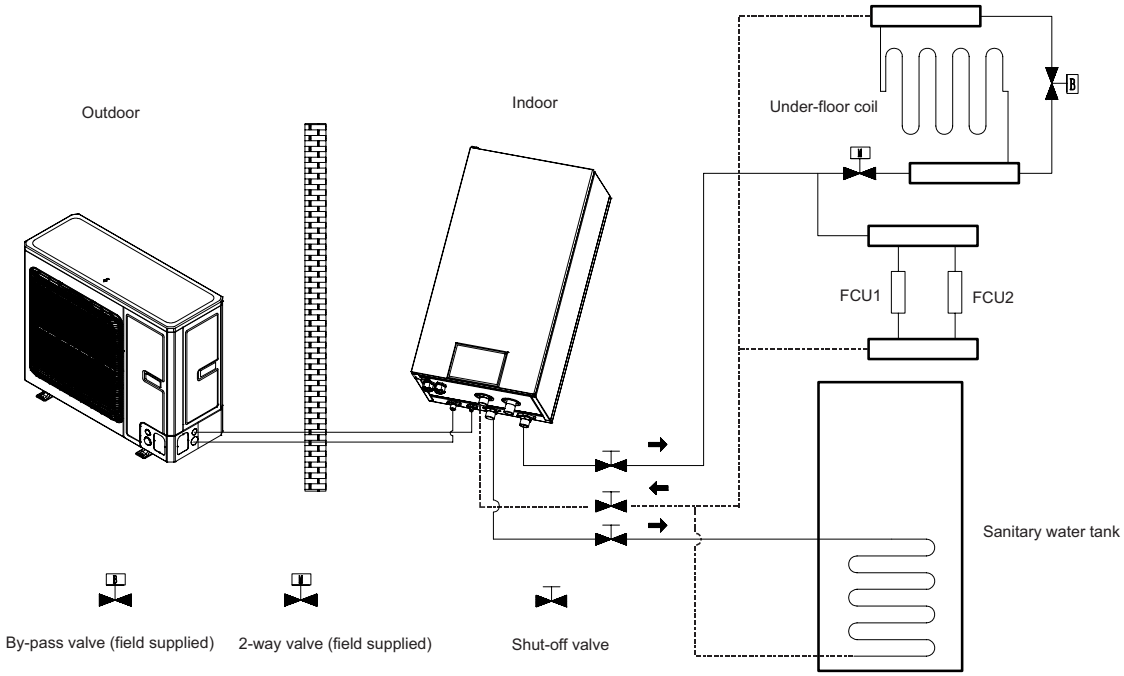
Notes

(a) The two-way valve is very important to prevent dew condensation on the floor while cooling mode

(b) In this case, three-way valve should be installed and should be complied with installation of this manual;

(c) Anitary water tank should be equipped with internal electric heater to secure enough heat energy in the very cold days.

CASE 4: Connecting Sanitary Water Tank (with Internal Coils), Under-floor Coil and FCU

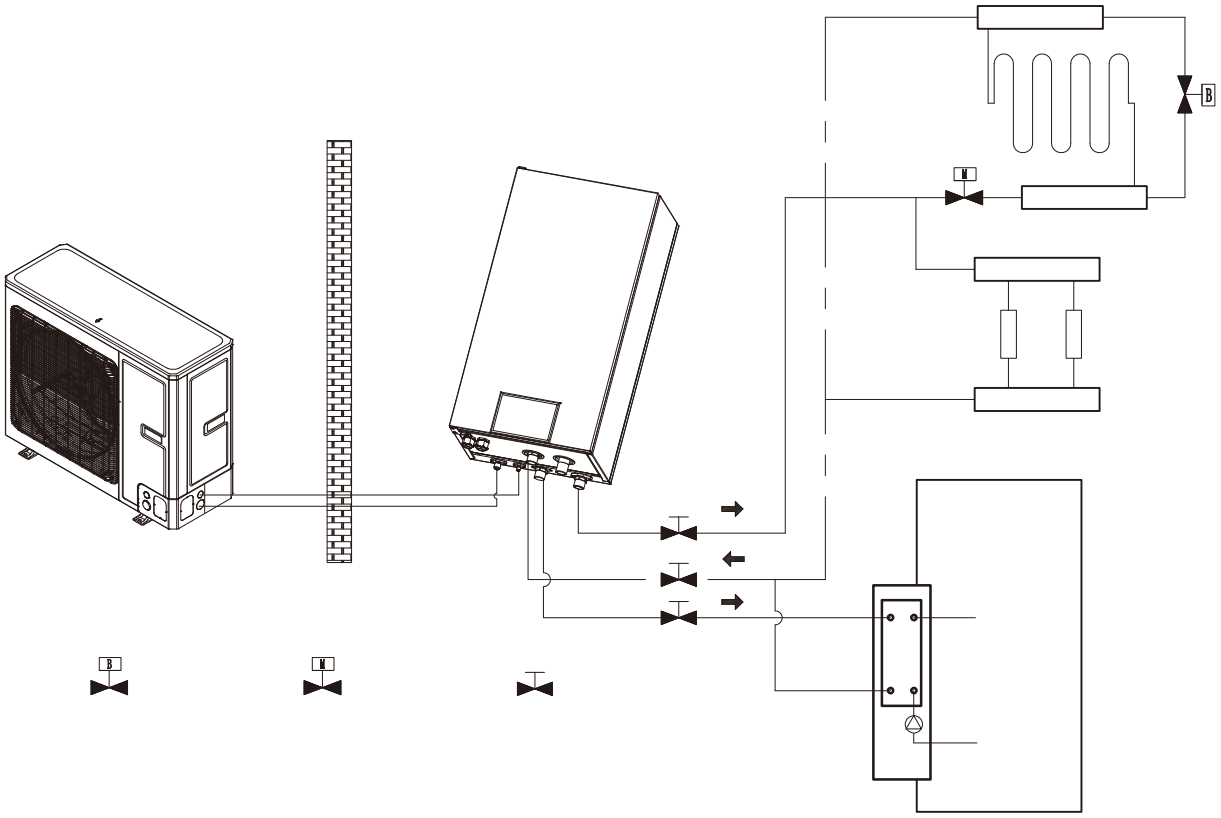


Notes

(a) The two-way valve is very important to prevent dew condensation on the floor and FCU while cooling mode

(b) Sanitary water tank should be equipped with internal electric heater to secure enough heat energy in the very cold days.

CASE 5: Connecting Sanitary Water Tank (with External Heat Exchanger), Under-floor Coil and FCU



Notes

(a) The two-way valve is very important to prevent dew condensation on the floor and FCU while cooling mode

(b) In this case, three-way valve should be installed and should be complied with installation of this manual;

(c) Anitary water tank should be equipped with internal electric heater to secure enough heat energy in the very cold days.

(d) When the FCU and the underfloor coil are used at the same time, performance of the underfloor coil is satisfied firstly. When performance of the FCU is required, then “Floor config” should be set to “Without”.

3.2 Pre-Installation

(1) Installation of the unit must be in accordance with national and local safety codes.

(2) Installation quality will directly affect the normal use of the air conditioner unit. The user is prohibited from installation by himself. Please contact your dealer after buying this machine. Professional installation workers will provide installation and test services according to the installation manual.

(3) Do not connect to power supply until all installation work is completed.

3.3 Selection of Installation Location

(1) The outdoor unit must be installed on a firm and solid support.

(2) Avoid placing the outdoor unit under window or between two constructions, hence to prevent normal operating noise from entering the room.

(3) Air flow at inlet and outlet shall not be blocked.

(4) Install at a well-ventilated place, so that the machine can absorb and discharge sufficient air.

(5) Do not install at a place where inflammable or explosive goods exist or a place subject to severe dust, salty fog and polluted air.

3.4 Installation of Outdoor Unit

3.4.1 Instruction to installation

(1) Installation of the unit must be in accordance with national and local safety codes.

(2) Installation quality will directly affect the normal use of the air conditioner unit. The user is prohibited from installation. Please contact your dealer after buying this machine. Professional installation workers will provide installation and test services according to installation manual.

(3) Do not connect to power until all installation work is completed.

3.4.2 Installation of outdoor unit

(1) Outdoor unit must be installed on a firm and solid support.

(2) Outdoor unit shall be installed close to the indoor unit, hence to minimize the length and bends of cooling pipe.

(3) Avoid placing the outdoor unit under window or between two constructions, hence to prevent normal operating noise from entering the room.

(4) Air flow at inlet and outlet shall not be blocked.

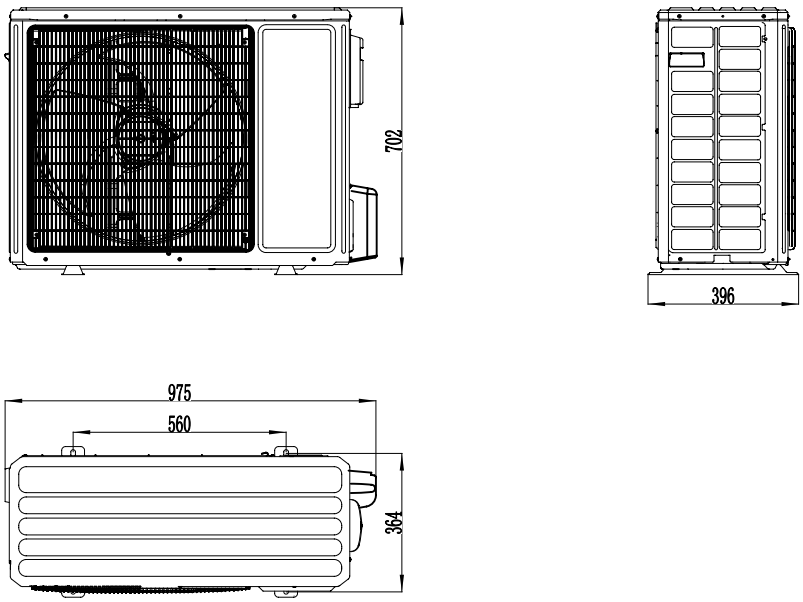
(5) Install at a well-ventilated place, so that the machine can absorb and discharge sufficient air.

(6) Do not install at a place where flammable or explosive goods exist or a place subject to severe dust, salty fog and polluted air.

3.4.3 Outline dimension of outdoor unit

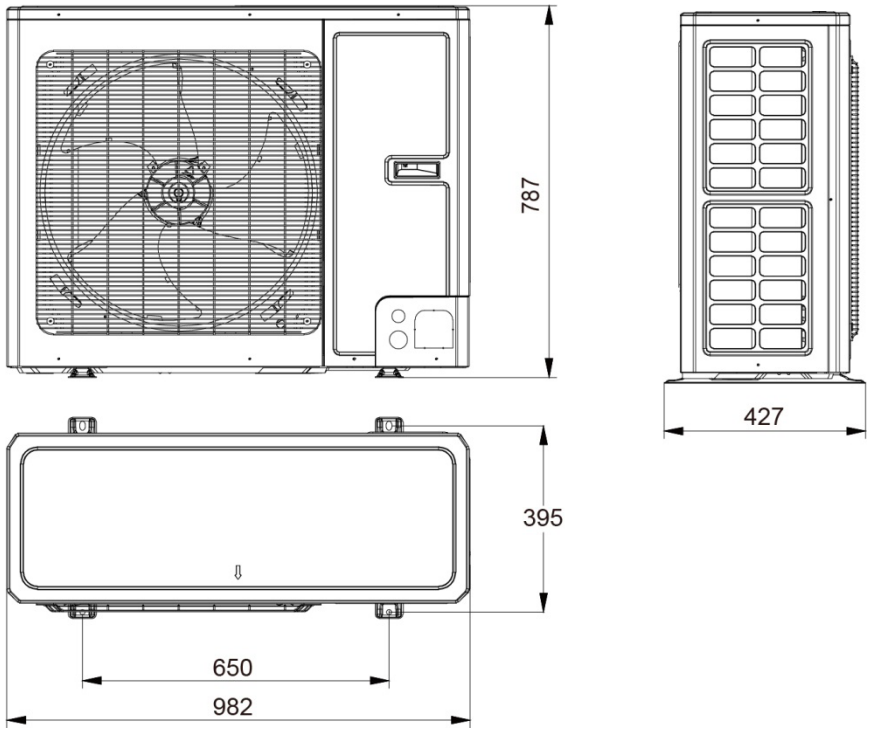
(1) GRS-CQ4.0Pd/NhH-E(O), GRS-CQ4.0Pd/NhH2-E(O), GRS-CQ6.0Pd/NhH-E(O), GRS-CQ6.0Pd/NhH2-E(O)

Unit:mm



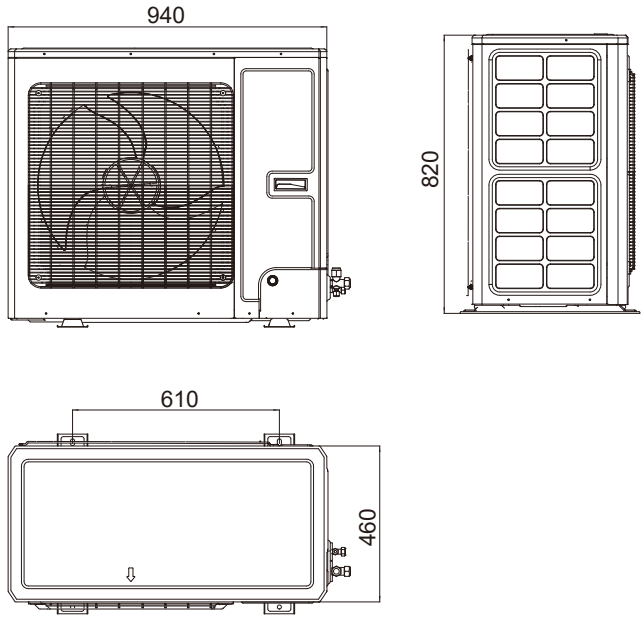
(2) GRS-CQ8.0Pd/NhH-E(O), GRS-CQ8.0Pd/NhH2-E(O), GRS-CQ10Pd/NhH-E(O), GRS-CQ10Pd/NhH2-E(O)

Unit:mm



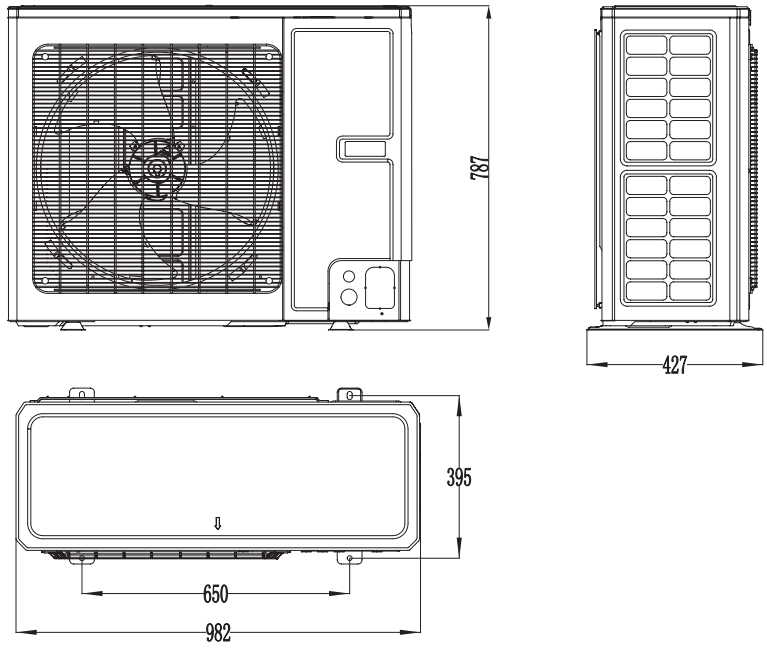
(3) GRS-CQ12Pd/NhH-M(O) , GRS-CQ14Pd/NhH-M(O), GRS-CQ16Pd/NhH-M(O), GRS-CQ12Pd/NhH-E(O) , GRS-CQ14Pd/NhH-E(O), GRS-CQ16Pd/NhH-E(O)

Unit:mm



(4) GRS-CQ8.0Pd/NhH-M(O), GRS-CQ10Pd/NhH-M(O)

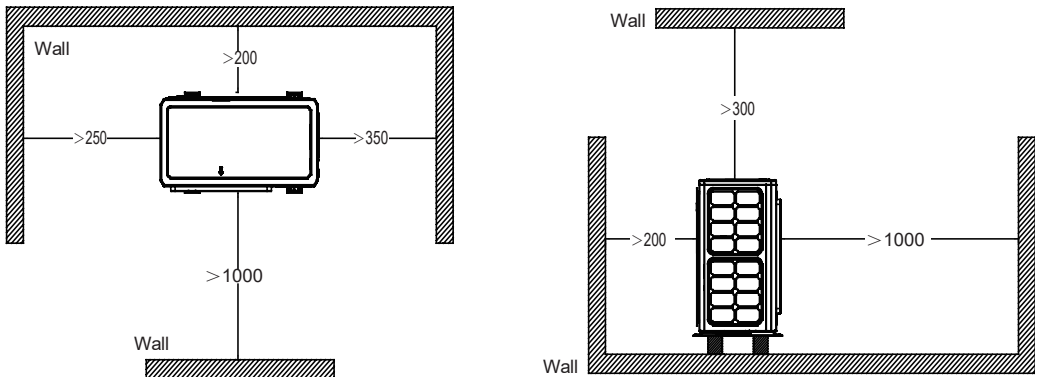
Unit:mm



Description:

No.	Name	Remarks	
1	Liquid-side Service Valve	1/4	GRS-CQ4.0Pd/NhH-E, GRS-CQ6.0Pd/NhH-E GRS-CQ4.0Pd/NhH2-E, GRS-CQ6.0Pd/NhH2-E GRS-CQ8.0Pd/NhH-E, GRS-CQ10Pd/NhH-E GRS-CQ8.0Pd/NhH2-E, GRS-CQ10Pd/NhH2-E GRS-CQ8.0Pd/NhH5-E, GRS-CQ10Pd/NhH5-E GRS-CQ12Pd/NhH-E, GRS-CQ14Pd/NhH-E, GRS-CQ16Pd/NhH-E, GRS-CQ8.0Pd/NhH-M, GRS-CQ10Pd/NhH-M, GRS-CQ12Pd/NhH-M, GRS-CQ14Pd/NhH-M, GRS-CQ16Pd/NhH-M
2	Gas-side Service Valve	1/2	GRS-CQ4.0Pd/NhH-E,GRS-CQ6.0Pd/NhH-E GRS-CQ4.0Pd/NhH2-E,GRS-CQ6.0Pd/NhH2-E GRS-CQ8.0Pd/NhH-E,GRS-CQ10Pd/NhH-E GRS-CQ8.0Pd/NhH2-E,GRS-CQ10Pd/NhH2-E GRS-CQ8.0Pd/NhH5-E,GRS-CQ10Pd/NhH5-E GRS-CQ8.0Pd/NhH-M, GRS-CQ10Pd/NhH-M,
3	Gas-side Service Valve	5/8	GRS-CQ12Pd/NhH-M, GRS-CQ14Pd/NhH-M, GRS-CQ16Pd/NhH-M, GRS-CQ12Pd/NhH-E, GRS-CQ14Pd/NhH-E, GRS-CQ16Pd/NhH-E

3.4.4 Space requirements for installation



3.4.5 Precautions on installation of outdoor unit

(1) When moving outdoor unit, it is necessary to adopt 2 pieces of long enough rope to hand the unit from 4 directions. Included angle between the rope when hanging and moving must be 40°C below to prevent center of the unit from moving.

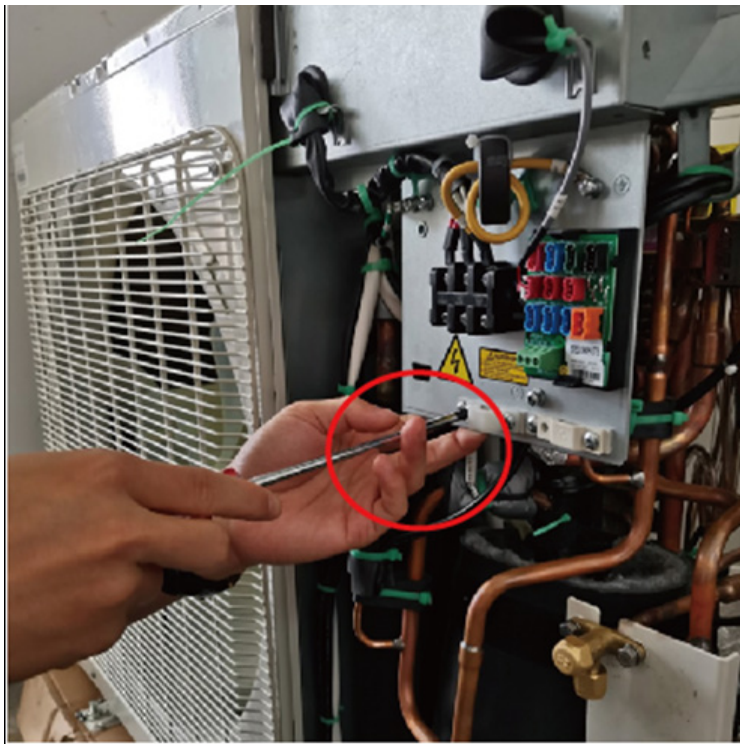
(2) Adopt M12 bolts components to tighten feet and under frame when installing.

