

DC Inverter Air Source Heat Pumps (Monoblock Type)

1. Working source temperature range: -25°C to 45°C
2. Control Object: water tank temperature
(Setting range: Heating: 30°C ~ 75°C; Cooling: 32°C ~ 12°C)
3. Control Way: wire controller
4. Water Pump: start/stop according to water tank temp
5. Working Modes: hot water/heating/cooling/hot water+cooling/hot water+heating

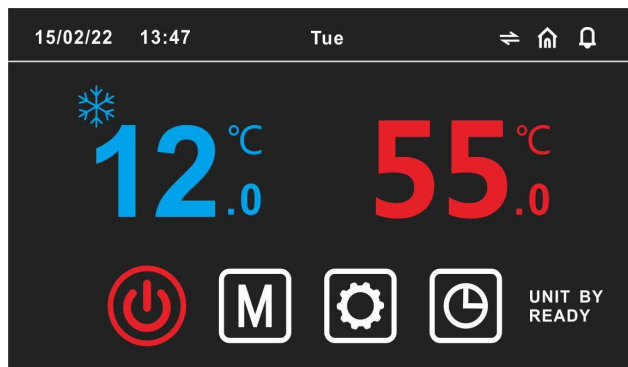
CGK030V4P, CGK-030V4P
CGK040V4P, CGK-040V4P



CGK050V4P, CGK-050V4P
CGK060V4P, CGK-060V4P



SPRSUN



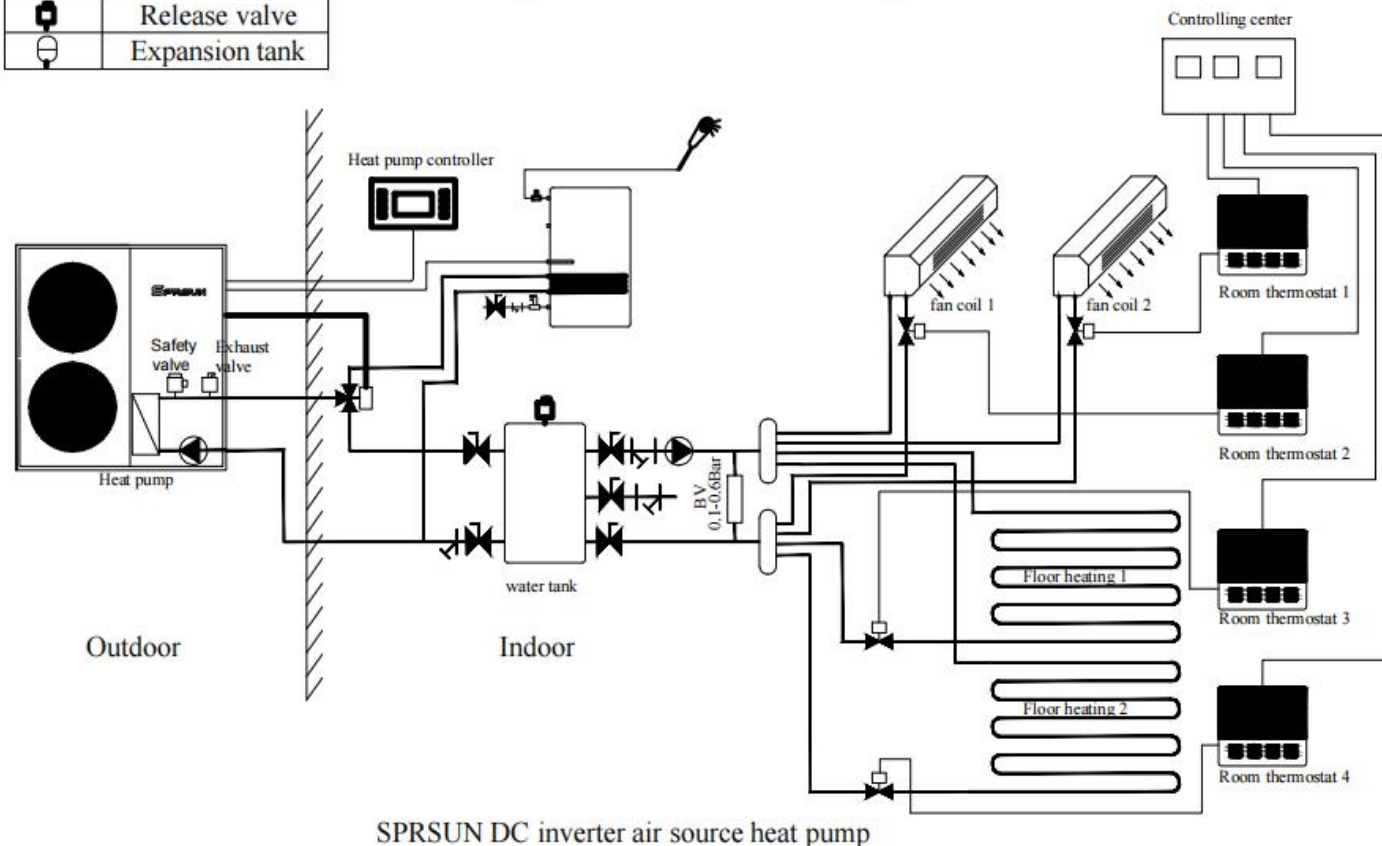
Guangzhou Sprsun New Energy Technology Development Co., Ltd.

