

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: $30^{\circ}\text{C} \sim 75^{\circ}\text{C}$; Cooling: $32^{\circ}\text{C} \sim 12^{\circ}\text{C}$)
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

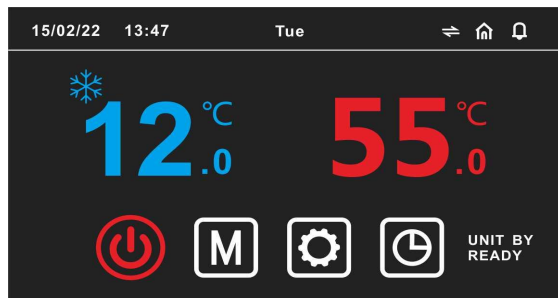
CGK030V4P, CGK-030V4P
CGK040V4P, CGK-040V4P



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












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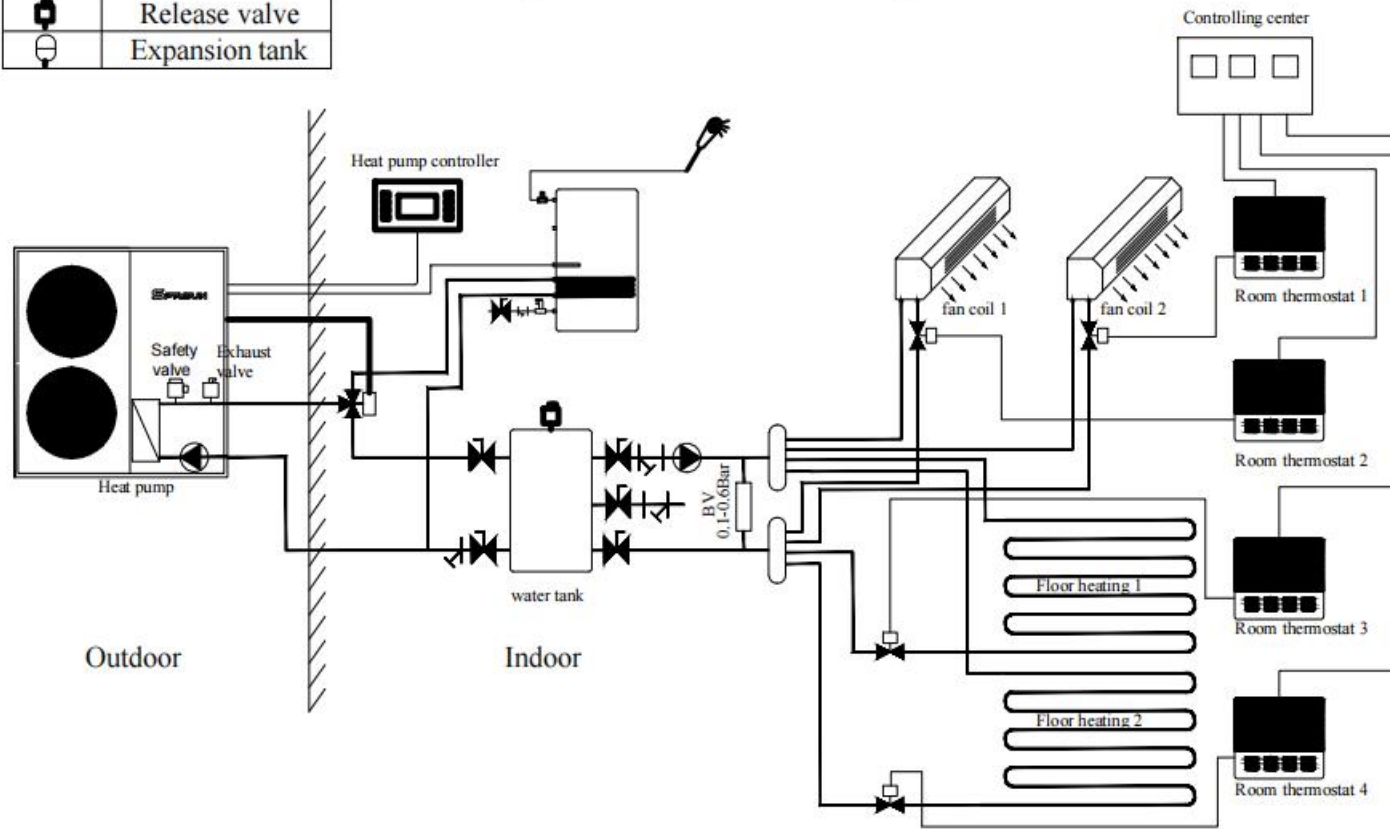
Unit Name		DC Inverter Air Source Heat Pumps (Monoblock Type)									
Model		CGK030V4P	CGK040V4P	CGK050V4P	CGK060V4P	CGK-030V4P	CGK-040V4P	CGK-050V4P	CGK-060V4P		
Power Supply / Refrigerant	V/Hz/Ph	220-240/50/1 - R290	220-240/50/1 - R290	220-240/50/1 - R290	220-240/50/1 - R290	380-420/50/3 - R290	380-420/50/3 - R290	380-420/50/3 - R290	380-420/50/3 - R290		
Max. Heating Capacity (A7 °C/W35 °C)	kW	9	11	15	18	9	11	15	18		
C.O.P (A7 °C/W35 °C)	W/W	4.14	4.18	4.06	4.12	4.14	4.18	4.06	4.12		
Heating Capacity (A7 °C/W35 °C) (include defrost) (EN14511-3)	kW	8.2	9.6	12.9	15	8	10.1	12.9	15		
C.O.P (A7 °C/W35 °C) (include defrost) (EN14511-3)	W/W	3.95	3.8	3.7	3.83	3.9	4	3.7	3.83		
Heating Capacity Min./Max.(A7 °C/W35 °C)	kW	3.77 / 8.20	4.42 / 9.60	5.93 / 12.90	6.90 / 15.00	3.68 / 8.00	4.65 / 10.10	5.93 / 12.90	6.90 / 15.00		
Heating Power Input Min./Max.(A7 °C/W35 °C)	W	752 / 2076	915 / 2526	1234 / 3486	1334 / 3916	743 / 2051	915 / 2525	1234 / 3486	1334 / 3916		
C.O.P Min./Max.(A7 °C/W35 °C)	W/W	3.95 / 5.02	3.8 / 4.83	3.7 / 4.81	3.83 / 5.17	3.9 / 4.95	4 / 5.08	3.7 / 4.81	3.83 / 5.17		
Max. Heating Capacity(A7 °C/W45 °C)	kW	7.7	8.9	11.7	14.3	7.5	9.4	11.7	14.3		
C.O.P (A7 °C/W45 °C)	W/W	3.25	3.32	3.19	3.36	3.21	3.50	3.19	3.36		
Heating Capacity Min./Max.(A7 °C/W45 °C)	kW	3.53 / 7.67	4.11 / 8.93	5.40 / 11.74	6.59 / 14.33	3.44 / 7.48	4.32 / 9.39	5.40 / 11.74	6.59 / 14.33		
Heating power input Min./Max.(A7 °C/W45 °C)	W	925 / 2356	1120 / 2688	1477 / 3681	1677 / 4675	914 / 2397	1119 / 2935	1477 / 3966	1677 / 4675		
C.O.P Min./Max.(A7 °C/W45 °C)	W/W	3.25 / 3.81	3.32 / 3.67	3.19 / 3.66	3.06 / 3.93	3.12 / 3.76	3.20 / 3.86	2.96 / 3.66	3.06 / 3.93		
Max. Cooling Capacity(A35 °C/W18 °C)	kW	7.3	8.5	11.2	13.6	7.1	8.9	11.2	13.6		
E.E.R (A35 °C/W18 °C)	W/W	3.16	3.22	3.09	3.26	3.12	3.39	3.09	3.26		