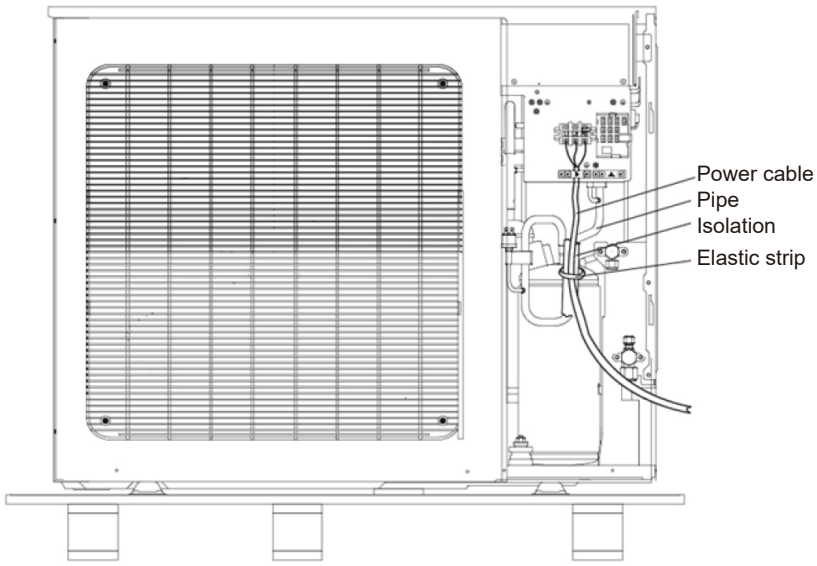
(3) Outdoor unit should be installed on concrete base that is 10cm height.

(4) Requirements on installation space dimension of unit's bodies are shown in following drawing.

(5) Outdoor unit must be lifted by using designated lifting hole. Take care to protect the unit during lift. To avoid rusting, do not knock the metal parts.

Note: when release and refix the screw of the clasper,should use your hand to support the panal.And then,after connected power cable,please ensure using the elastic trip of accessory to tighten with the pipe.





3.4.6 Safety operation of flammable refrigerant

◆ Qualification requirement for installation and maintenance man

All the work personnel who are engaging in the refrigeration system should have got the valid certification awarded by the authoritative organization and the qualification for dealing with the refrigeration system recognized by this industry.

If it needs other technician to maintain and repair the appliance, they should be supervised by the person who bears the qualification for using the flammable refrigerant. It can only be repaired by the method suggested by the equipment's manufacturer.

◆ Installation notes

The unit is not allowed to use in a room that has running fire (such as firesource, working coal gas ware, operating heater).

It is not allowed to drill hole or burn the connection pipe.

The unit must be installed in a room that is larger than the minimum room area. The minimum room area is shown on the nameplate or following table.

Leak test is a must after installation.

Minimum room area (m^2)	Charge amount(kg)	≤1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5
	floor location	/	14.5	16.8	19.3	22	24.8	27.8	31	34.3	37.8	41.5	45.4	49.4	53.6
	window mounted	/	5.2	6.1	7	7.9	8.9	10	11.2	12.4	13.6	15	16.3	17.8	19.3
	wall mounted	/	1.6	1.9	2.1	2.4	2.8	3.1	3.4	3.8	4.2	4.6	5	5.5	6
	ceiling mounted	/	1.1	1.3	1.4	1.6	1.8	2.1	2.3	2.6	2.8	3.1	3.4	3.7	4

Maintenance notes

(1) Check whether the maintenance area or the room area meet the requirement.

- It's only allowed to be operated in the rooms that meet the requirement.

(2) Check whether the maintenance area is well-ventilated.

- The continuous ventilation status should be kept during the operation process.

(3) Check whether there is fire source or potential fire source in the maintenance area.

- The naked flame is prohibited in the maintenance area; and the "no smoking" warning board should be hanged.

(4) Check whether the appliance mark is in good condition.

- Replace the vague or damaged warning mark.

◆ Welding

If you should cut or weld the refrigerant system pipes in the process of maintaining, please follow the steps as below:

(a) Shut down the unit and cut off power supply

(b) Recover the refrigerant

(c) Vacuuming

(d) Clean it with N2 gas

(e) Cutting or welding

(f) Carry back to the service spot for welding

The refrigerant should be recycled into the specialized storage tank.

Make sure that there isn't any naked flame near the outlet of th e vacuum pump and it's well-ventilated.

◆ Filling the refrigerant

(1) Use the refrigerant filling appliances specialized for R32. Make sure that different kinds of refrigerant won't contaminate with each other.

(2) The refrigerant tank should be kept upright at the time of charging refrigerant.

(3) Stick the label on the system after filling is finished (or haven 't finished).

(4) Don't overfilling.

(5) After filling is finished, please do the leakage detection before trial run; another time of leak detection should be done when it's removed.

◆ Safety instructions for transportation and storage

(1) Please use the flammable gas detector to check before unload and open the container.

(2) No fire source and smoking.

(3) Comply with the local rules and laws.

3.5 Installation of Indoor Unit

3.5.1 Select installation location of indoor unit

(1) Avoid direct sunshine.

(2) Ensure the hanger rod, ceiling and building structure have sufficient strength to support the weight of air conditioner unit.

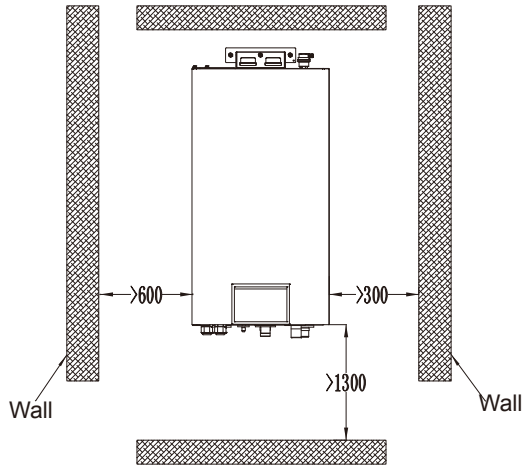
(3) Drainage pipe is easy to connect out.

(4) Indoor and outdoor connection pipes are easy to go outdoors.

(5) Do not install at a place where inflammable or explosive goods exist or inflammable or explosive gas might leak.

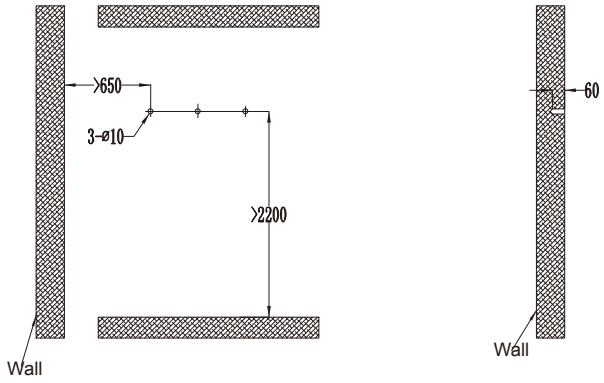
(6) Do not install at a place subject to corrosive gas, severe dust, salty fog, smoke or heavy moisture.

3.5.2 Space requirements for installation

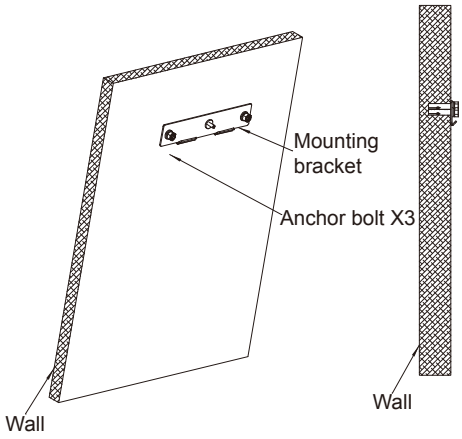


3.5.3 Install process of indoor unit

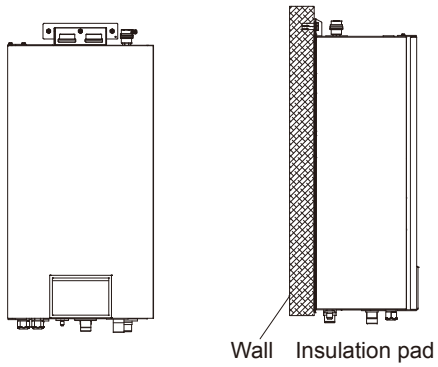
Step1:Drill holes on the wall in the following drawing.



Step2:Install expansion bolts and forecasted pannel.



Step3: Attaching indoor unit to the wall.



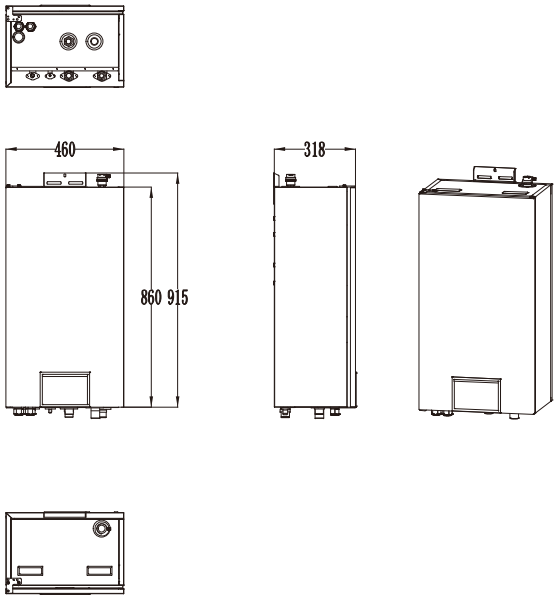
Notes

(a) While lifting the indoor unit, at least two persons should be joined. Weight of the indoor unit is more than 50kg.

(b) The indoor unit must be installed vertically to the ground and fastened securely.

(c) Before commissioning, the dust-proof cap of the automatic relief valve must be loosened, other than entirely being removed away, and it can be tightened in case that it leaks.

3.5.4 Outline dimension of indoor unit



Unit: inch

No.	Name	Remark	
1	Leaving Water Pipe	1″Male BSP	
2	Returning Water Pipe	1″Male BSP	
3	Liquid-side Pipe	1/4	GRS-CQ4.0Pd/NhH-E(I), GRS-CQ6.0Pd/NhH-E(I) GRS-CQ4.0Pd/NhH2-E(I), GRS-CQ6.0Pd/NhH2-E(I) GRS-CQ8.0Pd/NhH-E(I), GRS-CQ10Pd/NhH-E(I) GRS-CQ8.0Pd/NhH2-E(I), GRS-CQ10Pd/NhH2-E(I) GRS-CQ8.0Pd/NhH5-E(I), GRS-CQ10Pd/NhH5-E(I) GRS-CQ8.0Pd/NhH-M(I), GRS-CQ10Pd/NhH-M(I)
4	Gas-side Pipe	1/2	GRS-CQ4.0Pd/NhH-E(I), GRS-CQ6.0Pd/NhH-E(I) GRS-CQ4.0Pd/NhH2-E(I), GRS-CQ6.0Pd/NhH2-E(I) GRS-CQ8.0Pd/NhH-E(I), GRS-CQ10Pd/NhH-E(I) GRS-CQ8.0Pd/NhH2-E(I), GRS-CQ10Pd/NhH2-E(I) GRS-CQ8.0Pd/NhH5-E(I), GRS-CQ10Pd/NhH5-E(I) GRS-CQ8.0Pd/NhH-M(I), GRS-CQ10Pd/NhH-M(I)
5	Gas-side Pipe	5/8	GRS-CQ12Pd/NhH-M(I), GRS-CQ14Pd/NhH-M(I), GRS-CQ16Pd/NhH-M(I), GRS-CQ12Pd/NhH-E(I), GRS-CQ14Pd/NhH-E(I), GRS-CQ16Pd/NhH-E(I),

3.5.5 Precautions on installation of indoor unit

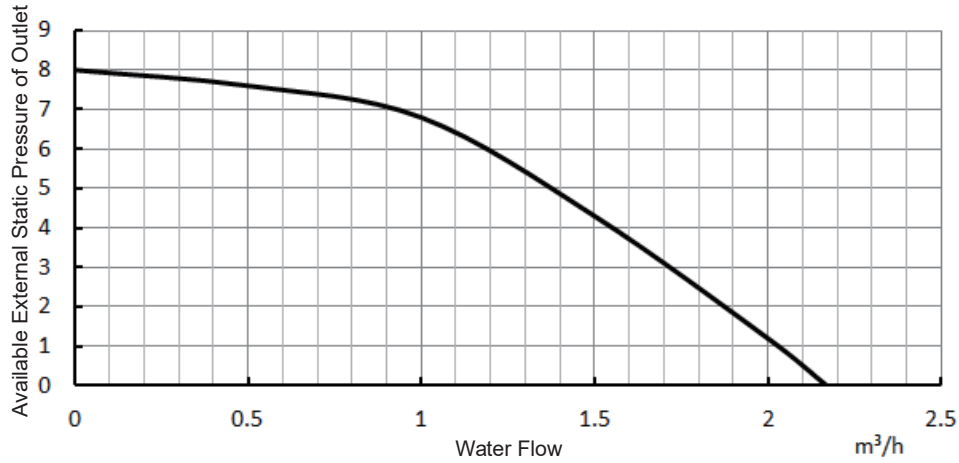
(1) Indoor unit shall be vertically mounted on the wall of the room with expansion bolt.

(2) Keep the indoor unit away from heat sources like heat sink and so on in the room as much as possible.

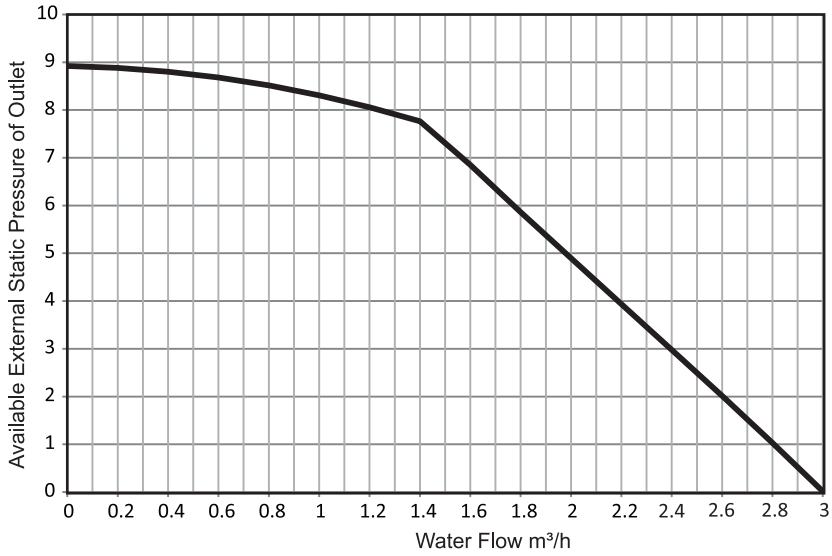
(3) Keep the indoor unit as close as possible to outdoor unit. Level distance between connection pipes cannotexceed 20m(4.0~6.0kW) or 25m (8.0~10kW) and vertical distance cannot exceed 15m.

3.5.6 Available External Static Pressure of Outlet

(1) GRS-CQ4Pd/NhH-E,GRS-CQ4Pd/NhH2-E,GRS-CQ6Pd/NhH-E, GRS-CQ6Pd/NhH2-E, GRS-CQ8Pd/NhH-E, GRS-CQ8Pd/NhH2-E,GRS-CQ8Pd/NhH5-E, GRS-CQ10Pd/NhH-E,GRS-CQ10Pd/NhH2-E,GRS-CQ10Pd/NhH5-E

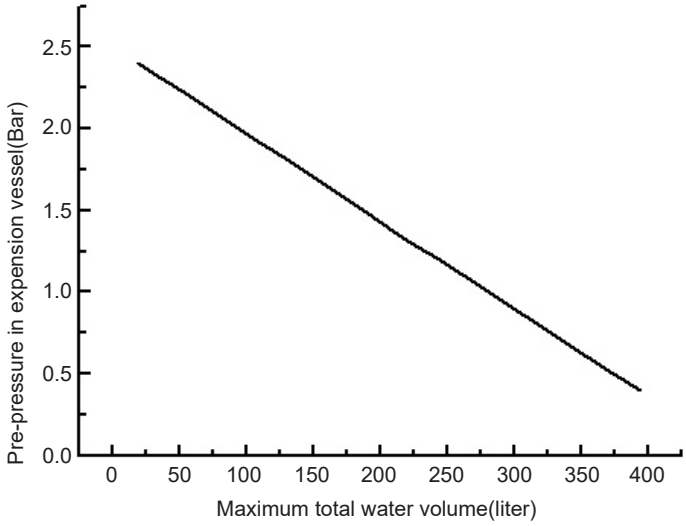


(2) GRS-CQ12Pd/NhH-E,GRS-CQ14Pd/NhH-E,GRS-CQ16Pd/NhH-E,GRS-CQ8.0Pd/NhH-M, GRS-CQ10Pd/NhH-M,GRS-CQ12Pd/NhH-M,GRS-CQ14Pd/NhH-M, GRS-CQ16Pd/NhH-M



Note: see the curve above for the maximum external static pressure. The water pump is of variable frequency. And during operation, the water pump will adjust its output based on the actual load.

3.5.7 Water volume and expansion vessel pressure



Notes

(a) The expansion vessel is 10 liter and 1bar pre-pressurized;

(b) Total water volume of 230 liter is default; if total water is changed because of installation condition, the prepressure should be adjusted to secure proper operation. If the indoor unit is located at the highest position, adjustment is not required;

(c) Minimum total water volume is 20 liter;

(d) To adjust pre-pressure, use nitrogen gas by certificated installer.

(e) For the reliability of system defrosting, the minimum water capacity requirement is 5L/kW, that is, the 10kW unit has a minimum water capacity of 50L.

3.5.8 The method of calculating the charging pressure of expansion vessel

The method of calculating the charging pressure of expansion vessel needed to be adjusted is as follows.During installation, if the volume of water system has changed, please check if the pre-set pressure of the expansion vessel needs to be adjusted according to the following formula:

Pg=(H/10+0.3)Bar

(H ---the difference between installing location of indoor unit and the highest spot of water system.)

Ensure that the volume of water system is lower than the maximum volume required in the above figure. If it exceeds the range, the expansion vessel does not meet the installing requirement.

Installation height [1] difference	Water volume	
	≤230L	>230L
<7 m	Adjustment is not necessary	1. Pre-set pressure needs to be adjusted according to the above formula. 2. Check if the water volume is lower than the maximum water volume. (with help of the above figure)
> 7 m	1. Pre-set pressure needs to be adjusted according to the above formula. 2. Check if the water volume is lower than the maximum water volume. (with help of the above figure)	The expansion vessel is too small and adjustment is not available.Please install additional expansion vessel at the extenrnal water circuit.

Notes

(a) Installation height difference: the difference between installing location of indoor unit and the highest spot of water system; if the indoor unit is located at the highest point of the installation,the installation height difference is considered 0m.

Example 1: The 10kW unit is installed 5m below the highest spot of water system and the total volume of the water system is 230L.

Referring to the above figure, it is not necessary to adjust the pressure of the expansion vessel.

Example 2: The unit is installed on the highest spot of the water system and the total water volume is 300L.

(b) As the volume of water system is higher than 230L, it is necessary to adjust the pressure of the expansion vessel be lower.

(c) The formula of calculating pressure: Pg=(H/10+0.3)=(6/10+0.3)=0.9 Bar

(d) The maximum volume of the water system is about 300L. As the actual volume of the water system is 300L, the expansion vessel meets the installing requirement.

(e) Adjust the pre-set pressure of the expansion vessel from 1.0Bar to 0.9Bar.

3.5.9 Selection of expansion vessel

Formula:

$$v=\frac{c\cdot e}{1-\frac{1+p_1}{1+p_2}}$$

V--- Volume of expansion vessel

C--- Total water volume

P1--- Pre-set pressure of expansion vessel

P2-- The highest pressure during running of the system (that is the action pressure of safety valve.)

e---The expansion factor of water (the difference between the expansion factor of the original water temperature and that of highest water temperature.)

Water expansion factor in different temperature	
Temperature	Expansion factor e
0	0.00013
4	0
10	0.00027
20	0.00177
30	0.00435
40	0.00782
45	0.0099
50	0.0121
55	0.0145
60	0.0171

Water expansion factor in different temperature	
Temperature	Expansion factor e
65	0.0198
70	0.0227
75	0.0258
80	0.029
85	0.0324
90	0.0359
95	0.0396
100	0.0434

3.6 Connection of Pipeline

3.6.1 Connection of outlet pipe for indoor & outdoor unit

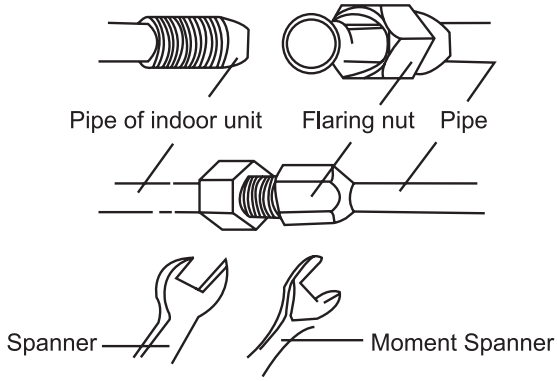
(1) Align the expansion end of copper pipe with the center of threaded joint. Tighten the flaring nuts with your hands.