Installation Diagram

Symbol	Name
	3-way valve
	2-way valve
	Ball valve
	Non-return valve
	Filter
	Water pump
	Temp sensor
	Release valve
	Expansion tank

Notice:

1. Pls select the right modes according to your demand then install it according to the installation diagram. If only hot water function required, pls select heating+hot water mode , and then put the hot water sensor into the hot water tank.
2. Two-way valve and BV valve are optional for installation. Only If you need to control the temperature by different zone, then pls install both.
3. Fan coil can be controlled by linkage with the secondary circulation pump . Meanwhile, a passive linkage thermostat shall be installed.
4. The water outlet of the heat pump needs to install an automatic air exhaust valve so that the water system can be discharged to the outside when there is gas



Standard Materials

Name	Description	Picture	Name	Description	Picture	Name	Description	Picture
Condenser	Plate Heat Exchanger		Evaporator	Hydropilic Aluminium foil and internal thread copper pipe heat exchanger		4-way valve	SANHUA	
Inverter Compressor	R290 Panasonic Rotary		DC Fan Motor	WOLONG		Package	corrugated board case / plywood case	
Controller	 CAREL Touch screen Controller 4.3"		Electronic Expansion Valve	 CAREL (anti-explosion version)		High Pressure Sensor	 CAREL 0-3.45MPa	
Inverter			Inverter water pump	Grundfos or Shinhoo (anti-explosion version)		Low Pressure Sensor	 CAREL 0-17.3MPa	
Main PCB board			Energy meter	Acrel brand				

Functions

1. How to Start Electric Heater?

Heating electric heater and hot water electric heater, each corresponding to two independent output ports, which can be set in the engineering parameter En04 to be Open or Closed , it is Closed before delivery from SRPSUN

When the electric heater is set to independent, under normal circumstances, both the heating electric heater and the hot water electric heater are activated according to the following logic:

- (1) turn on backup electric heater fuction
- (2) Ambient temperature $\leq$ the ambient temperature when starting electric heater (default value -15℃);
- (3) Target temperature $\leq$ heating temperature set point - deviation value under electric heating (default value 5℃);
- (4) It takes more than 50min to start the compressor (adjustable);

In heating mode , turn off backup electric heater if any of the following conditions is met:

- (1) Ambient temperature $\geq$ the ambient temperature when starting electric heater + 3℃;
- (2) Target temperature $\geq$ heating temperature set point;
- (3) Ambient temperature sensor error;
- (4) Power off.

Other situations for starting auxiliary electric heater:

1. After entering antivirus mode, the hot water electric heater start.
2. Enter SG++mode (can choose whether to activate the hot water electric heating En16)
3. When anti freezing, the compression fault cannot be turned on again, and the electric heating is automatically started for anti freezing.