(2) Tighten the flaring nuts with torque wrench until you hear a “cli ck”.

(3) Bend of fitting pipe shall not be too low; otherwise the fitting pipe might crack. Please use pipe bender when bending the fitting pipe.

(4) When connecting outdoor and indoor unit, never pull the big and small joint of indoor unit with force, so as to prevent the tubes of indoor unit from cracking and causing leakage.

(5) Connecting pipe shall be supported by a rack without transmitting its weight to other units.



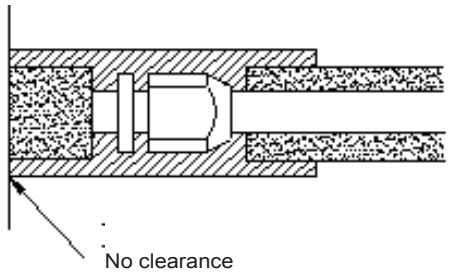
3.6.2 Installation of protective layer on connection pipe

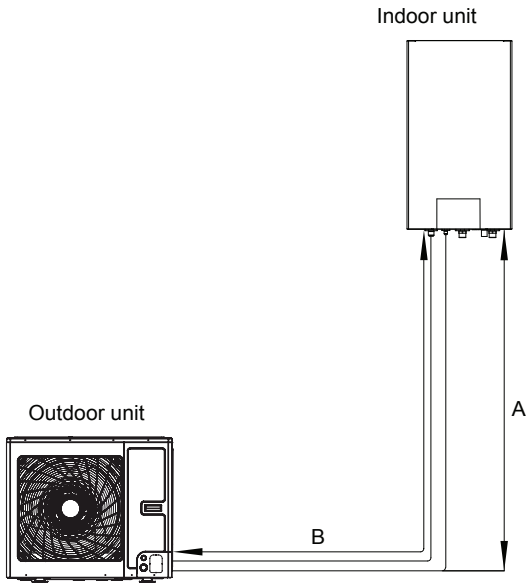
(1) To avoid condensate dew or water leakage on connecting pipe, the air pipe and liquid pipe must be wrapped with heat preservation material and adhesive pipe for insulation from the air.

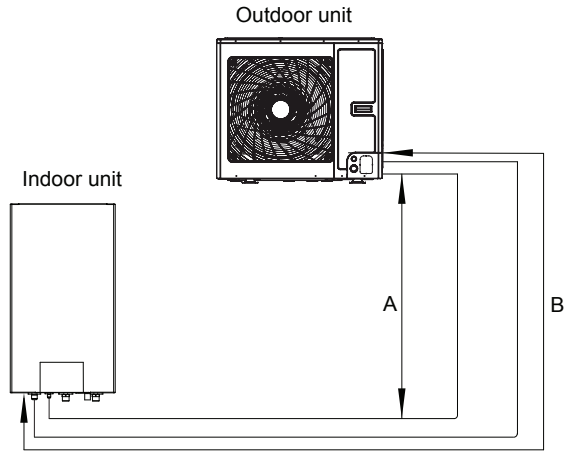
(2) The joints on indoor unit and outdoor unit must be wrapped with heat preservation materials and have no clearance against the wall surface of indoor unit and outdoor unit.

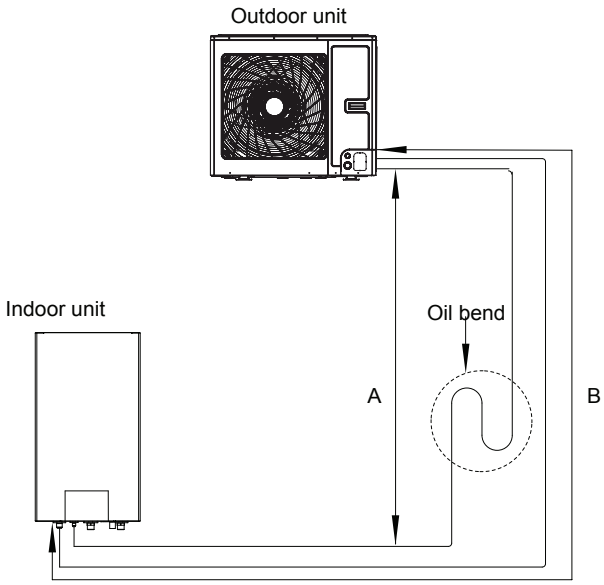
(3) Wrap the pipe with tapes.

- Use the adhesive tape to wrap the connecting pipe and cable into one bundle. To prevent condensate water from overflowing out of the drainpipe, the drainpipe shall be separated from connecting pipe and cable.
- Wrap the heat preservation tape so that each ring of tape shall press half of the previous ring.
- Fix the wrapped pipe onto the wall with pipe clamp.
- Do not wrap the protective tape too tightly, as this will decrease the heat insulation performance.
- After completing the protection work and wrapping the pipe properly, close the wall holes with sealing materials.









Model	Pipe size (Diameter:Φ)		Length B		Elevation A		Additional refrigerant
	gas	Liquid	Standard	Max.	Standard	Max.	
GRS-CQ4.0Pd/NhH-E	1/2"	1/4"	5m	20m	0m	15m	16g/m
GRS-CQ4.0Pd/NhH2-E	1/2"	1/4"	5m	20m	0m	15m	16g/m
GRS-CQ6.0Pd/NhH-E	1/2"	1/4"	5m	20m	0m	15m	16g/m
GRS-CQ6.0Pd/NhH2-E	1/2"	1/4"	5m	20m	0m	15m	16g/m
GRS-CQ8.0Pd/NhH-E	1/2"	1/4"	5m	25m	0m	15m	16g/m
GRS-CQ8.0Pd/NhH2-E	1/2"	1/4"	5m	25m	0m	15m	16g/m
GRS-CQ8.0Pd/NhH5-E	1/2"	1/4"	5m	25m	0m	15m	16g/m

Model	Pipe size (Diameter:Φ)		Length B		Elevation A		Additional refrigerant
	gas	Liquid	Standard	Max.	Standard	Max.	
GRS-CQ10Pd/NhH-E	1/2"	1/4"	5m	25m	0m	15m	16g/m
GRS-CQ10Pd/NhH2-E	1/2"	1/4"	5m	25m	0m	15m	16g/m
GRS-CQ10Pd/NhH5-E	1/2"	1/4"	5m	25m	0m	15m	16g/m
GRS-CQ8.0Pd/NhH-M	1/2"	1/4"	5m	15m	0m	15m	0g/m
GRS-CQ10Pd/NhH-M	1/2"	1/4"	5m	15m	0m	15m	0g/m
GRS-CQ12Pd/NhH-M	5/8"	1/4"	5m	15m	0m	15m	0g/m
GRS-CQ14Pd/NhH-M	5/8"	1/4"	5m	15m	0m	15m	0g/m
GRS-CQ16Pd/NhH-M	5/8"	1/4"	5m	15m	0m	15m	0g/m
GRS-CQ12Pd/NhH-E	5/8"	1/4"	5m	15m	0m	15m	0g/m
GRS-CQ14Pd/NhH-E	5/8"	1/4"	5m	15m	0m	15m	0g/m
GRS-CQ16Pd/NhH-E	5/8"	1/4"	5m	15m	0m	15m	0g/m

Notes

(a) No additional charge of the refrigerant is need when the pipe length is less than 10m, if the pipe length is longer than 10m, additional charge of the refrigerant is needed according to the table.

(b) Example: If 10kW model is installed at a distance of 25m, (25-10)x16=240g refrigerant should be added. Rated capacity is based on standard pipe length and maximum allowable length is based on the product reliability in the operation. Oil trap should be installed every 5-7 meters when the location of outdoor unit is higher than indoor unit.

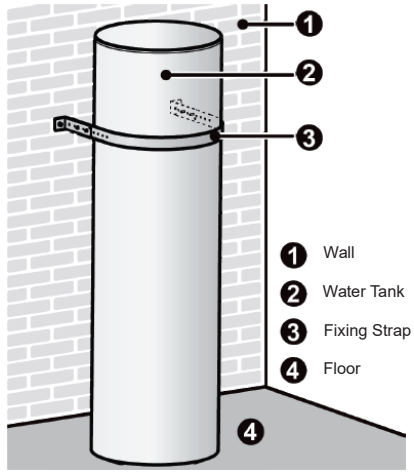
(c) Each 90° elbow is approximately equal to a tube length of 0.5 meters.

3.7 Installation of Water Tank

3.7.1 Installation measure

The insulated water tank should be installed and keep levelly within 5m and vertically within 3m from the indoor unit. It can be installed in the room.

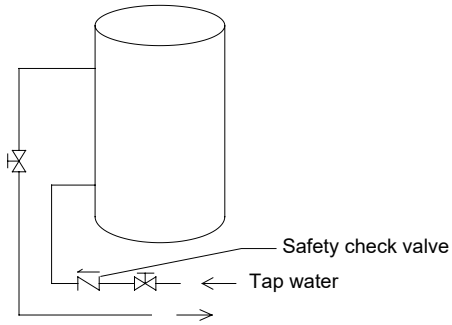
Standing water tank must be installed vertically with the bottom on the ground, never suspended. Installation place must be firm enough and the water tank should be fixed on the wall with bolts to avoid vibration, as shown in the following figure. Weight capacity of water tank during installation should also be considered.



The minimum clearance from the water tank to combustible surface must be 500mm.

There should be water pipe, hot water joint and floor drain near the water tank in favor of water replenishment, hot water supply and drainage of water tank.

Connection of inlet/outlet waterway: Connect the safety check valve attached with the unit (with the arrow on it pointing at the water tank) with the water inlet of water tank with PPR pipe according to the following figure, sealing with unsintered tape. The other end of the safety check valve should connect with tap water joint. Connect the hot water pipe and water outlet of water tank with PPR pipe.

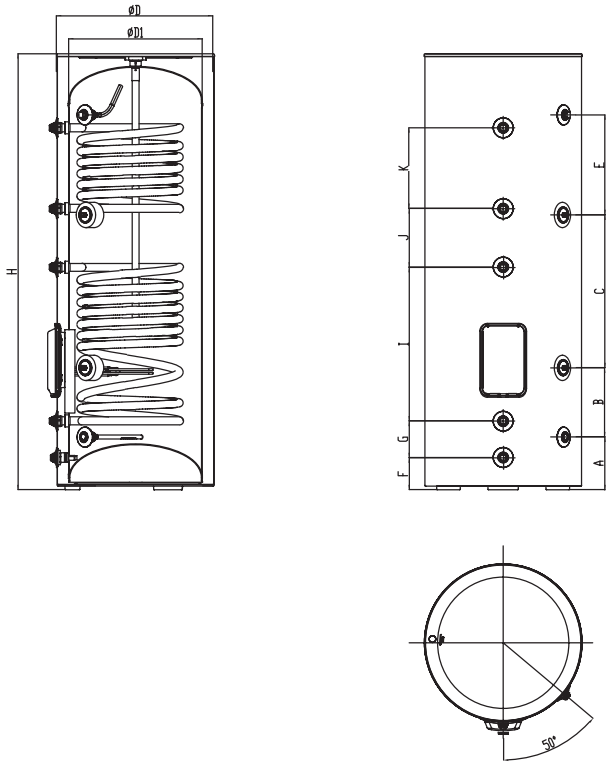


Note: for safe use of water, water outlet/inlet of water tank must connect with a certain length of PPR pipe, L≥70×R2(cm, R is inside radius of the pipe). Moreover, heat preservation should be conducted and metal pipe cannot be used. For the first use, water tank must be full of water before the power is on.

3.7.2 Outline dimension and parameter of water tank

The insulated water tank should be installed and keep levelly within 5m and vertically within 3m from the indoor unit. It can be installed in the room.

(1) GRS-CQ4Pd/NhH-E, GRS-CQ6Pd/NhH-E,GRS-CQ8Pd/NhH-E, GRS-CQ10Pd/NhH-E,GRS-CQ8Pd/NhH5-E, GRS-CQ10Pd/NhH5-E

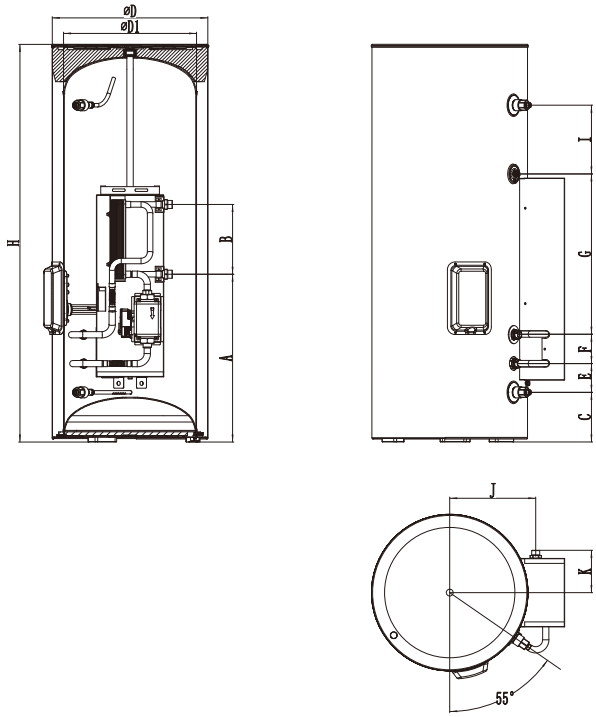


Model		SXTVD300LCJ2/A-K
Litre		300
Coil specification		Enamel
Coil length	M	8.7m
	N	12.4m
D(mm)		620
D1(mm)		530
H(mm)		1725
A(mm)		209
B(mm)		273
C(mm)		605

Model		SXTVD300LCJ2/A-K
E(mm)		396
F(mm)		127
G(mm)		145
I(mm)		608
J(mm)		232
K(mm)		320
Outline (Diameter×H) (mm)		Φ620×1725
Package(WDH)		738×870×1843
Net weight	kg	135
Gross weight	kg	163

Joints Dimension	
Description	Joint pipe thread
Hot water outlet of water tank	3/4″Female BSP
Circulating water inlet/outlet of water tank	3/4″Female BSP
Cooling water inlet of water tank	3/4″Female BSP
Pipe joint	3/4″Female BSP

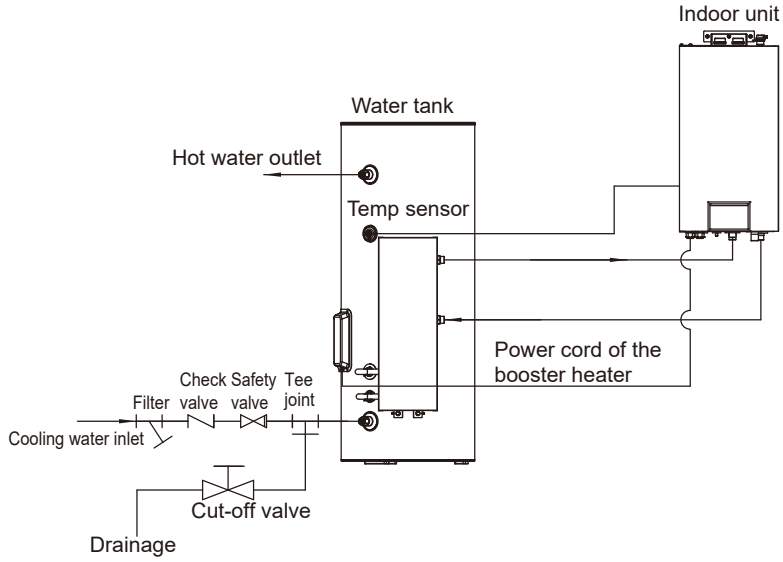
(2) GRS-CQ12Pd/NhH-E, GRS-CQ14Pd/NhH-E, GRS-CQ16Pd/NhH-E□GRS-CQ8.0Pd/NhH-M, GRS-CQ10Pd/NhH-M, GRS-CQ12Pd/NhH-M, GRS-CQ14Pd/NhH-M, GRS-CQ16Pd/NhH-M



Model	SXTVD300LC/B-M
Litre	300L
D(mm)	620
D1(mm)	530
H(mm)	1585
A(mm)	669
B(mm)	278

Model		SXTVD300LC/B-M
C(mm)		198
E(mm)		115
F(mm)		117
G(mm)		639
I(mm)		274
J(mm)		343
K(mm)		169
Outline (Diameter×H) (mm)		Φ620×1585
Package (W×D×H)(mm)		740×940×1705
Net weight	kg	103
Gross weight	kg	131

Joints Dimension	
Description	Joint pipe thread
Hot water outlet of water tank	3/4″Female BSP
Circulating water inlet/outlet of water tank	3/4″Female BSP
Cooling water inlet of water tank	3/4″Female BSP
Pipe joint	3/4″Female BSP



Description	Joint pipe thread
Circulating water inlet/outlet of main unit	1″Male BSP
Cooling water inlet of water tank	3/4″Female BSP
Circulating water inlet/outlet of water tank	3/4″Female BSP
Hot water outlet of water tank	3/4″Female BSP

Code	Name	QTY.	Function
01842800004P01	Retaining Plate Sub-Assy	2	Fix the water tank to the wall
70210087	Bolt M6X16	4	/
70110066	Swell Screw M8X60	2	/

Code	Name	QTY.	Function
0738280101	Relief Valve 1/2	1	/
035033000012	Water Pipe Connector	1	Connect the water pipe and Water inlet pipe sub-assy
06332800003	Nut	1	Install on the 3way connector
75042805	Gasket	2	Sealing function, see below blue circle
030059000120	Water inlet pipe sub-assy	2	/
05332800002	Drainage Pipe(Rubber)	1	The drainage pipe using for the relief valve to drainage the water
70814016	Pipe Hoop φ13	1	Fix the drainage pipe
2690280000502	Extruded strip	1	Fix the water tank and avoid the damage appearance of the water tank
0184280000502P	Fixing strap	1	Fix the water tank to the wall

4.7.3 Connection of waterway system

(1) If connection between water tank and indoor unit should be through the wall, drill a hole φ70 for pass of circulating water pipe. It is unnecessary if the hole is not needed.

(2) Preparation of pipelines: Circulating water outlet/inlet pipe must be hot water pipe, PPR pipe with nominal out diameter of dn25 and S2.5 series (wall thickness of 4.2mm) being recommended. Cooling water inlet pipe and hot water outlet pipe of water tank should also be hot water pipe, PPR pipe with nominal out diameter of dn20 and S2.5 series (wall thickness of 3.4mm) being recommended. If other insulated pipes are adopted, refer to the above dimensions for out diameter and wall thickness.

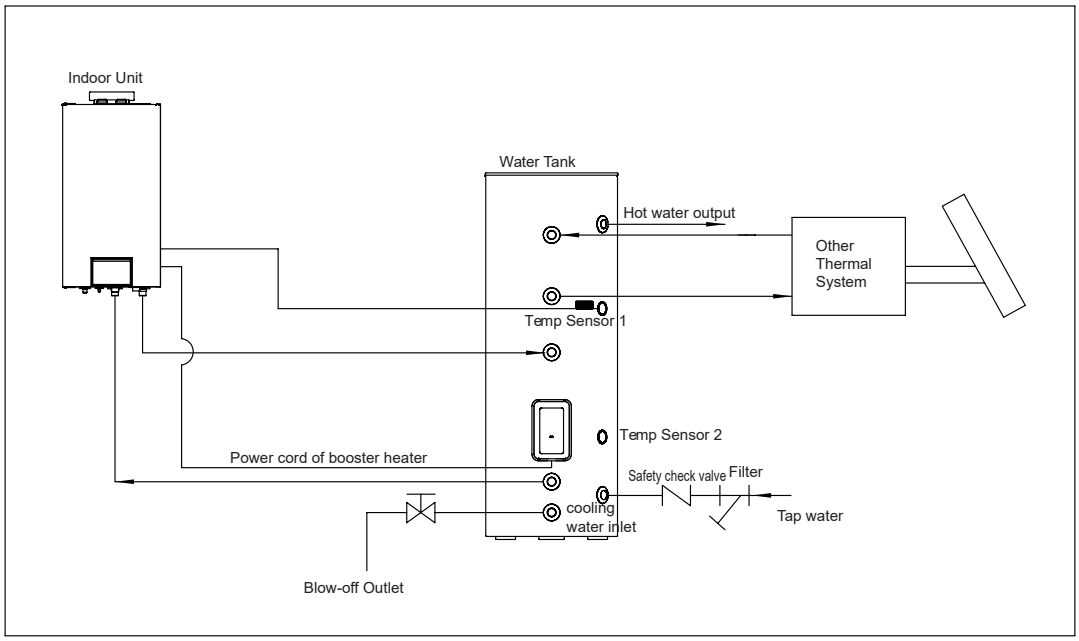
(3) Installation of circulating water inlet/outlet pipes: connect the water inlet of the unit with circulating outlet of water tank and water outlet of unit with circulating inlet of water tank.

(4) Installation of water inlet/outlet pipes of the water tank: safety check valve, filter and cut-off valve must be installed for the water inlet pipe according to the installation sketch of the unit. At least a cut-off valve is needed for the water outlet pipe.

(5) Installation of blow-off pipes at the bottom of water tank: connect a piece of PPR pipe with drainage outlet to floor drain. A cut-off valve must be installed in the middle of the drainage pipe and at the place where it is easy to be operated by the users.

(6) After connection of all waterway pipelines, perform the leakage test firstly. After that, bind up the water pipes, water temp sensor and wires with wrapping tapes attached with the unit.

(7) Refer to Installation Sketch of the Unit for details.



Description	Joint pipe thread
Circulating water inlet/outlet of main unit	1″Male BSP
Cooling water inlet of water tank	3/4″Female BSP
Circulating water inlet/outlet of water tank	3/4″Female BSP
Hot water outlet of water tank	3/4″Female BSP

Notes

(a) Distance between indoor unit and water tank should not exceed 5m levelly and 3m vertically. If higher, please contact with us. Water tank on lower and main unit on higher side is recommended.

(b) Prepare the materials according to the above joints dimension. If cut-off valve is installed outside the room, PPR pipe is recommended to avoid freeze damage.

(c) Waterway pipelines can't be installed until water heater unit is fixed. Do not let dust and other sundries enter into pipeline system during installation of connection pipes.

(d) After connection of all waterway pipelines, perform leakage test firstly. After that, perform heat preservation of waterway system; meanwhile, pay more attention to valves and pipe joints. Ensure enough thickness of insulated cotton. If necessary, install heating device for pipeline to prevent the pipeline from freezing.

(e) Hot water supplied from insulated water tank depends on pressure of water tap, so there must be supply of tap water.

(f) During using, the cut-off valve of cooling water inlet of water tank should be kept normally on.

◆ Packing accessories list

Code	Name	QTY.	Function
01842800004P01	Retaining Plate Sub-Assy	2	Fix the water tank to the wall
70210087	Bolt M6X16	4	/
70110066	Swell Screw M8X60	2	/
0738280101	Relief Valve 1/2	1	/
035033000012	Water Pipe Connector	1	Connect the water pipe and Water inlet pipe sub-assy
06332800003	Nut	1	Install on the 3way connector
75042805	Gasket	2	Sealing function, see below blue circle
030059000120	Water inlet pipe sub-assy	2	/
05332800002	Drainage Pipe(Rubber)	1	The drainage pipe using for the relief valve to drainage the water.
70814016	Pipe Hoop φ13	1	Fix the drainage pipe
2690280000502	Extruded strip	1	Fix the water tank and avoid the damage appearance of the water tank
0184280000502P	Fixing strap	1	Fix the water tank to the wall

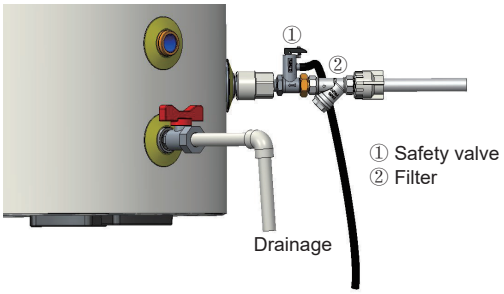
◆ Installation of the Water Tank Safety Valve

Pressure of the water tank will gradually increase during heating and a safety valve is required to discharge some water for pressure relief. If not or installed incorrectly, it would make the water tank to expand, to be deformed, to be damaged or even lead to personal injury. The arrow → of the water tank safety valve shall point toward the water tank. No cut-off valve or check valve is required between the safety valve and the water tank, as the safety valve would fail to work. The safety valve requires the drain hose for installation and should be securely fastened. The drain hose should be led naturally downward into the floor drain without any convex bow, intertwist or fold. Extra length of the drain hose inside the floor drain should be cut away in case of poor drainage or water freeze under low atmospheric temperature.The recommended action pressure for the safety valve is 0.7Mpa, the same as that for the water tank. Do comply with this requirement for section of the safety valve; otherwise the water tank would fail to work normally.

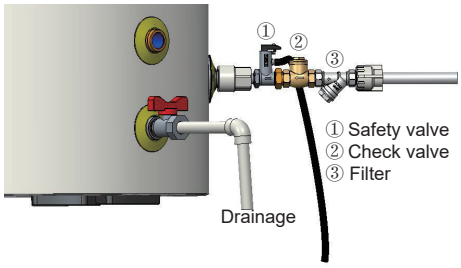
The drain pipe should go downwards and be connected with the floor drain. Its outlet should be lower than the bottom of the water tank. A cutoff valve is required for the drain pipe and should be installed where it is convenient for operation.

(1) GRS-CQ4Pd/NhH-E, GRS-CQ4Pd/NhH2-E, GRS-CQ6Pd/NhH-E, GRS-CQ6Pd/NhH2-E, GRS-CQ8Pd/

NhH-E, GRS-CQ8Pd/NhH2-E,GRS-CQ8Pd/NhH5-E, GRS-CQ10Pd/NhH-E, GRS-CQ10Pd/NhH2-E, GRS-CQ10Pd/NhH5-E

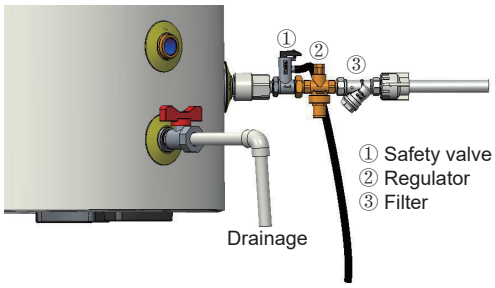


Installation Mode 1 of the Tap Water Safety Valve (Inlet Water Pressure =0.1~0.5MPa)



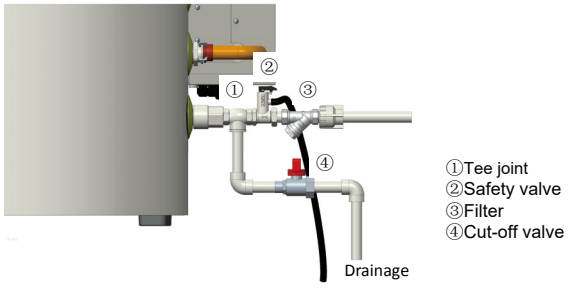
Installation Mode 2 of the Tap Water Valve (Inlet Water Pressure<0.1MPa)

The safety valve is bypass installed in the installation mode 2. A check valve is required at the tap water pipe and installed horizontally with the valve cap vertically upwards and the arrow direction at the valve body the same as the water flow.

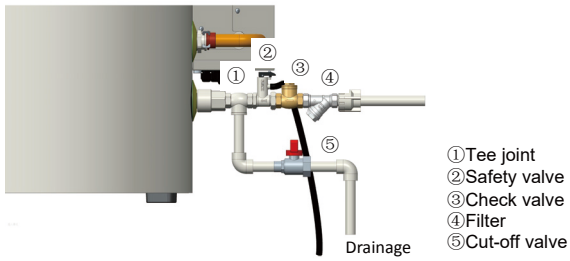


Installation Mode 3 of the Tap Water Safety Valve (Inlet Water Pressure>0.5MPa)

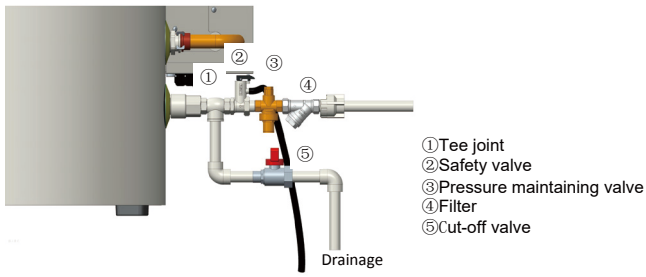
(2) GRS-CQ12Pd/NhH-E, GRS-CQ14Pd/NhH-E, GRS-CQ16Pd/NhH-E, GRS-CQ8.0Pd/NhH-M, GRS-CQ10Pd/NhH-M, GRS-CQ12Pd/NhH-M, GRS-CQ14Pd/NhH-M, GRS-CQ16Pd/NhH-M



Installation Mode 1 of the Tap Water Safety Valve (Inlet Water Pressure =0.1~0.5MPa)



Installation Mode 2 of the Tap Water Valve (Inlet Water Pressure<0.1MPa)



Installation Mode 3 of the Tap Water Safety Valve (Inlet Water Pressure>0.5MPa)

A pressure maintaining valve is required in the installation mode 3 to make sure the water tank pressure keep within 0.3~0.5MPa. The arrow direction of the pressure maintaining valve should be the same as the water flow.

Note: the filter, safety valve, check valve, pressure maintaining valve, cut-off valve and hose for installation are not delivered with the main unit and should be prepared by the client.

3.8 Requirements on water quality

Item	Parametric value	Unit
pH(25°C)	6.8~8.0	/
Cloudy	< 1	NTU
Chloride	< 50	mg/L
Fluoride	< 1	mg/L
Iron	< 0.3	mg/L
Sulphate	< 50	mg/L
SiO_2	< 30	mg/L
Hardness(count $CaCO_3$)	< 70	mg/L
Nitrate(count N)	< 10	mg/L
Conductance(25°C)	< 300	μs/cm
Ammonia (count N)	< 0.5	mg/L
Alkalinity(count $CaCO_3$)	< 50	mg/L
Sulfid	Undetectable	mg/L
Oxygen consumption	< 3	mg/L
Natrium	< 150	mg/L

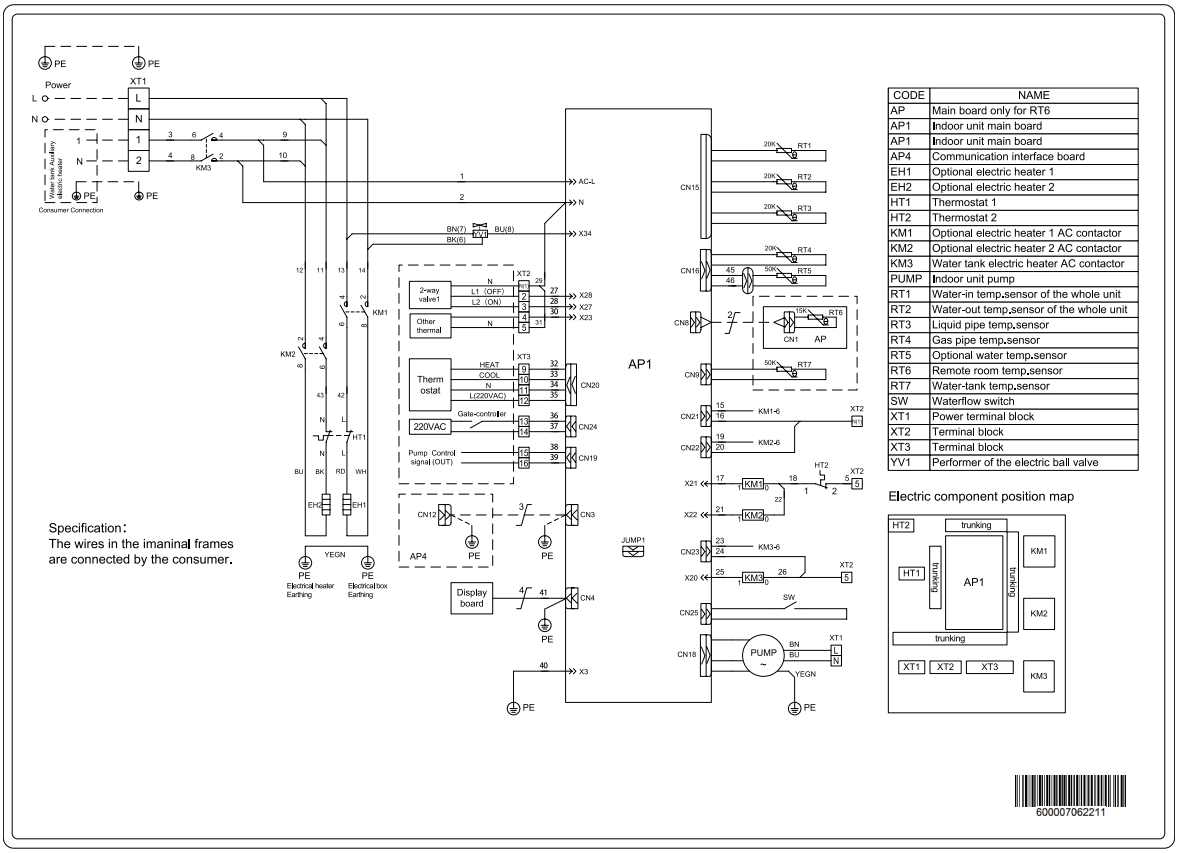
Note: when circulation water fails to meet requirements listed in the table above, please add anti-scale composition to keep the unit always in normal operation.

4 Electric Wiring

4.1 Control Board

All wiring diagrams listed below are just for reference and those stuck to the main unit always prevail.

◆ GRS-CQ4.0Pd/NhH-E(I), GRS-CQ6.0Pd/NhH-E(I), GRS-CQ8.0Pd/NhH-E(I), GRS-CQ8.0Pd/NhH5-E(I), GRS-CQ10Pd/NhH-E(I), GRS-CQ10Pd/NhH5-E(I)

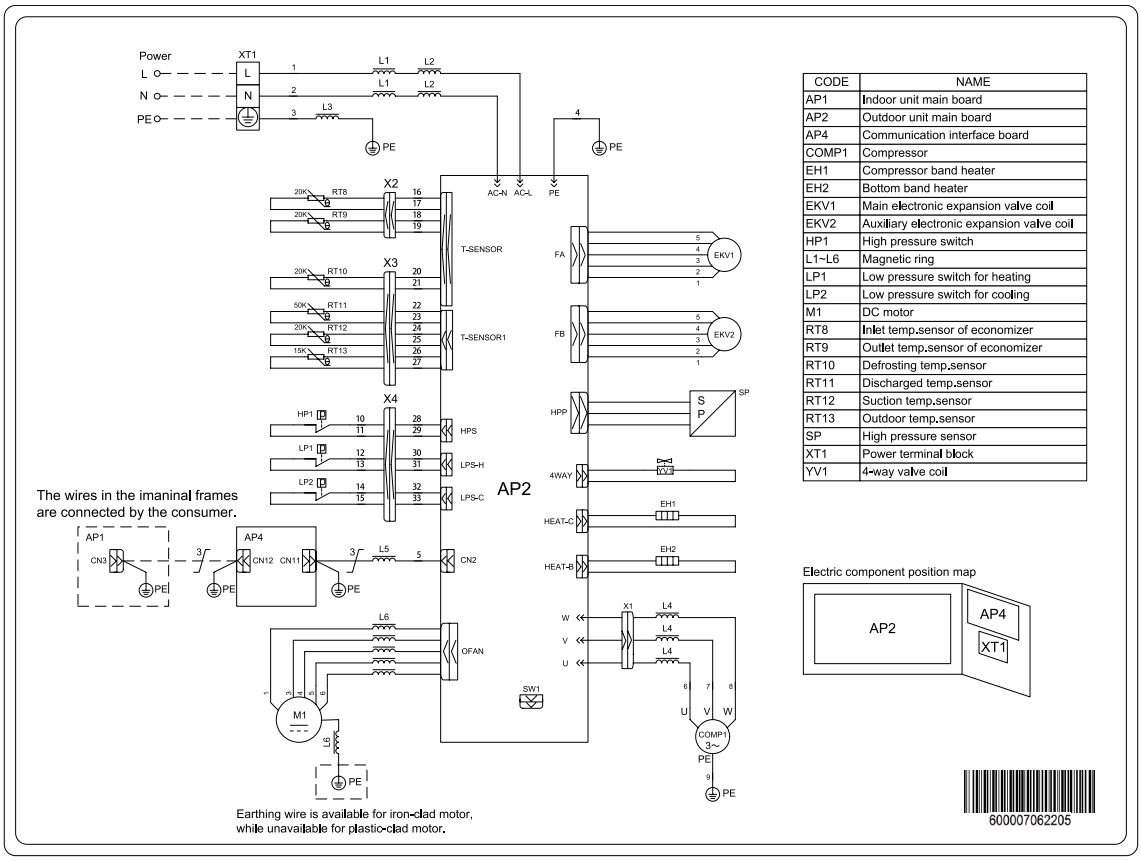


CODE	NAME
AP	Main board only for RT6
AP1	Indoor unit main board
AP1	Indoor unit main board
AP4	Communication interface board
EH1	Optional electric heater 1
EH2	Optional electric heater 2
HT1	Thermostat 1
HT2	Thermostat 2
KM1	Optional electric heater 1 AC contactor
KM2	Optional electric heater 2 AC contactor
KM3	Water tank electric heater AC contactor
PUMP	Indoor unit pump
RT1	Water-in temp.sensor of the whole unit
RT2	Water-out temp.sensor of the whole unit
RT3	Liquid pipe temp.sensor
RT4	Gas pipe temp.sensor
RT5	Optional water temp.sensor
RT6	Remote room temp.sensor
RT7	Water-tank temp.sensor
SW	Waterflow switch
XT1	Power terminal block
XT2	Terminal block
XT3	Terminal block
YV1	Performer of the electric ball valve

Electric component position map

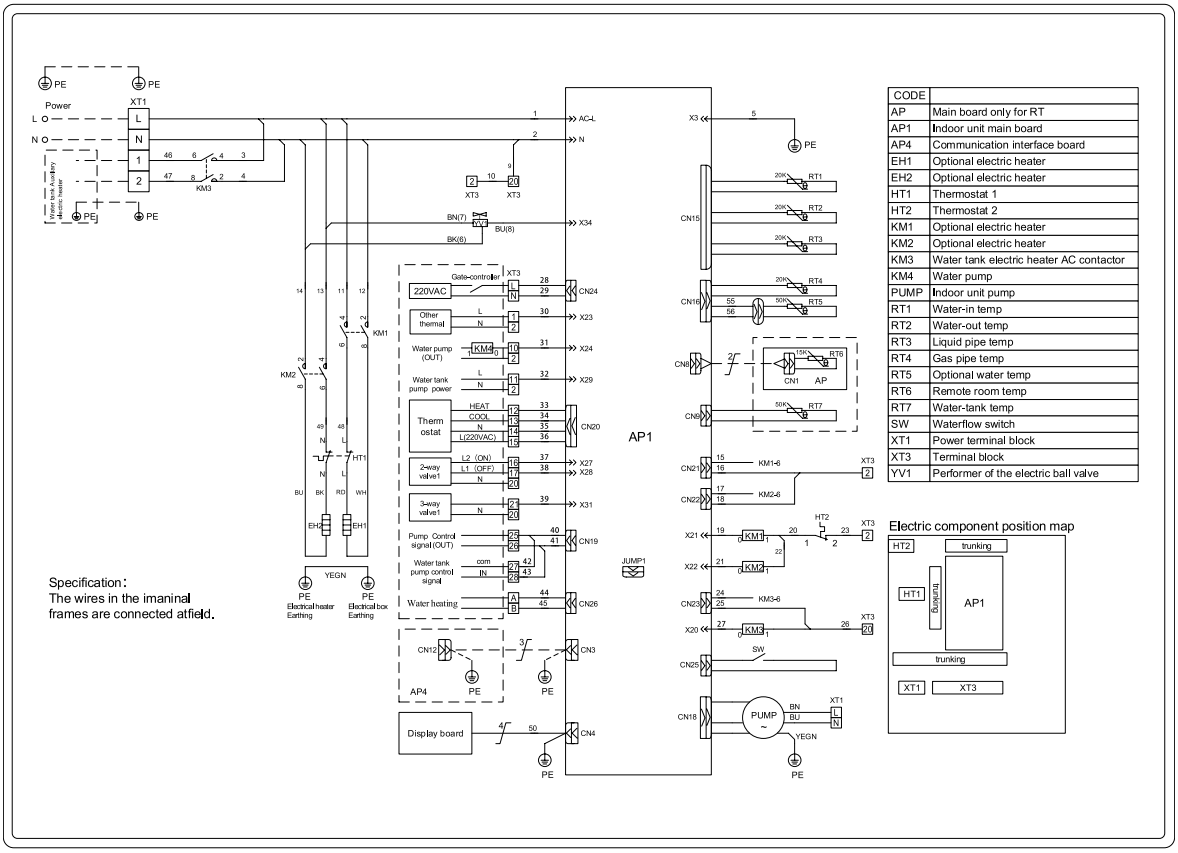
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◆ GRS-CQ4.0Pd/NhH-E(O), GRS-CQ6.0Pd/NhH-E(O)