2. How to Enter Defrosting?

When the air-cooled unit is in the heating mode, the outdoor coil works as evaporator. If the outdoor temperature is too low, frost may form on the coil, which means that the working efficiency of the unit will be reduced. In this case, the heating mode should be temporarily switched to the cooling mode for defrosting, and then return to the heating mode, so that the unit can resume its high efficiency.

Defrosting Conditions:

Defrosting will be enabled when the following conditions are met at the same time:

- (1) Time between two defrosting cycles $\geq$ defrosting interval, unit: min, default value: 45;
- (2) Ambient temperature $\leq$ defrosting ambient temperature, lasting for 2s, default value is 15℃ (this condition is ignored when there is ambient temperature sensor error);
- (3) Ambient temperature - evaporation temperature $\geq$ defrosting temperature difference, lasting for 2min, the default value is 5℃; this condition is ignored when there is ambient temperature sensor error;
Or Air temperature -Evaporating temperature $> 12^{\circ}\text{C}$ or return gas superheat SH<12 (Remark : Different air temperature for different setting temperature)
- (4) Evaporation temperature $\leq$ defrosting set point, lasting for 2s, default value -1℃;

Defrosting set point: according to the compensation of ambient temperature, the lower the ambient temperature is, the lower the setting point will be.

- (5) Activate the defrosting function.
- (6) Compressure is runnning .

When the temperature probe of the coil fails, the compressor does not defrost and runs for a cumulative 【 timed defrosting time (60 minutes) 】, and the defrosting condition is established

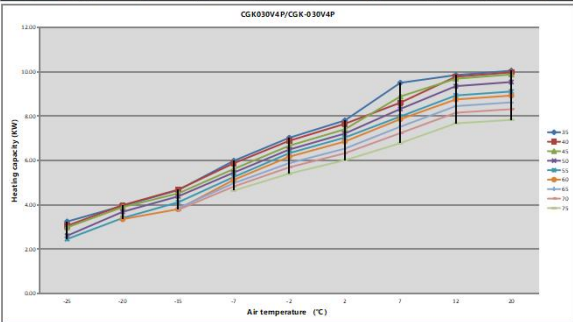
Implementing the manual forced defrosting command will ignore the above entry conditions.

Defrosting will quit if any of the following conditions is met:

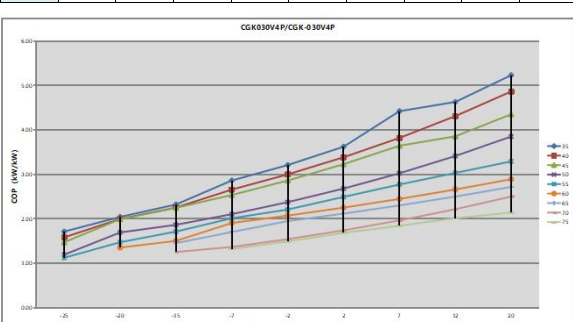
- (1) Defrosting time $\geq$ maximum defrosting time, the default value is 8min;
- (2) Condensation/coil temperature $\geq$ the setting point of exiting defrosting, default value 15℃;
- (3) Power off.