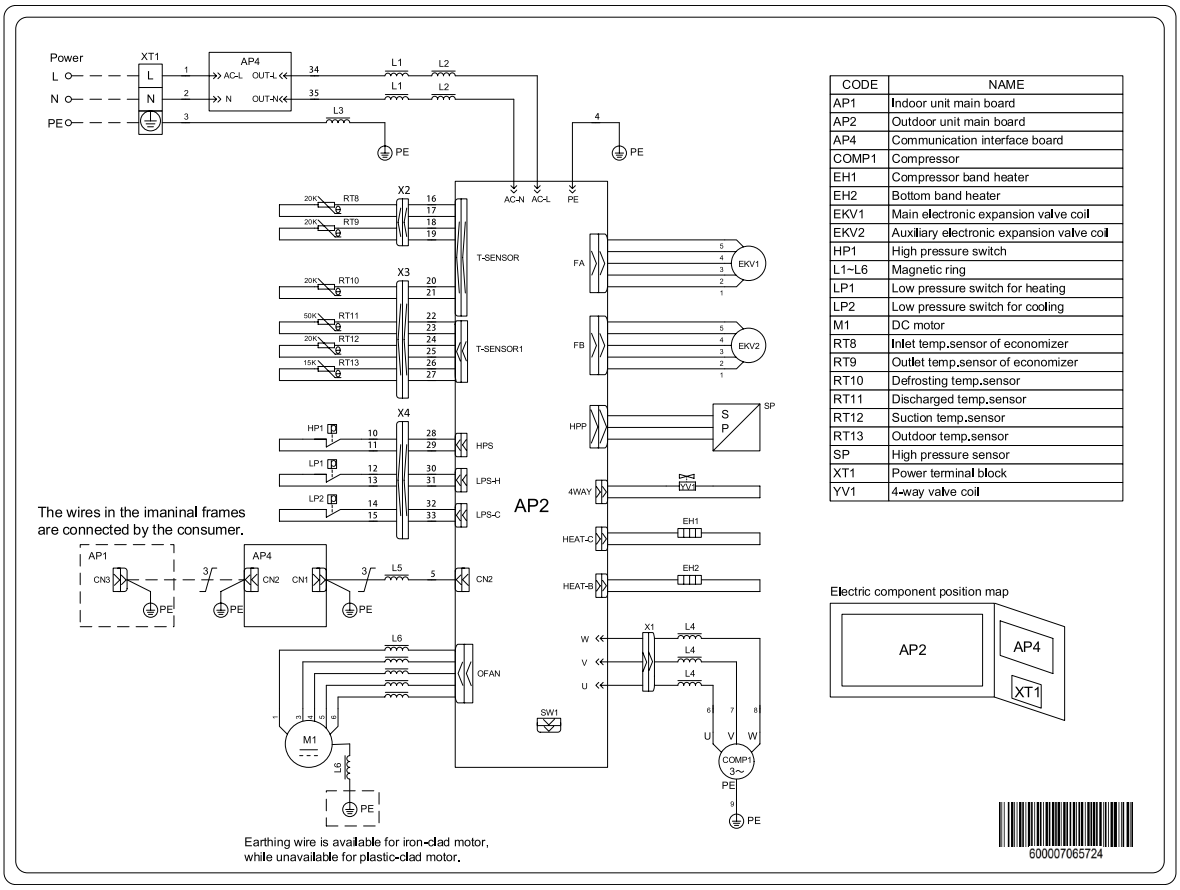
CODE	NAME
AP1	Indoor unit main board
AP2	Outdoor unit main board
AP4	Communication interface board
COMP1	Compressor
EH1	Compressor band heater
EH2	Bottom band heater
EKV1	Main electronic expansion valve coil
EKV2	Auxiliary electronic expansion valve coil
HP1	High pressure switch
L1~L6	Magnetic ring
LP1	Low pressure switch for heating
LP2	Low pressure switch for cooling
M1	DC motor
RT8	Inlet temp.sensor of economizer
RT9	Outlet temp.sensor of economizer
RT10	Defrosting temp.sensor
RT11	Discharged temp.sensor
RT12	Suction temp.sensor
RT13	Outdoor temp.sensor
SP	High pressure sensor
XT1	Power terminal block
YV1	4-way valve coil

◆ GRS-CQ4.0Pd/NhH2-E(I),GRS-CQ6.0Pd/NhH2-E(I),GRS-CQ8.0Pd/NhH2-E(I),GRS-CQ10Pd/NhH2-E(I),GRS-CQ12Pd/NhH-E(I),GRS-CQ14Pd/NhH-E(I),GRS-CQ16Pd/NhH-E(I)



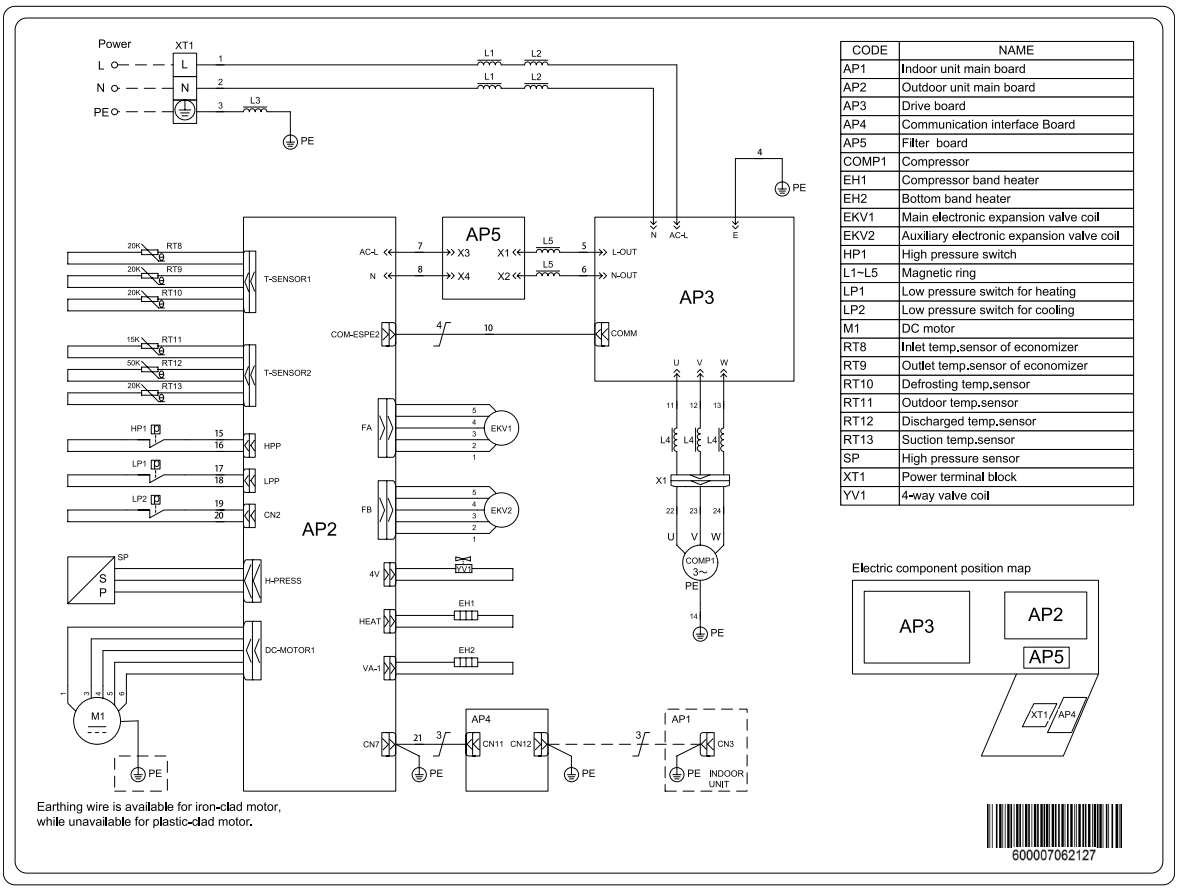
CODE	
AP	Main board only for RT
AP1	Indoor unit main board
AP4	Communication interface board
EH1	Optional electric heater
EH2	Optional electric heater
HT1	Thermostat 1
HT2	Thermostat 2
KM1	Optional electric heater
KM2	Optional electric heater
KM3	Water tank electric heater AC contactor
KM4	Water pump
PUMP	Indoor unit pump
RT1	Water-in temp
RT2	Water-out temp
RT3	Liquid pipe temp
RT4	Gas pipe temp
RT5	Optional water temp
RT6	Remote room temp
RT7	Water-tank temp
SW	Waterflow switch
XT1	Power terminal block
XT3	Terminal block
YV1	Performer of the electric ball valve

◆ GRS-CQ4.0Pd/NhH2-E(O),GRS-CQ6.0Pd/NhH2-E(O)



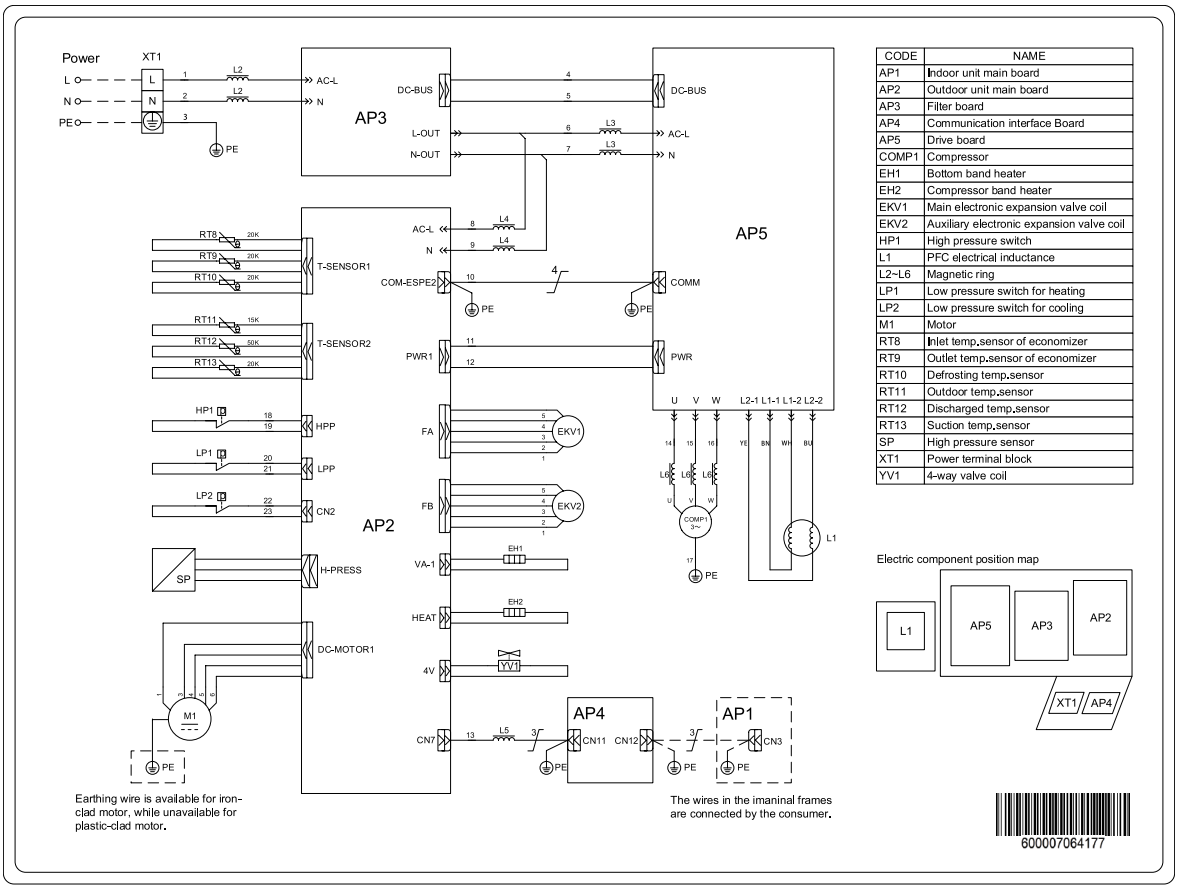
CODE	NAME
AP1	Indoor unit main board
AP2	Outdoor unit main board
AP4	Communication interface board
COMP1	Compressor
EH1	Compressor band heater
EH2	Bottom band heater
EKV1	Main electronic expansion valve coil
EKV2	Auxiliary electronic expansion valve coil
HP1	High pressure switch
L1~L6	Magnetic ring
LP1	Low pressure switch for heating
LP2	Low pressure switch for cooling
M1	DC motor
RT8	Inlet temp.sensor of economizer
RT9	Outlet temp.sensor of economizer
RT10	Defrosting temp.sensor
RT11	Discharged temp.sensor
RT12	Suction temp.sensor
RT13	Outdoor temp.sensor
SP	High pressure sensor
XT1	Power terminal block
YV1	4-way valve coil

◆ GRS-CQ8.0Pd/NhH-E(O),GRS-CQ8.0Pd/NhH2-E(O),GRS-CQ8.0Pd/NhH-E(O),GRS-CQ10Pd/NhH-E(O),GRS-CQ10Pd/NhH-E(O)



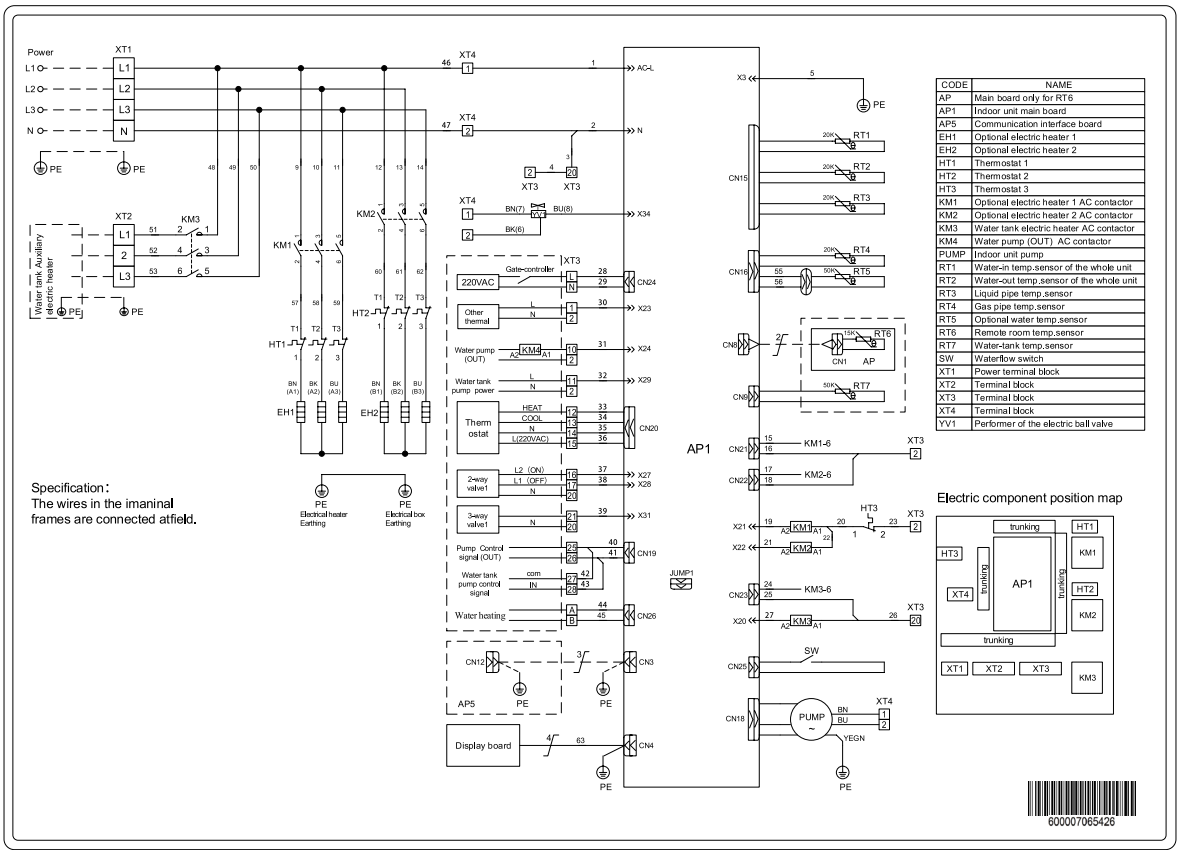
CODE	NAME
AP1	Indoor unit main board
AP2	Outdoor unit main board
AP3	Drive board
AP4	Communication interface Board
AP5	Filter board
COMP1	Compressor
EH1	Compressor band heater
EH2	Bottom band heater
EKV1	Main electronic expansion valve coil
EKV2	Auxiliary electronic expansion valve coil
HP1	High pressure switch
L1~L5	Magnetic ring
LP1	Low pressure switch for heating
LP2	Low pressure switch for cooling
M1	DC motor
RT8	Inlet temp.sensor of economizer
RT9	Outlet temp.sensor of economizer
RT10	Defrosting temp.sensor
RT11	Outdoor temp.sensor
RT12	Discharged temp.sensor
RT13	Suction temp.sensor
SP	High pressure sensor
XT1	Power terminal block
YV1	4-way valve coil

◆ GRS-CQ12Pd/NhH-E(O),GRS-CQ14Pd/NhH-E(O),GRS-CQ16Pd/NhH-E(O)



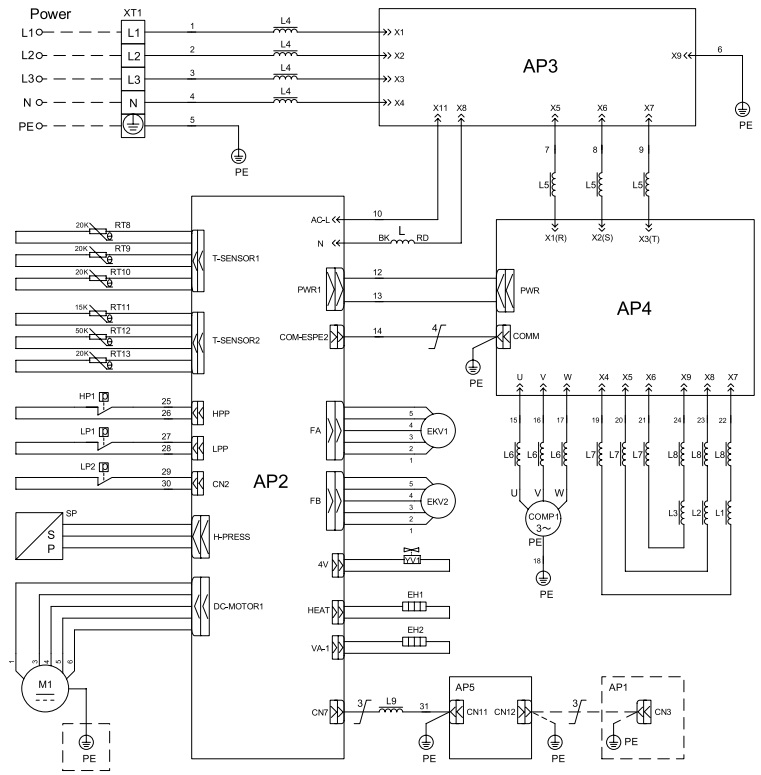
CODE	NAME
AP1	Indoor unit main board
AP2	Outdoor unit main board
AP3	Filter board
AP4	Communication interface Board
AP5	Drive board
COMP1	Compressor
EH1	Bottom band heater
EH2	Compressor band heater
EKV1	Main electronic expansion valve coil
EKV2	Auxiliary electronic expansion valve coil
HP1	High pressure switch
L1	PFC electrical inductance
L2~L6	Magnetic ring
LP1	Low pressure switch for heating
LP2	Low pressure switch for cooling
M1	Motor
RT8	Inlet temp.sensor of economizer
RT9	Outlet temp.sensor of economizer
RT10	Defrosting temp.sensor
RT11	Outdoor temp.sensor
RT12	Discharged temp.sensor
RT13	Suction temp.sensor
SP	High pressure sensor
XT1	Power terminal block
YV1	4-way valve coil

◆ GRS-CQ8.0Pd/NhH-M(I),GRS-CQ10Pd/NhH-M(I),GRS-CQ12Pd/NhH-M(I),GRS-CQ14Pd/NhH-M(I),GRS-CQ16Pd/NhH-M(I)



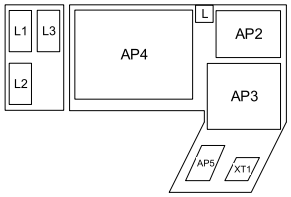
CODE	NAME
AP	Main board only for RT6
AP1	Indoor unit main board
AP5	Communication interface board
EH1	Optional electric heater 1
EH2	Optional electric heater 2
HT1	Thermostat 1
HT2	Thermostat 2
HT3	Thermostat 3
KM1	Optional electric heater 1 AC contactor
KM2	Optional electric heater 2 AC contactor
KM3	Water tank electric heater AC contactor
KM4	Water pump (OUT) AC contactor
PUMP	Indoor unit pump
RT1	Water-in temp.sensor of the whole unit
RT2	Water-out temp.sensor of the whole unit
RT3	Liquid pipe temp.sensor
RT4	Gas pipe temp.sensor
RT5	Optional water temp.sensor
RT6	Remote room temp.sensor
RT7	Water-tank temp.sensor
SW	Waterflow switch
XT1	Power terminal block
XT2	Terminal block
XT3	Terminal block
XT4	Terminal block
YV1	Performer of the electric ball valve

◆ GRS-CQ8.0Pd/NhH-M(O),GRS-CQ10Pd/NhH-M(O)



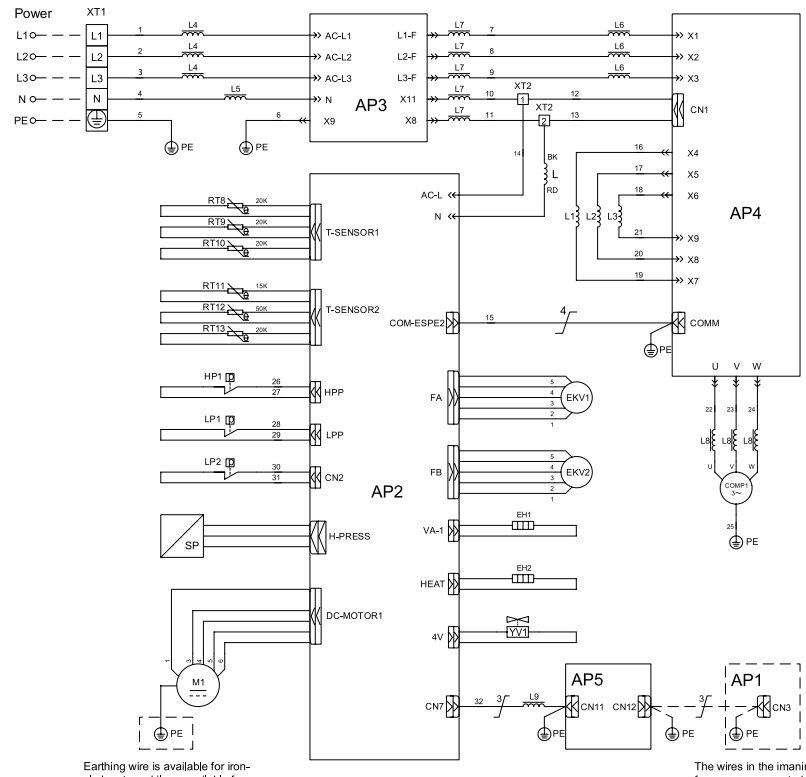
CODE	NAME
AP1	Indoor unit main board
AP2	Outdoor unit Main Board
AP3	Filter board
AP4	Drive board
AP5	Communication interface board
COMP1	Compressor
EH1	Compressor band heater
EH2	Bottom band heater
EKV1	Main electronic expansion valve coil
EKV2	Auxiliary electronic expansion valve coil
HP1	High pressure switch
L	Electrical inductance
L1-L3	Inductor
L4-L9	Magnetic ring
LP1	Low pressure switch for heating
LP2	Low pressure switch for cooling
M1	DC motor
RT8	Inlet temp.sensor of economizer
RT9	Outlet temp.sensor of economizer
RT10	Defrosting temp.sensor
RT11	Outdoor temp.sensor
RT12	Discharged temp.sensor
RT13	Suction temp.sensor
SP	High pressure sensor
XT1	Power terminal block
YV1	4-way valve coil

Electric component position map



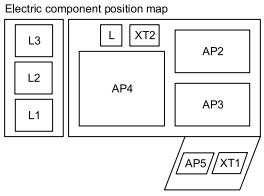
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◆ GRS-CQ12Pd/NhH-M(O),GRS-CQ14Pd/NhH-M(O),GRS-CQ16Pd/NhH-M(O)



CODE	NAME
AP1	Indoor unit main board
AP2	Outdoor unit main board
AP3	Filter board
AP4	Drive board
AP5	Communication interface Board
COMP1	Compressor
EH1	Bottom band heater
EH2	Compressor band heater
EKV1	Main electronic expansion valve coil
EKV2	Auxiliary electronic expansion valve coil
HP1	High pressure switch
L	Electrical inductance
L1~L3	Electric reactor
L4~L9	Magnetic ring
LP1	Low pressure switch for heating
LP2	Low pressure switch for cooling
M1	Motor
RT8	Inlet temp.sensor of economizer
RT9	Outlet temp.sensor of economizer
RT10	Defrosting temp.sensor
RT11	Outdoor temp.sensor
RT12	Discharged temp.sensor
RT13	Suction temp.sensor
SP	High pressure sensor
XT1	Power terminal block
XT2	Terminal block
YV1	4-way valve coil

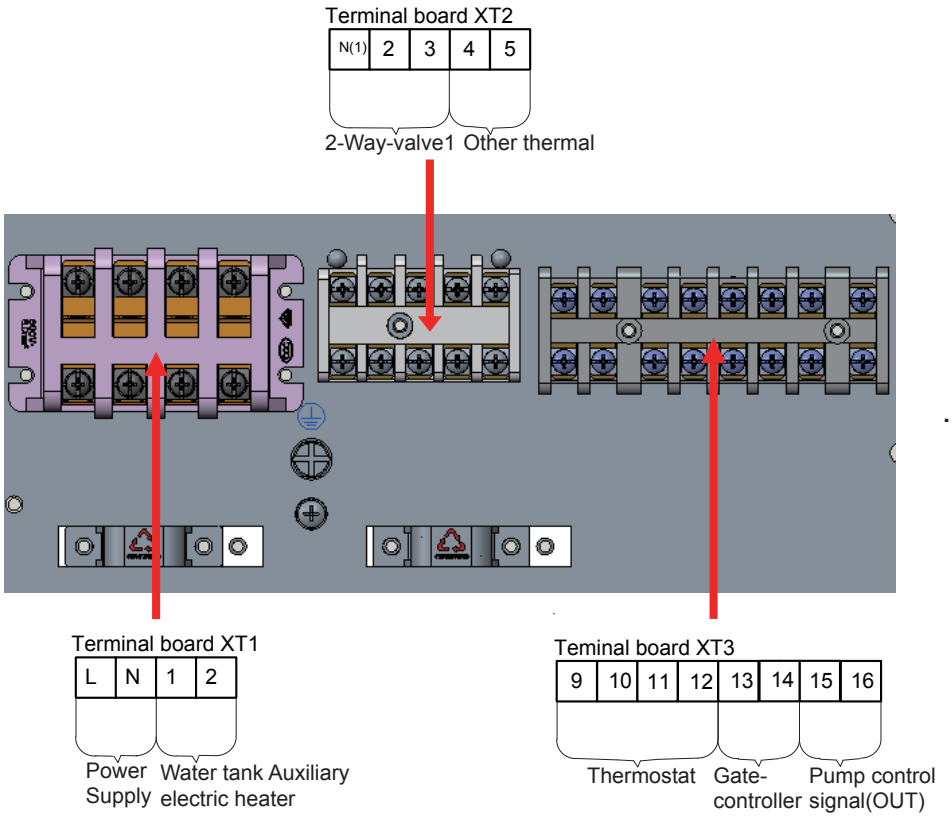
Electric component position map



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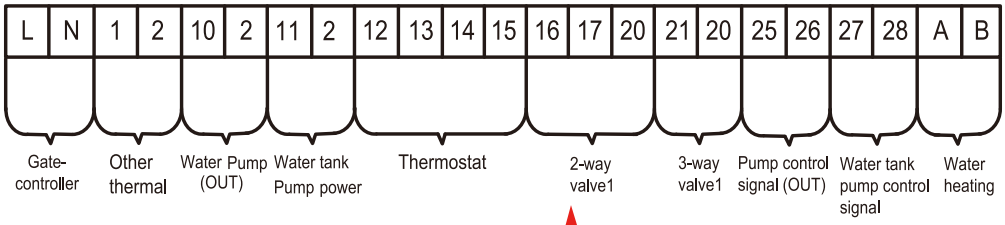
4.2 Terminal Board

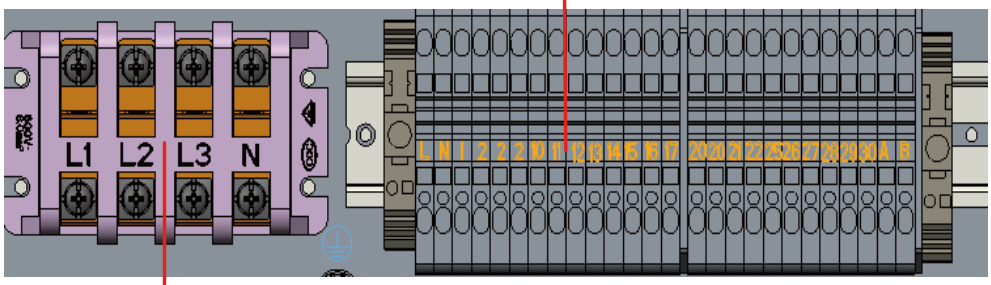
◆ GRS-CQ4.0Pd/NhH-E(I),GRS-CQ4.0Pd/NhH2-E(I),GRS-CQ6.0Pd/NhH-E(I),GRS-CQ6.0Pd/NhH2-E(I),GRS-CQ8.0Pd/NhH-E(I),GRS-CQ8.0Pd/NhH2-E(I),GRS-CQ8.0Pd/NhH5-E(I), GRS-CQ10Pd/NhH-E(I),GRS-CQ10Pd/NhH2-E(I),GRS-CQ10Pd/NhH5-E(I)



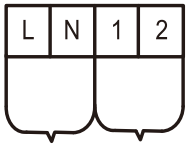
◆ GRS-CQ12Pd/NhH-E(I) , GRS-CQ14Pd/NhH-E(I), GRS-CQ16Pd/NhH-E(I)

Terminal board XT3



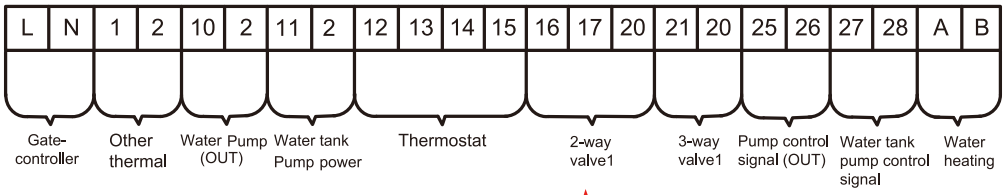


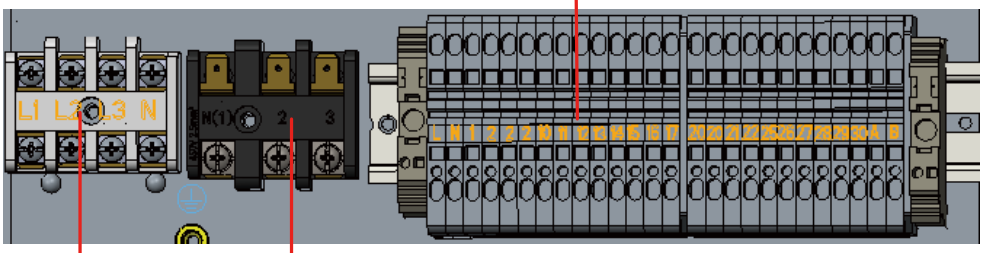
Terminal board XT1



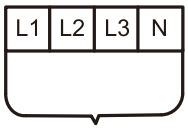
◆ GRS-CQ8.0Pd/NhH-M(I), GRS-CQ10Pd/NhH-M(I), GRS-CQ12Pd/NhH-M(I) , GRS-CQ14Pd/NhH-M(I), GRS-CQ16Pd/NhH-M(I)

Terminal board XT3

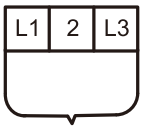




Terminal board XT1



Terminal board XT2



5 Test Operation

5.1 Check for Wiring

⚠ NOTE

• Do not check for the power supply unless proper checkout equipment has prepared and preventive measures have been taken, otherwise it would lead to severe injury.

(1) Are sizes of connection lines and the air switch proper?

(2) Does wiring comply with relative standards and electric codes?

(3) Is there any incorrect wiring?

(4) Does each contact work properly?

(5) Is the power supply and insulation proper?

(6) Are initial set points of control and protective elements satisfied?

5.2 Check for the Water System

(1) Are water inlet and outlet directions correct?

(2) Is the water piping cleaned? Are there foreign matters at the pipe joints? Is the water quality satisfied?

(3) Is insulation of water pipes in good condition?

(4) Does exhaust valve of the water system work properly?

(5) Instructions for Water Makeup and Air Removal

Note: once the air vent cap has not been loosened before operation for removing air at top of the auxiliary electric heater, it would work without enough water.

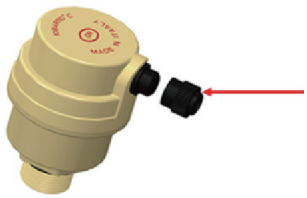
⚠ NOTE

• Once the air vent cap has not been loosened before operation for removing air at top of the auxiliary electric heater, it would work without enough water.

Air removal steps are stated below.

Step 1: connect water pipes and loosen the automatic relief valve.

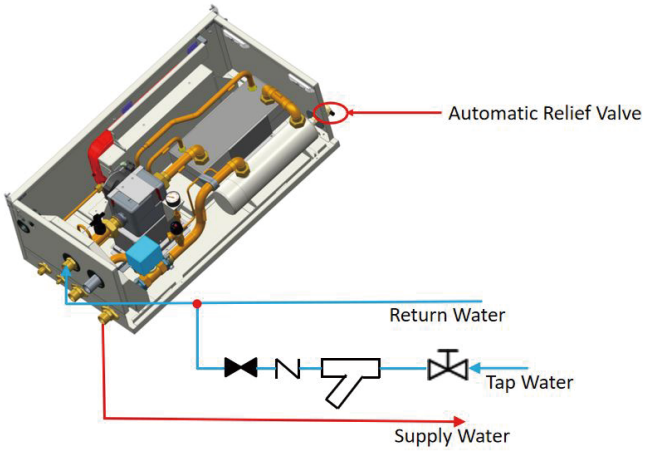
Step 2: open the cut-off valve at the water makeup pipe and make up water from the tap water pipe until the water pressure gage reads 2.0~2.5bar.



◆ Requirements for Water Makeup

Make up water from the tap water pipe to the return water pipe and meanwhile open the air vent cap until the water system is full and no air is trapped.

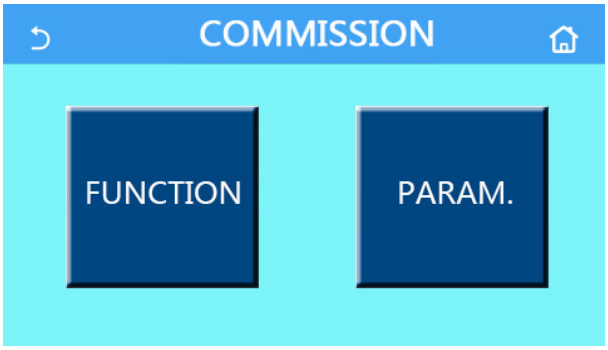
The gage pressure requirement for makeup water is 2.0~2.5bar. Do not let it exceed 3bar, as it would affect adversely pipes and pipe connectors and lead to water leak. Also do not let it too low, as water shortage would trigger protection for the flow switch and then the unit would fail to run normally. When water pressure is lower than 1.0bar, pressurize it to the required pressure.



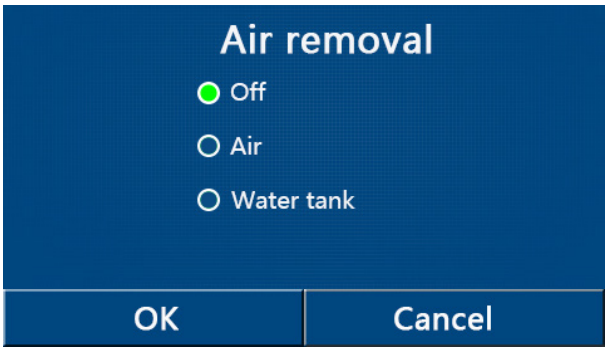
◆ Instructions for Air Removal through the Control Panel

The control panel allows air removal operation for the water system as stated below.

(1) At the menu page, select “COMMISION” and go to the setting as shown below, with option “FUNTION” at left and “PARAM.” at right.



(2) At the “PARAM.” page, select “Air removal” and go to the setting page as shown below, with options “Off”, “Air” and “Water tank” available.



(3) Check pipe connectors and welding spots for water leak during water making-up.

(4) Please note that water pressure of makeup water should be higher than 2bar. Once the tapping water pressure is lower than this requirement, please use the booster pump to pressurize it.

5.3 Check for the Communication System

When the unit is powered on, check for the communication system, including: communication between AP1 and AP2, between the wired controller and the main board. When there is unusual communication, this error will be displayed at the wired controller. Then, check out the cause according to the displayed error. See the figure below for wiring of the communication system.

5.4 Trial Run

Start the unit when there is no any problem for wiring and piping. After startup, check for the electrostatic expansion valve, water pump, fan, and compressor to see if they work normally. When there is any error, solve it according to the troubleshooting flowchart covered in this manual. However, if the troubleshooting flowchart is still unhelpful, please contact GREE sales distributor.

6 Troubleshooting

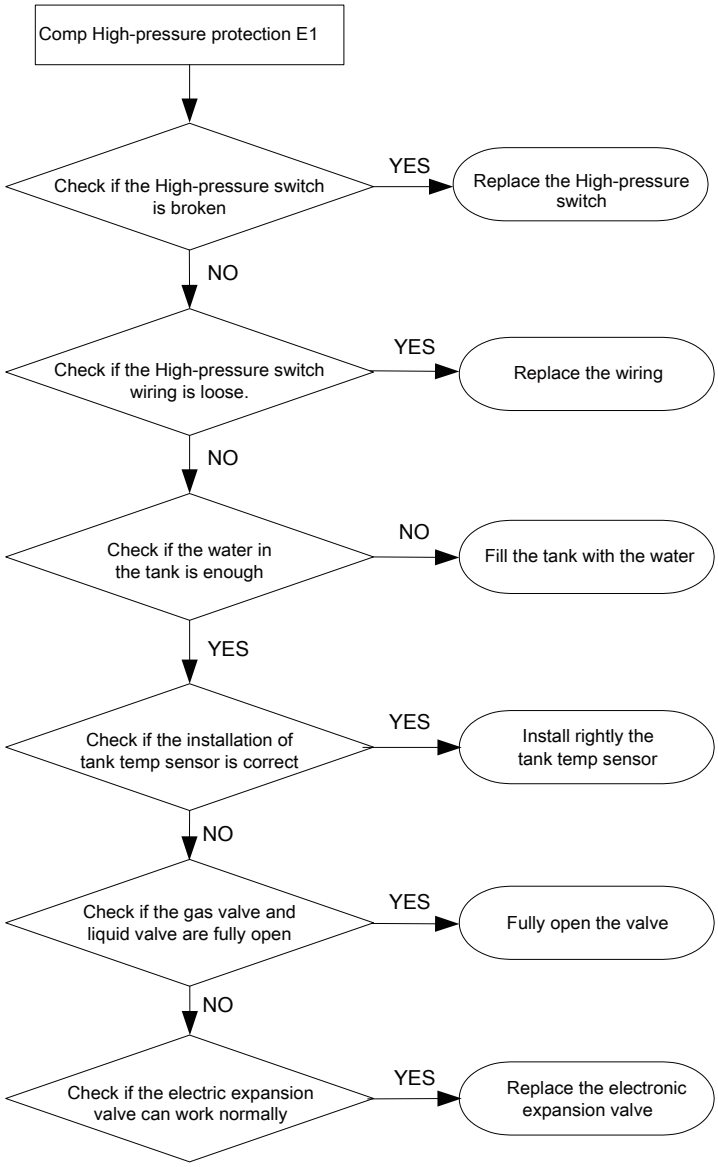
6.1 Error Code List

No.	Full Name	Displayed Name	Error Code
1	Ambient temperature sensor error	Ambient sensor	F4
2	Defrosting temperature sensor error	Defrost sensor	d6
3	Discharge temperature sensor error	Discharge sensor	F7
4	Suction temperature sensor error	Suction sensor	F5
5	Economizer inlet temperature sensor	Econ. in sens.	F2
6	Economizer outlet temperature sensor	Econ. out sens.	F6
7	Fan error	Outdoor fan	EF
8	High pressure protection	High pressure	E1
9	Low pressure protection	Low pressure	E3
10	High discharge protection	Hi-discharge	E4
11	Capacity DIP switch error	Capacity DIP	c5
12	Communication error between the outdoor and indoor main boards	ODU-IDU Com.	E6
13	Communication error between the outdoor main board and the drive board	Drive-main com.	P6
14	Communication error between the display panel and indoor main board	IDU Com.	E6
15	High pressure sensor error	HI-pre. sens.	Fc
16	Leaving water temperature sensor error for the plate type heat exchanger of the heat pump	Temp-HELW	F9
17	Leaving water temperature sensor error for the auxiliary electric heat of the heat pump	Temp-AHLW	dH
18	Entering water temperature sensor error of the plate type heat exchanger of the heat pump	Temp-HEEW	No error code but displayed on control pannel
19	Water tank temperature sensor error ("NA" for mini chillers)	Tank sens.	FE
20	Remote room temperature sensor error	T-Remote Air	F3
21	Protection for the flow switch of the heat pump	HP-Water Switch	Ec
22	Welding protection to the auxiliary electric heater 1 of the heat pump	Auxi. heater 1	EH
23	Welding protection to the auxiliary electric heater 2 of the heat pump	Auxi. heater 2	EH
24	Welding protection to the water tank electric heater	Auxi. -WTH	EH
25	DC bus under-voltage or voltage drop error	DC under-vol.	PL
26	DC bus over-voltage	DC over-vol.	PH
27	AC current protection (input side)	AC curr. pro.	PA
28	IPM defective	IPM defective	H5
29	PFC defective	PFC defective	Hc
30	Start failure	Start failure	Lc
31	Phase loss	Phase loss	Ld
32	Jumper cap error	Jumper cap error	c5