Main features/advantages: 1. Capacity range: 9.5kW-18kW. 2.Workingrange: -25°C-43°C. 3. 4.2 inch touch color screen LCD Carel controller. 4.Cascade/ wifi app /IOT platform / RS485 function/SG ready 5.Multiple language Touch screen Carel Controller 6.Ful DCinverter technology. 7.A+++ ErP energy label, CE, Keymark and MCS certificate. 8.High-end quality parts 9.Lower noise		  041-K036-03 Product Service							
Model		CGK030V4P	CGK040V4P	CGK050V4P	CGK060V4P	CGK-030V4P	CGK-040V4P	CGK-050V4P	CGK-060V4P
Operation Ambint Temp.(℃)	-25~45								
Operation water Temp.(℃)	10~70(DHW)								
Operation water Temp.(℃)	10~70(Heating)								
Operation water Temp.(℃)	12~30(Cooling)								
Power Supply / Refrigerant	V/Hz/Ph	220-240/50/1 - R290	220-240/50/1 - R290	220-240/50/1 - R290	220-240/50/1 - R290	380-420/50/3 - R290	380-420/50/3 - R290	380-420/50/3 - R290	380-420/50/3 - R290
Max. Heating Capacity (A7℃/W35℃)	kW	9.5	11.5	15.5	18.5	9.5	11.5	15.5	18.5
Pdesignh (35/55℃)	kW	6.796/6.051	7.654/7.156	10.399/9.33	12.169/10.791	6.636/6.349	7.738/7.225	10.582/9.615	12.7/11.71
SCOP (35/55℃)	kWh/kWh	4.76/3.62	4.79/3.66	4.69/3.62	4.80/3.68	4.77/3.6	4.78/3.63	4.71/3.64	4.76/3.69
SCOPon (35/55℃)	kWh/kWh	4.78/3.63	4.84/3.67	4.7/3.63	4.81/3.69	4.79/3.61	4.8/3.64	4.72/3.65	4.77/3.7
Q _H (35/55℃)	kWh/year	14040/12501	15813/14784	21485/19276	25140/24360	13710/13118	15986/14927	21862/19864	26538/24192
Q _{HE} (35/55℃)	kWh/year	2951/3455	3299/4045	4582/5327	5240/6612	2874/3642	3345/4116	4643/5458	5510/6550
η _{k,h} (35/55℃)	--	187.3%/141.7%	188.7%/143.2%	184.6%/141.8%	188.9%/144.4%	187.8%/141.1%	188.2%/142%	185.3%/142.6%	187.5%/144.7%
Seasonal space heating energyefficiency classes: (According (EU)No 811/2013 Table 2)	--	A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Seasonal space heating energyefficiency classes: (According (EU)No 811/2013 Table 1)	--	A++	A++	A++	A++	A++	A++	A++	A++
C.O.P (A7℃/W35℃)	W/W	4.42	4.44	4.42	4.14	4.42	4.44	4.42	4.14
Heating Capacity Min./Max.(A7 ℃/W35 ℃)	kW	4.37 / 9.50	5.29 / 11.50	7.13 / 15.50	8.51 / 18.50	4.37 / 9.50	5.29 / 11.50	7.13 / 15.50	8.51 / 18.50
Heating Power Input Min./Max.(A7 ℃/W35 ℃)	W	778 / 2149	938 / 2590	1241 / 3507	1523 / 4469	778 / 2149	938 / 2590	1241 / 3507	1523 / 4469
C.O.P Min./Max.(A7 ℃/W35 ℃)	W/W	4.42 / 5.61	4.44 / 5.64	4.42 / 5.75	4.14 / 5.59	4.42 / 5.61	4.44 / 5.64	4.42 / 5.75	4.14 / 5.59
Max. Heating Capacity(A7℃/W45℃)	kW	8.9	10.7	14.1	17.7	8.9	10.7	14.1	17.7
C.O.P (A7℃/W45℃)	W/W	3.64	3.77	3.71	3.62	3.64	3.77	3.71	3.62
Heating Capacity Min./Max.(A7 ℃/W45 ℃)	kW	4.09 / 8.88	4.92 / 10.70	6.49 / 14.11	8.13 / 17.67	4.09 / 8.88	4.92 / 10.70	6.49 / 14.11	8.13 / 17.67
Heating power input Min./Max.(A7 ℃/W45 ℃)	W	958 / 2439	1148 / 2834	1486 / 3799	1913 / 5334	958 / 2512	1148 / 3011	1486 / 3989	1913 / 5334
C.O.P Min./Max.(A7 ℃/W45 ℃)	W/W	3.64 / 4.27	3.77 / 4.29	3.71 / 4.37	3.31 / 4.25	3.54 / 4.27	3.55 / 4.29	3.54 / 4.37	3.31 / 4.25
Max. Cooling Capacity(A35 ℃/W18℃)	kW	8.4	10.2	13.4	16.8	8.4	10.2	13.4	16.8
E.E.R (A35℃/W18℃)	W/W	3.53	3.66	3.60	3.51	3.53	3.66	3.60	3.51
Cooling Capacity Min./Max.(A35℃/W18℃)	kW	3.88 / 8.44	4.67 / 10.16	6.16 / 13.40	7.72 / 16.78	3.88 / 8.44	4.67 / 10.16	6.16 / 13.40	7.72 / 16.78
Cooling Power Input Min./Max.(A35℃/W18℃)	W	928 / 2389	1113 / 2775	1440 / 3721	1855 / 4780	928 / 2389	1113 / 2775	1440 / 3721	1855 / 4780
E.E.R Min./Max.(A35℃/W18℃)	W/W	3.53 / 4.18	3.66 / 4.20	3.60 / 4.28	3.51 / 4.16	3.53 / 4.18	3.66 / 4.20	3.60 / 4.28	3.51 / 4.16
Max. Cooling Capacity(A35 ℃/W7℃)	kW	7.5	9.0	11.5	14.5	7.5	9.0	11.5	14.5
E.E.R(A35℃/W7℃)	W/W	2.90	2.92	2.75	2.82	2.90	2.92	2.75	2.82
Cooling Capacity Min./Max.(A35℃/W7℃)	kW	3.45 / 7.50	4.14 / 9.00	5.29 / 11.50	6.67 / 14.50	3.45 / 7.50	4.14 / 9.00	5.29 / 11.50	6.67 / 14.50
Cooling Power Input Min./Max.(A35℃/W7℃)	W	938 / 2586	1120 / 3082	1405 / 4182	1821 / 5142	938 / 2586	1120 / 3082	1405 / 4182	1821 / 5142
E.E.R Min./Max.(A35℃/W7℃)	W/W	2.90 / 3.68	2.92 / 3.70	2.75 / 3.77	2.82 / 3.66	2.90 / 3.68	2.92 / 3.70	2.75 / 3.77	2.82 / 3.66
Max Power Input	kW	4.36	5.05	6.80	7.83	4.36	5.05	6.80	7.83
Max Current	A	20.86	24.16	32.54	37.46	9.20	10.66	14.35	16.52
Wire diameter	mm²	4.0	6.0	6.0	6.0	2.5	2.5	4.0	4.0
Fuse or circuitbreaker	A	32A	32A	40A	50A	13A	16A	20A	25A
Compressor	Type - Quantity/System	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1	Twin Rotary - 1
Fan	Quantity	1	1	2	2	1	1	2	2
	Airflow	m³/h	3000	3500	5000	5500	3000	3500	5500
	Rated power	W	100	120	200	210	100	120	210
Water Side Heat Exchanger	Type	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger	Plate Heat Exchanger
	Water Pressure Drop	kPa	20	21	23	25	20	21	23
	Piping Connection	Inch	G1"	G1"	G1"	G1"	G1"	G1"	G1"
Pump model	/	UPM4XLK 25-90 130	UPM4XLK 25-90 130	UPM10L 25-105 130	UPM10L 25-105 130	UPM4XLK 25-90 130	UPM4XLK 25-90 130	UPM10L 25-105 130	UPM10L 25-105 130
Max Water Pump Head	/	9	9	10.5	10.5	9	9	10.5	10.5
Allowable Water Flow	Min./Rated/Max.	L/S 0.28 0.45 0.76	0.34 0.55 0.92	0.46 0.74 1.23	0.55 0.88 1.47	0.28 0.45 0.76	0.34 0.55 0.92	0.46 0.74 1.23	0.55 0.88 1.47
Sound pressure level(1m)	dB(A)	41.2~50.6	40.4~49.2	40.4~50.8	44.7~51	41.2~49.7	41.1~52	41.7~50.7	42.4~49
Sound power level(1m)	dB(A)	60.7	59.8	62.1	63.2	60.3	61.6	61.6	61.1
Net Dimension(L×D×H)	mm	1110*475*810	1110*475*960	1110*475*1355	1110*475*1355	1110*475*810	1110*475*960	1110*475*1355	1110*475*1355
Carton packing Dimension(L×D×H)	mm	1165*505*960	1165*505*1100	1165*505*1520	1165*505*1520	1165*505*960	1165*505*1100	1165*505*1520	1165*505*1520
Splint packing Dimension(L×D×H)	mm	1200*530*970	1200*530*1120	1200*530*1510	1200*530*1510	1220*530*970	1200*530*1120	1200*530*1510	1200*530*1510
Net Weight	kg	112	125	145	147	112	125	145	147
Carton gross Weight	kg	125	138	160	172	125	138	160	172
Splint gross Weight	kg	148	161	182	184	148	161	182	184
Note: (1) Heating condition: water inlet/outlet temperature: 30℃/35℃, Ambient temperature: DB 7℃/WB 6℃;									
(2) Heating condition: water inlet/outlet temperature: 40℃/45℃, Ambient temperature: DB 7℃/WB 6℃;									
(3) Cooling condition: water inlet/outlet temperature: 23℃/18℃, Ambient temperature: DB35℃/WB24℃;									
(4) Cooling condition: water inlet/outlet temperature: 12℃/7℃, Ambient temperature: DB35℃/WB24℃;									