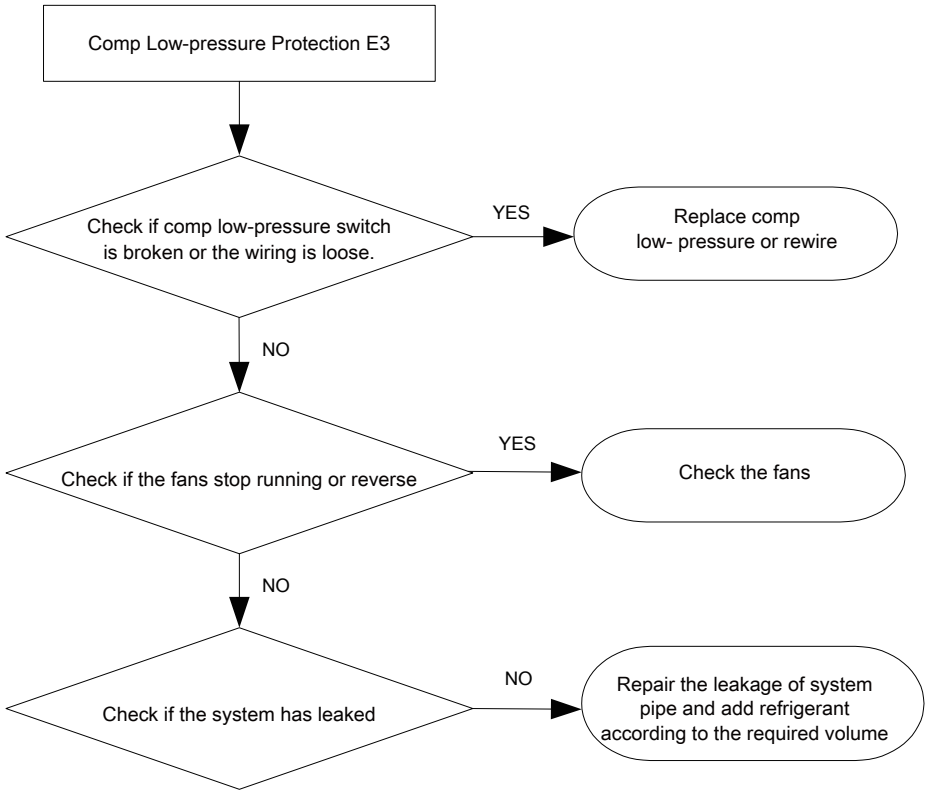
No.	Full Name	Displayed Name	Error Code
33	Driver resetting	Driver reset	P0
34	Compressor overcurrent	Com. over-cur.	P5
35	Overspeed	Overspeed	LF
36	Current sensing circuit error or current sensor error	Current sen.	Pc
37	Desynchronization	Desynchronize	H7
38	Compressor stalling	Comp. stalling	LE
39	Radiator or IPM or PFC over-temperature	Overtemp.-mod.	P8
40	Radiator or IPM or PFC temperature sensor error	T-mod. sensor	P7
41	Charging circuit error	Charge circuit	Pu
42	AC input voltage error	AC voltage	PP
43	Ambient temperature sensor error at the drive board	Temp-driver	PF
44	AC contactor protection or input over-zero error	AC contactor	P9
45	Temperature drift protection	Temp. drift	PE
46	Sensor connection protection (the current sensor fails to be connected with the corresponding phase U and or phase V)	Sensor con.	Pd
47	Communication error between the display panel and the outdoor unit	ODU Com.	E6
48	Refrigerant vapor line temperature sensor error	Temp RGL	F0
49	Refrigerant liquid line temperature sensor error	Temp RLL	F1
50	4-way valve error	4-way valve	U7

6.2 Flow Chart of Troubleshooting

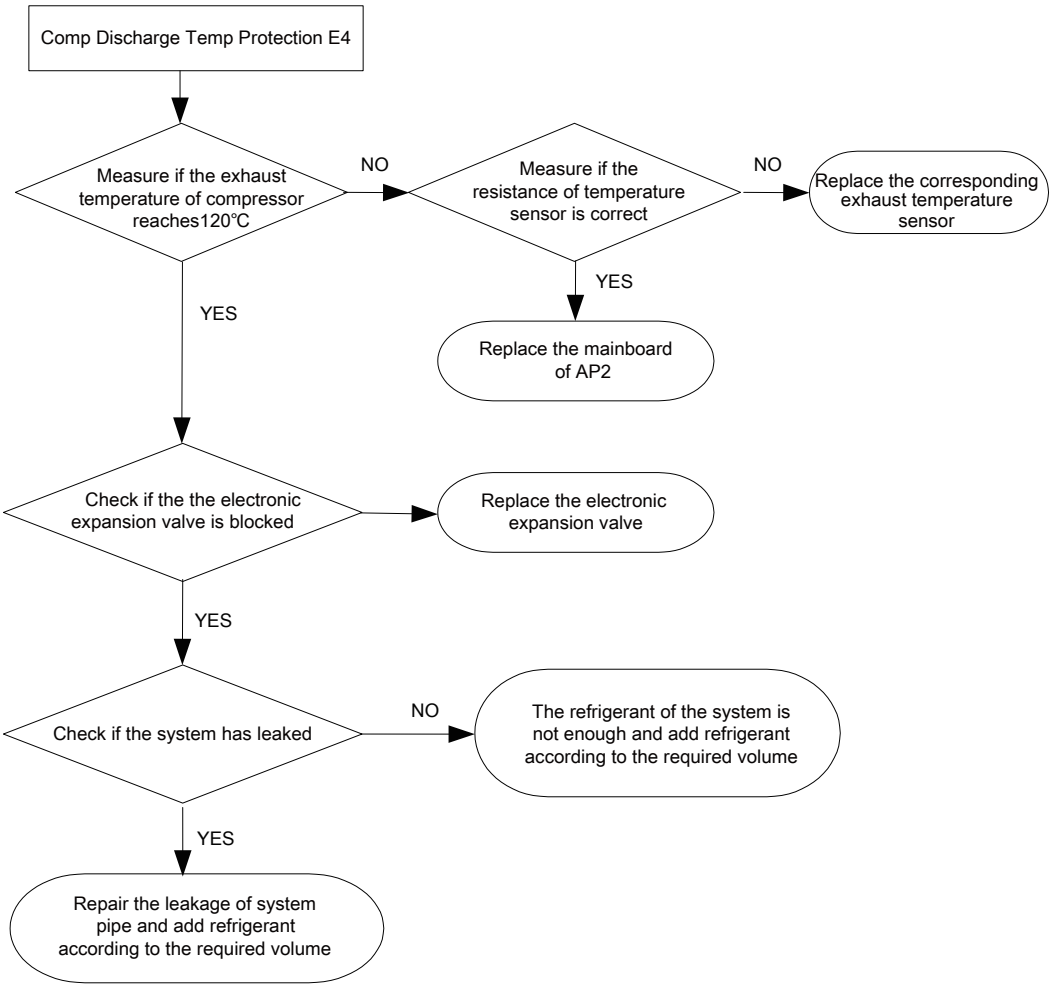
6.2.1 Compressor High-pressure Protection E1



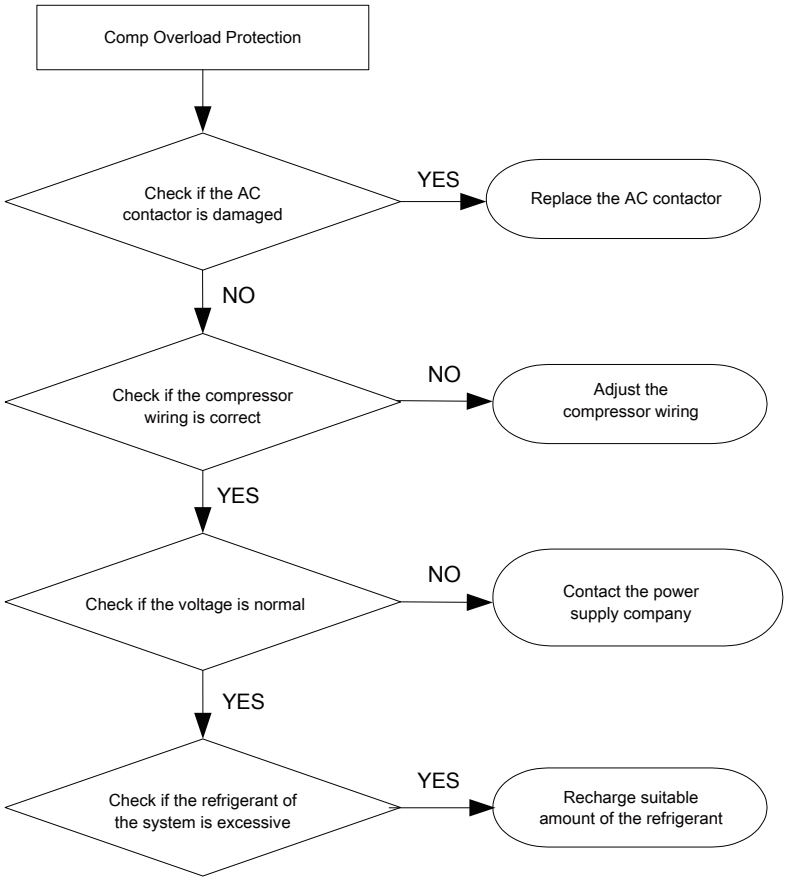
6.2.2 Compressor Low- pressure Protection E3



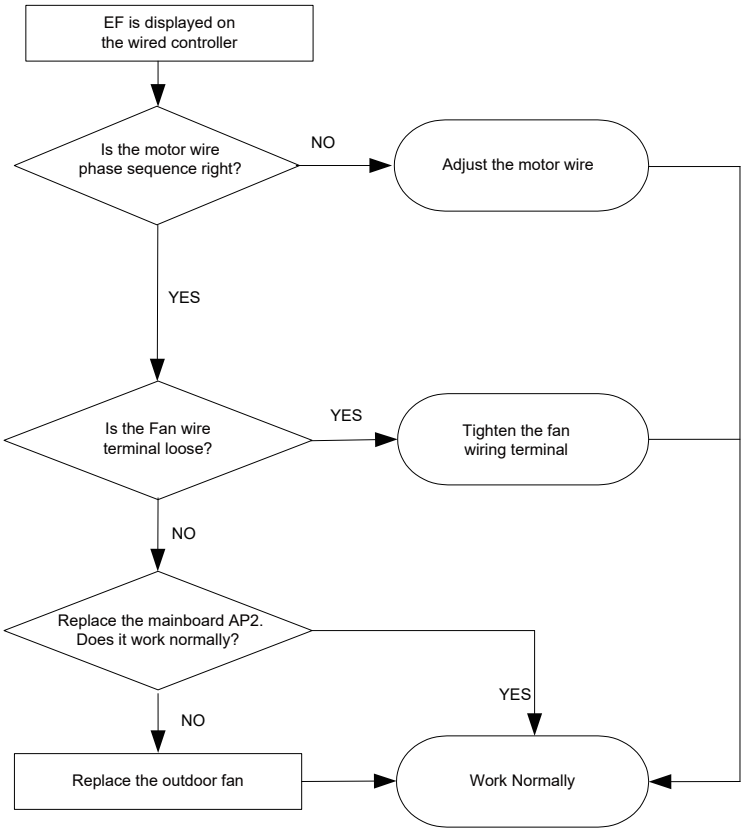
6.2.3 Compressor Discharge Temp Protection E4



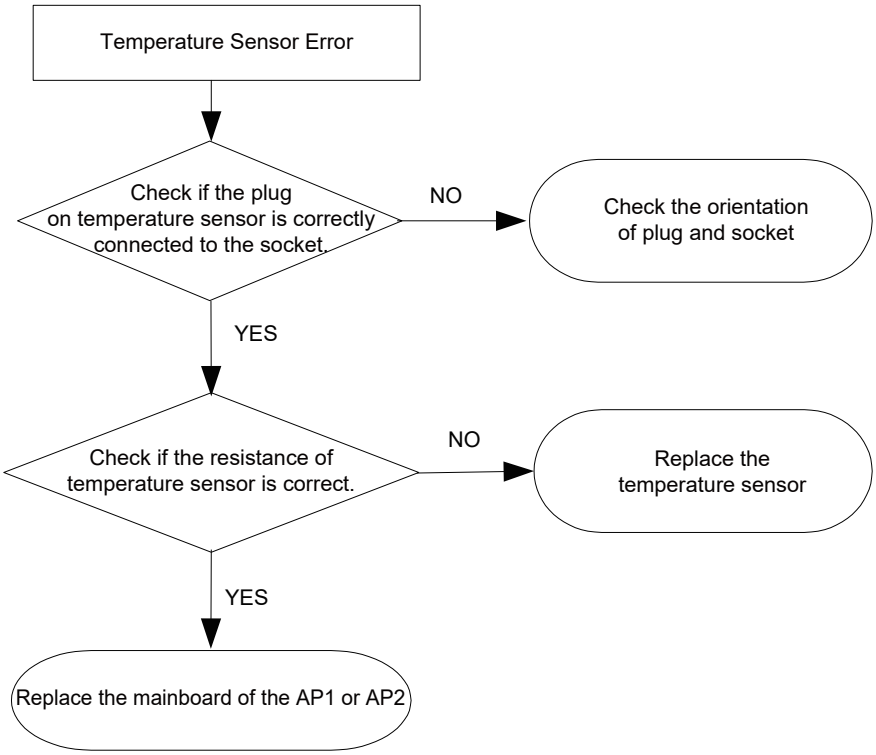
6.2.4 Overload Protection of Compressor or Driver Error