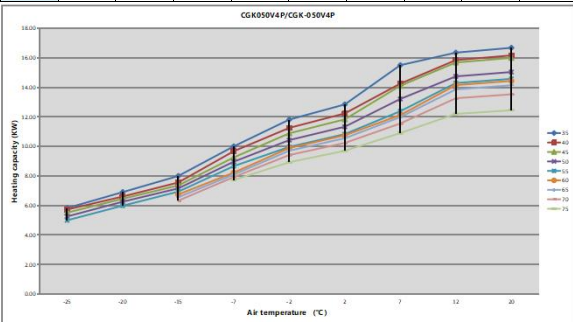
Heating Capacity at Different Conditions										
Model	CGK030V4P/CGK-030V4P									
	Heating capacity (kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	3.24	3.05	2.98	2.90	2.83	2.75				
-20	3.35	3.16	3.09	3.01	2.94	2.86				
-15	4.06	3.86	3.79	3.71	3.64	3.56	3.48	3.39		
-7	5.36	5.16	5.09	5.01	4.94	4.86	4.77	4.68	4.64	
-2	7.02	6.82	6.75	6.67	6.60	6.52	6.43	6.34	6.30	
2	7.80	7.60	7.53	7.45	7.37	7.29	7.20	7.11	7.07	
7	9.30	9.10	9.03	8.95	8.87	8.79	8.70	8.61	8.57	
12	9.36	9.16	9.09	9.01	8.93	8.85	8.76	8.67	8.63	
20	10.02	9.82	9.75	9.67	9.59	9.51	9.42	9.33	9.29	



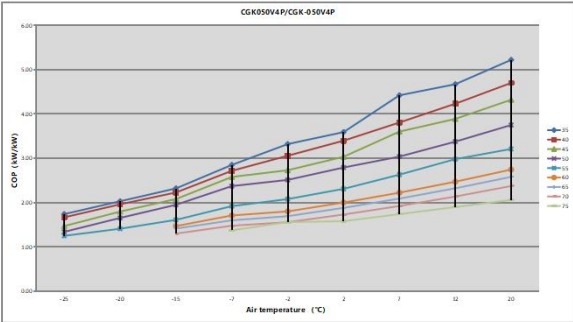
Heating Capacity at Different Conditions										
Model	CGK030V4P/CGK-030V4P									
	COP (kW/kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	1.71	1.66	1.61	1.57	1.52					
-20	2.04	1.99	1.94	1.89	1.85	1.80				
-15	2.32	2.25	2.21	2.16	2.11	2.06	2.01	1.96	1.92	
-7	2.86	2.78	2.73	2.68	2.63	2.58	2.53	2.48	2.44	
-2	3.21	3.13	3.08	3.03	2.98	2.93	2.88	2.83	2.79	
2	3.62	3.54	3.49	3.44	3.39	3.34	3.29	3.24	3.20	
7	4.42	4.34	4.29	4.24	4.19	4.14	4.09	4.04	4.00	
12	4.63	4.55	4.50	4.45	4.40	4.35	4.30	4.25	4.21	
20	5.21	5.13	5.08	5.03	4.98	4.93	4.88	4.83	4.79	