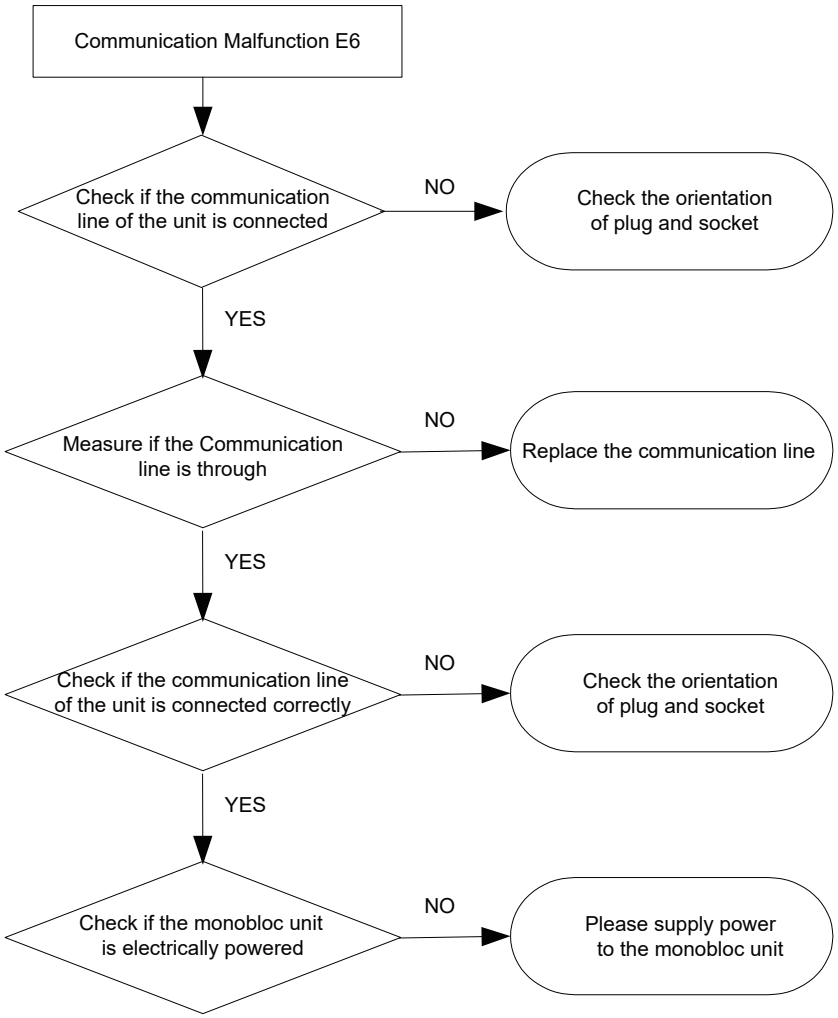
6.2.5 DC Fan Error EF



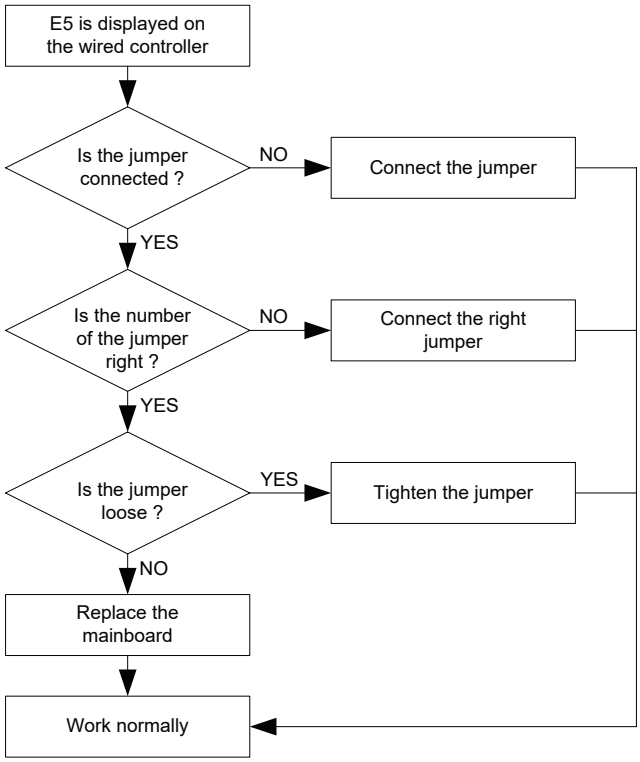
6.2.6 Temperature Sensor Error



6.2.7 Communication Malfunction E6

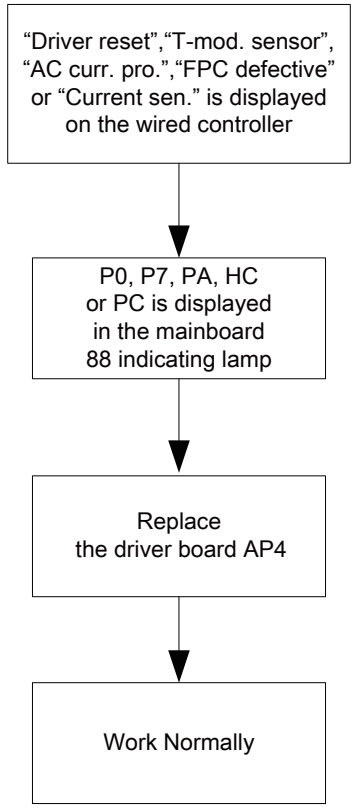


6.2.8 Capacity Switch Error (Code:"C5")

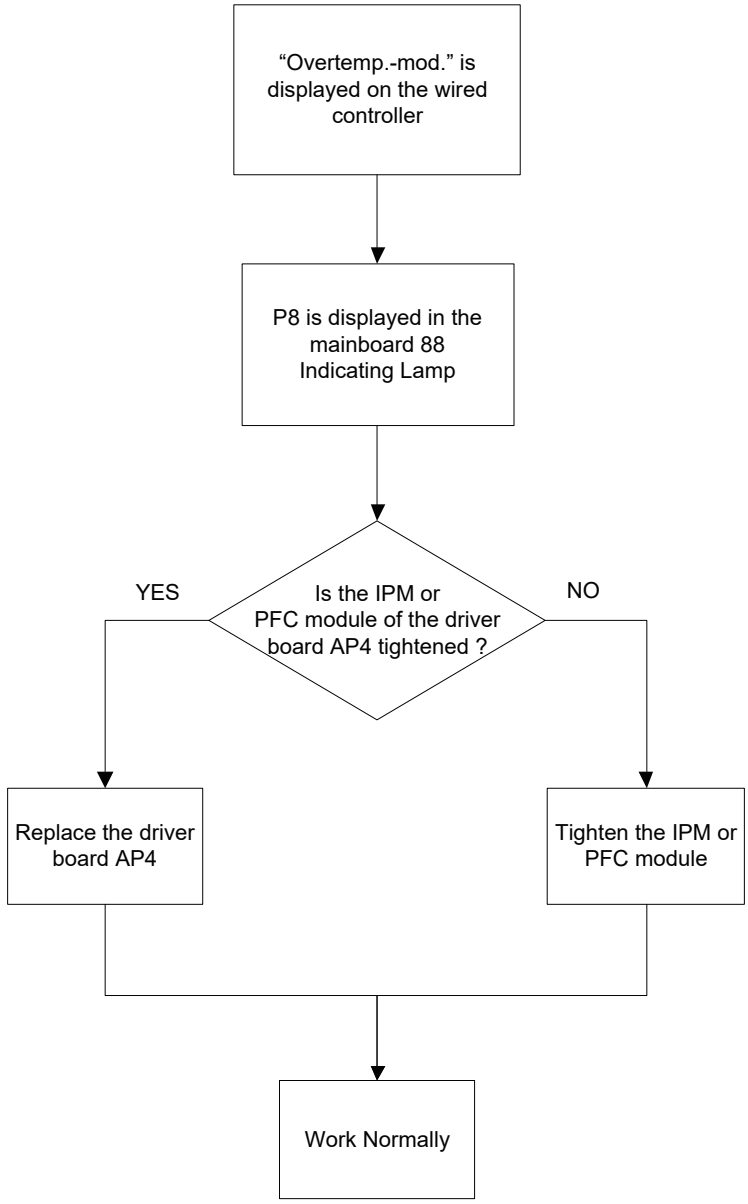


6.3 Diagnosis of Drive

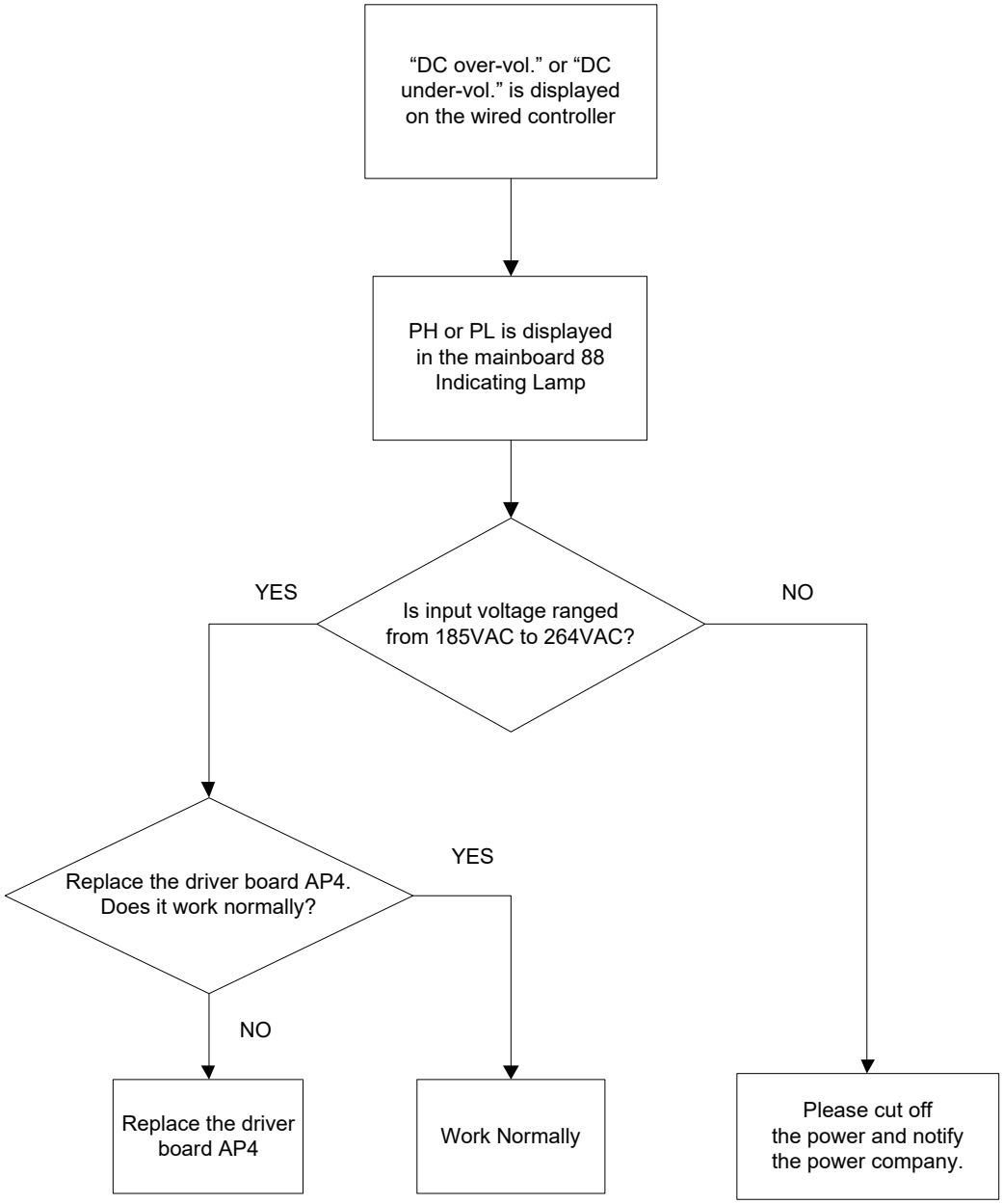
◆ Drive Module Reset(Code:"P0") ; IPM or PFC Temperature Sensor Error(Code:"P7") ; AC Current Protection (Input Side)(Code:"PA"); Current Sense Circuit Error(code:"PC"); PFC Protection(Code:"HC")



◆ IPM or PFC Over-temperature Protection(Code:"P8")

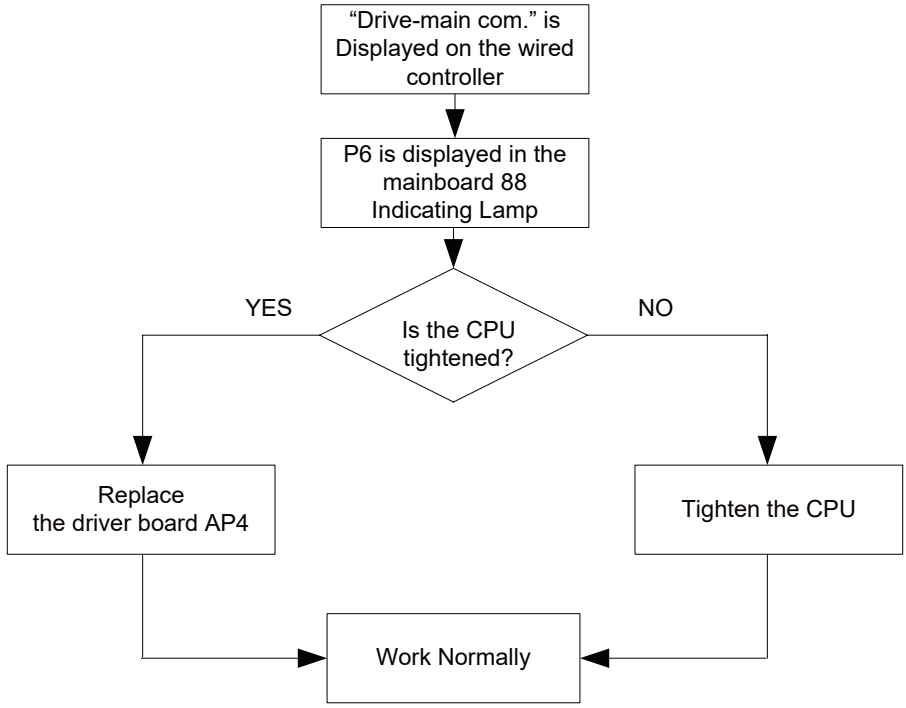


◆ DC Busbar Over-voltage Protection(Code:"PH") ; DC Busbar Under-voltage Protection (Code:"PL")

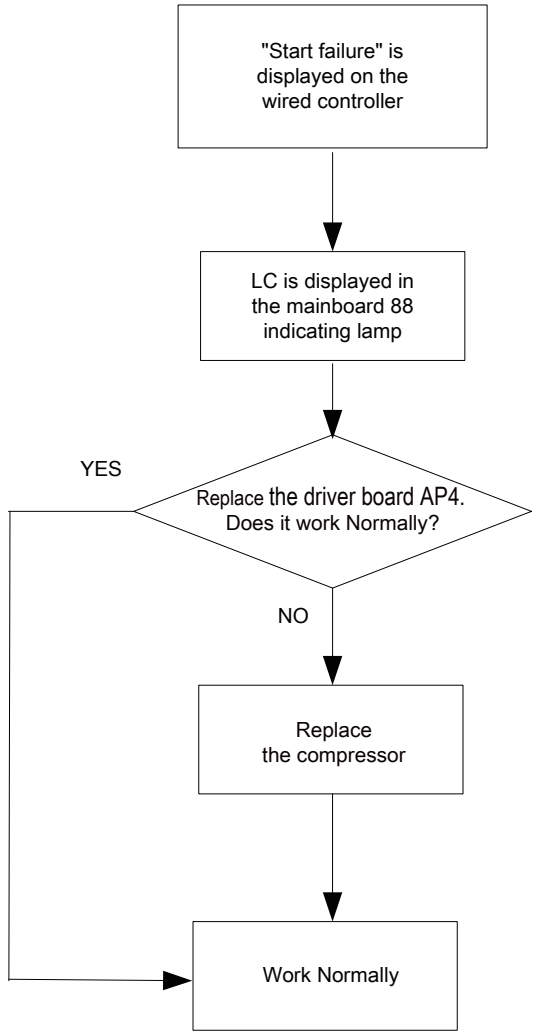


Note: three-phase input voltage is in the range from 320VAC to 475VAC.

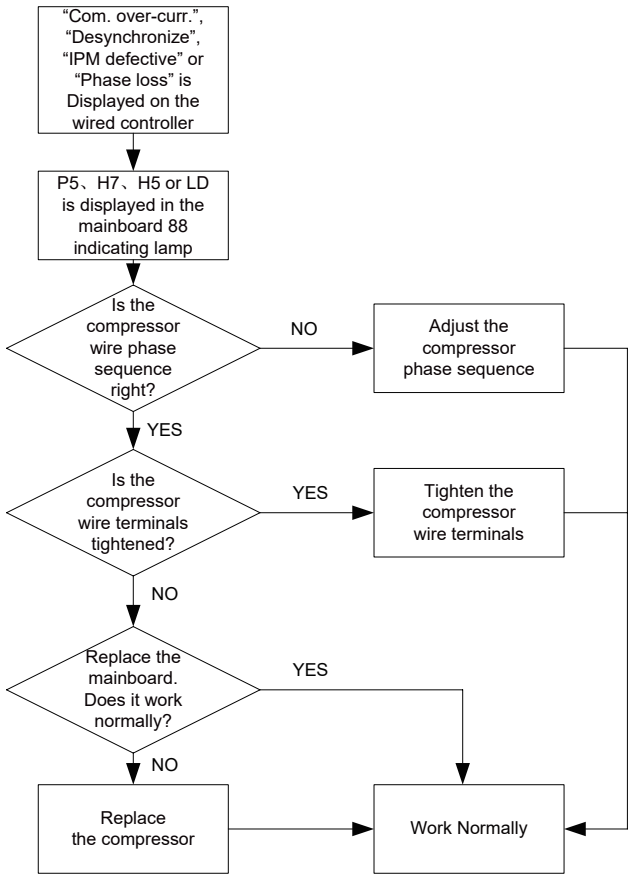
◆ Drive-to-main-control Communication Error(Code:"P6")



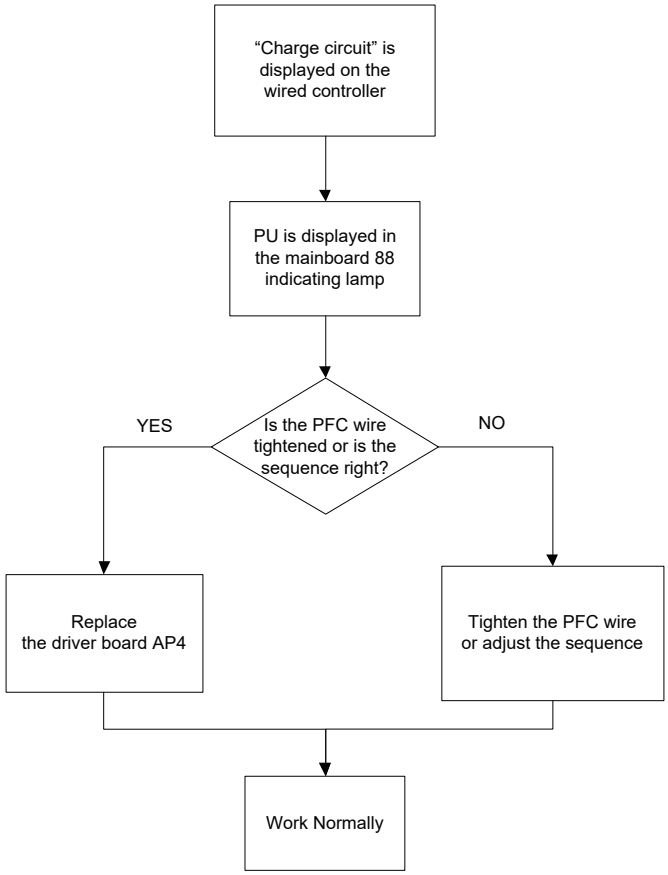
◆ Compressor Startup Failure(code:"LC")



◆ Compressor Current Protection (Code:"P5"); Compressor Motor Desynchronizing (Code:"H7"); IPM Protection (Code:"H5"); Phase Loss (Code:"LD")



◆ Charging Circuit Error(Code:"PU")



6.4 Troubleshooting Measures

Malfunctions	Reasons	Troubleshooting
Compressor does not start up	1.Power supply has problem. 2.Connection wire is loose. 3.Malfunction of mainboard. 4.Malfunction of compressor.	1.Phase sequence is reverse. 2.Check out and re-fix. 3.Find out the reasons and repair. 4.Replace compressor.
Heavy noise of fan	1.Fixing bolt of fan is loose. 2.Fan blade touches shell or grill. 3.Operation of fan is unreliable.	1.Re-fix fixing bolt of fan. 2.Find out the reasons and adjust. 3.Replace fan.
Heavy noise of compressor	1.Liquid slugging happens when liquid refrigerant enters into compressor. 2.Internal parts in compressor are broken.	1.Check if expansion valve is failure and temp. sensor is loose. If that, repair it. 2.Replace compressor.
Water pump does not run or runs abnormally	1.Malfunction of power supply or terminal. 2.Malfunction of relay. 3.There is air in water pipe.	1.Find out the reasons and repair. 2.Replace relay. 3.Evacuate.
Compressor starts or stops frequently	1.Poor or excess refrigerant. 2.Poor circulation of water system. 3.Low load.	1.Discharge or add part of refrigerant. 2.Water system is blocked or there is air in it. Check water pump, valve and pipeline. Clean water filter or evacuate. 3.Adjust the load or add accumulating devices.
The unit does not heat although compressor is running	1.Leakage of refrigerant. 2.Malfunction of compressor.	1.Repair by leakage detection and add refrigerant. 2.Replace compressor.
Poor efficiency of hot water heating	1.Poor heat insulation of water system. 2.Poor heat exchange of evaporator. 3.Poor refrigerant of unit. 4.ockage of heat exchanger at water side.	1.Enhance heat insulation efficiency of the system. 2.Check if air in or out of unit is normal and clean evaporator of the unit. 3.Check if refrigerant of unit leaks. 4.Clean or replace heat exchanger.

7 Daily Maintenance and Repair

7.1 Daily Maintenance

In order to avoid damage of unit, all protecting devices in the unit have been set before packaging and delivering. so the user should never adjust or remove them.

For the first startup of the unit or next startup of unit after long-period stop (above 1 day) by cutting off the power, please electrify the unit in advance to preheat the unit for more than 8hr

Never put sundries on the unit and accessories. Keep dry, clean and ventilated around the unit.

Remove the dust accumulated on the condenser fin timely to ensure performance of unit and to avoid stop of unit for protection.

In order to avoid protection or damage of unit caused by blockage of water system, clean the filter in water system periodically and frequently check water replenishing device.

In order to ensure anti-freezing protection, never cut off the power if ambient temperature is below zero in winter.

In order to avoid frost crack of the unit, water in the unit and pipeline system should be drained regularly. In addition, open the end cap of water tank for drainage.

Never frequently make the unit on/off and close manual valve of water system during operation of unit by users.

Ensure frequently check the working condition of each part to see if there is oil stain at pipeline joint and charge valve to avoid leakage of refrigerant.

If users are not able to handle the malfunction of the unit, please timely contact with authorized service center of company.

⚠ NOTE

The water pressure gage is installed in returning water line in the indoor unit, Please adjust the hydraulics system pressure according to next item:

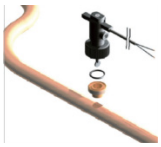
(1) If the pressure is less than 0.5 bar, please recharge the water immediately;

(2) When recharging, the hydraulics system pressure should be not more than 2.5 Bar.

7.2 Repair

7.2.1 Key Components

Picture	Name	Function
	Compressor	It is the heart of the cooling system, mainly used to turn the low-temperature, low-pressure refrigerant vapor to high-temperature high-pressure vapor and then discharge it to the evaporator. The two-stage enthalpy-adding compressor is adopted herein, which can improve the heating performance of the unit largely.
	Electronic Expansion Valve	It is one of four main components and used to turn the hi-pressure liquid refrigerant to low-temperature, low-pressure vapor-liquid mixture and adjust the refrigerant flow rate entering the evaporator.
	Gas-liquid Separator	It is installed at the side of the suction line, and used to prevent liquid refrigerant entering the compressor, otherwise, the wet compression or the liquid slugging may occur.
	4-way Valve	It is used to switch flow direction of refrigrant and then realize switchover between cooling and heating. It also can be used for defrosting through the counterflow.
	Plate Heat Exchanger	It is the water-refrigerant plate type heat exchanger, used to liquefy the high-temperature high-pressure vapor refrigerant or evaporate the low-temperature low pressure liquid refrigerant. Heat of condensation is taken away by circulation water and heat for evaporation is supplied also by circulation water.
	Water Pump	It is the power equipment for water circulation.
	Expansion Vessel	It is used to keep stable pressure of the water system. The tank is charged with a certain volume of nitrogen which is separated from the water side with a gasbag. When pressure of the water side exceeds the nitrogen pressure, the gasbag will expand and water enters into the tank so as to lower the pressure of the water system. In contract, when pressure of the water system goes down, nitrogen in the tank will expel water out to the water system.

Picture	Name	Function
	Flow Switch	It is used to prevent the heat exchanger from being frozen owing to reduced water flow rate. When the flow rate goes down to the point at which the flow switch will act, the switch will trip off and the unit will raise an alarm and shut down.
	Economizer	It is used in heating mode and water heating mode but NOT used in cooling mode.On one side,it can increase the subcooling before EXV,and on the other side it can improve efficiency in heating circuit.
	Safety Valve	It is used to prevent the pressure of circulation water from increasing unusually. When the pressure is larger than the set point (0.3MPa), this valve will open to relieve water pressure.
	Exhaust Valve	It is used to expel air trapped inside the water system to make sure normal operation of the system. It is usually installed at the highest point of the system.

7.2.2 Charging and Discharging of Refrigerant

The unit has been charged with refrigerant before delivery. Overcharging or undercharging will cause the compressor to run improperly or be damaged. When refrigerant is required to be charged or discharged for installation, maintenance and other reasons, please follow steps below and nominal charged volume on the nameplate.

Discharging: remove metal sheets of the outer casing, connect a hose to the check valve on outdoor unit and then discharge refrigerant:

⚠ NOTE

- Discharge is allowed unless the unit has been stopped. (Cut off the power and repower it 1 minutes later)
- Protective measures should be taken during discharging to avoid frost bites.
- When discharging is finished, if vacuuming cannot be done immediately, remove the hose to avoid air or foreign matters entering the unit.
- Vacuuming: when discharging is finished, use hoses to connect the charging valve, manometer and vacuum pump to vacuum the unit.
- When vacuuming is finished, pressure inside the unit should be kept lower than 80Pa for at least 30 minutes to make sure there is no leak. Either charging valve 1 or charging valve 2 can be used for vacuuming.
- When vacuuming is finished and it is certain that there is no leak, charging can be done.

◆ Leak Detection Methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.

Electronic leak detector shall be used to detect flammable refrigerant, but the sensitivity may not be adequate, or may need re-calibration (Detection equipment shall be calibrated in a refrigerant-free area).

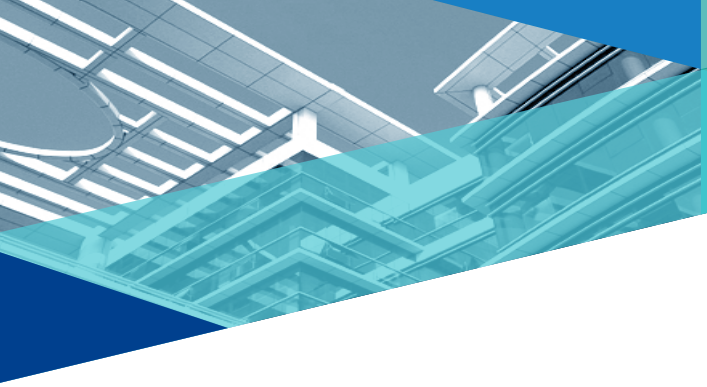
Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.

Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are suitable for us with most refrigerant but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed / extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

Note: before and during operation, use an appropriate refrigerant leak detector to monitor the operation area and make sure the technicians can be well aware of any potential or actual leakage of inflammable gas. Make sure the leak detecting device is applicable to inflammable refrigerant. For example, it should be free of sparks, completely sealed and safe in nature.



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