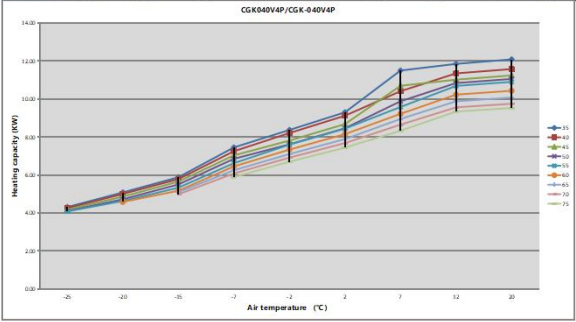
Heating Capacity at Different Conditions										
Model	CGK060V4P/CGK-060V4P									
	Heating capacity (kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	5.82	5.72	5.61	5.53	5.45					
-20	6.99	6.89	6.78	6.70	6.62					
-15	7.99	7.89	7.78	7.70	7.62	7.54	7.45	7.37	7.32	
-7	10.00	9.89	9.78	9.70	9.62	9.54	9.45	9.37	9.32	
-2	11.81	11.70	11.59	11.51	11.43	11.34	11.26	11.17	11.12	
2	12.81	12.70	12.59	12.51	12.43	12.34	12.26	12.17	12.12	
7	16.80	16.69	16.58	16.50	16.42	16.34	16.26	16.17	16.12	
12	16.35	16.24	16.13	16.05	15.97	15.89	15.81	15.72	15.67	
20	16.08	15.97	15.86	15.78	15.70	15.62	15.54	15.46	15.41	



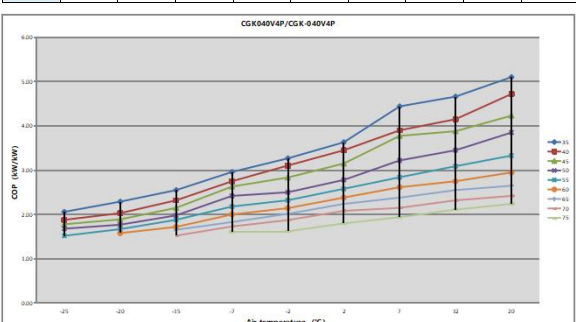
Heating Capacity at Different Conditions										
Model	CGK060V4P/CGK-060V4P									
	COP (kW/kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	1.74	1.67	1.61	1.54	1.47					
-20	2.03	1.96	1.90	1.83	1.76					
-15	2.32	2.25	2.19	2.12	2.05	2.00	1.94	1.88	1.84	
-7	2.86	2.78	2.73	2.68	2.63	2.58	2.53	2.48	2.44	
-2	3.32	3.24	3.19	3.14	3.09	3.04	2.99	2.94	2.90	
2	3.69	3.61	3.56	3.51	3.46	3.41	3.36	3.31	3.27	
7	4.42	4.34	4.29	4.24	4.19	4.14	4.09	4.04	4.00	
12	4.67	4.59	4.54	4.49	4.44	4.39	4.34	4.29	4.25	
20	5.22	5.14	5.09	5.04	4.99	4.94	4.89	4.84	4.80	



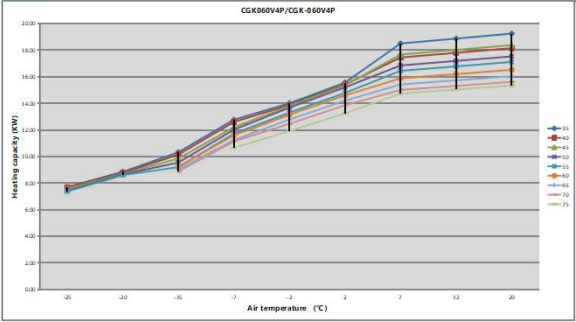
Heating Capacity at Different Conditions										
Model	CGK040V4P/CGK-040V4P									
	Heating capacity (kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	4.31	4.23	4.17	4.10	4.03					
-20	5.08	5.00	4.93	4.86	4.79					
-15	6.08	5.98	5.91	5.84	5.77	5.70	5.63	5.56	5.50	
-7	7.45	7.35	7.28	7.21	7.14	7.07	7.00	6.93	6.87	
-2	8.37	8.27	8.21	8.14	8.07	8.00	7.93	7.86	7.80	
2	9.30	9.19	9.13	9.06	8.99	8.92	8.85	8.78	8.72	
7	11.10	10.99	10.92	10.85	10.78	10.71	10.64	10.57	10.51	
12	11.85	11.74	11.67	11.60	11.53	11.46	11.39	11.32	11.26	
20	12.99	12.88	12.81	12.74	12.67	12.60	12.53	12.46	12.40	



Heating Capacity at Different Conditions										
Model	CGK040V4P/CGK-040V4P									
	COP (kW/kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	2.06	1.99	1.93	1.86	1.79					
-20	2.29	2.23	2.17	2.10	2.03					
-15	2.55	2.50	2.44	2.37	2.30	2.23	2.16	2.10	2.04	
-7	2.96	2.90	2.84	2.77	2.70	2.63	2.56	2.50	2.44	
-2	3.27	3.21	3.15	3.08	3.01	2.94	2.87	2.81	2.75	
2	3.63	3.57	3.51	3.44	3.37	3.30	3.23	3.16	3.10	
7	4.44	4.38	4.32	4.25	4.18	4.11	4.04	3.97	3.91	
12	4.66	4.60	4.54	4.47	4.40	4.33	4.26	4.19	4.13	
20	5.10	5.04	4.98	4.91	4.84	4.77	4.70	4.63	4.57	



Heating Capacity at Different Conditions										
Model	CGK060V4P/CGK-060V4P									
	Heating capacity (kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	7.71	7.60	7.50	7.41	7.32					
-20	8.85	8.73	8.63	8.53	8.43					
-15	10.32	10.19	10.08	9.98	9.88	9.78	9.68	9.58	9.48	
-7	12.77	12.63	12.50	12.37	12.24	12.10	11.97	11.84	11.71	
-2	14.00	13.86	13.72	13.58	13.44	13.30	13.16	13.02	12.88	
2	15.56	15.42	15.28	15.14	15.00	14.86	14.72	14.58	14.44	
7	18.50	18.36	18.22	18.08	17.94	17.80	17.66	17.52	17.38	
12	18.87	18.73	18.59	18.45	18.31	18.17	18.03	17.89	17.75	
20	19.22	19.08	18.94	18.80	18.66	18.52	18.38	18.24	18.10	



Heating Capacity at Different Conditions										
Model	CGK060V4P/CGK-060V4P									
	COP (kW/kW)									
Air temp. °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75	
-25	1.99	1.93	1.87	1.80	1.73					
-20	2.23	2.17	2.11	2.04	1.97					
-15	2.49	2.43	2.37	2.30	2.23	2.16	2.10	2.03	1.96	
-7	2.90	2.83	2.77	2.70	2.63	2.56	2.50	2.43	2.36	
-2	3.24	3.17	3.11	3.04	2.97	2.90	2.83	2.76	2.69	
2	3.60	3.53	3.47	3.40	3.33	3.26	3.19	3.12	3.05	
7	4.14	4.07	4.00	3.93	3.86	3.79	3.72	3.65	3.58	
12	4.40	4.33	4.26	4.19	4.12	4.05	3.98	3.91	3.84	
20	4.94	4.87	4.80	4.73	4.66	4.59	4.52	4.45	4.38	