Cooling Capacity Min./Max.(A35 °C/W18 °C)	kW	3.35 / 7.28	3.90 / 8.48	5.13 / 11.15	6.26 / 13.61	3.27 / 7.11	4.10 / 8.92	5.13 / 11.15	6.26 / 13.61		
Cooling Power Input Min./Max.(A35 °C/W18 °C)	W	897 / 2307	1085 / 2633	1432 / 3605	1626 / 4177	886 / 2280	1085 / 2631	1432 / 3605	1626 / 4177		
E.E.R Min./Max.(A35 °C/W18 °C)	W/W	3.16 / 3.74	3.22 / 3.59	3.09 / 3.58	3.26 / 3.85	3.12 / 3.69	3.39 / 3.78	3.09 / 3.58	3.26 / 3.85		
Max. Cooling Capacity(A35 °C/W7 °C)	kW	6.8	7.6	10.6	12.4	6.8	7.6	10.6	12.4		
E.E.R(A35 °C/W7 °C)	W/W	2.50	2.50	2.40	2.40	2.50	2.50	2.40	2.40		
Cooling Capacity Min./Max.(A35 °C/W7 °C)	kW	3.13 / 6.80	3.50 / 7.60	4.88 / 10.60	5.70 / 12.40	3.13 / 6.80	3.50 / 7.60	4.88 / 10.60	5.70 / 12.40		
Cooling Power Input Min./Max.(A35 °C/W7 °C)	W	951 / 2720	1105 / 3040	1547 / 4417	1683 / 5167	964 / 2720	1050 / 3040	1547 / 4417	1683 / 5167		
E.E.R Min./Max.(A35 °C/W7 °C)	W/W	2.50 / 3.29	2.50 / 3.16	2.40 / 3.15	2.40 / 3.39	2.50 / 3.25	2.50 / 3.33	2.40 / 3.15	2.40 / 3.39		
Max Power Input	kW	4.36	5.05	6.80	7.83	4.31	5.05	6.80	7.83		
Max Current	A	20.86	24.16	32.54	37.48	9.09	10.66	14.35	16.53		
Wire diameter	mm ²	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	
Fan	Quantity	1		1		2		1		2	
	Airflow	3000		3500		5000		3000		5500	
	Rated power	100		120		200		100		210	
Water Side Heat Exchanger	Type	Plate Heat Exchanger		Plate Heat Exchanger		Plate Heat Exchanger		Plate Heat Exchanger		Plate Heat Exchanger	
	Water Pressure Drop	kPa 20		21		23		20		21	
	Piping Connection	Inch 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	
Max Water Pump Head	m	9		9		10.5		9		10.5	
Allowable Water Flow	Min./Rated./Max.	L/S	0.24	0.39	0.65	0.29	0.46	0.76	0.39	0.62	1.03
Noise Level	dB(A)	60		62		62		60		62	
Net Dimension(L×D×H)	mm	1110*475*810		1110*475*960		1110*475*1355		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*1520	
Splint packing Dimension(L×D×H)	mm	1200*530*970		1200*530*1120		1200*530*1510		1220*530*970		1200*530*1120	
Net Weight	kg	112		125		145		112		145	
Carton gross Weight	kg	125		138		160		125		138	
Splint gross Weight	kg	148		161		182		148		182	
Operation Ambient Temp.(°C)	-25~45										
Operation water Temp.(°C)	10~70(DHW)										
Operation water Temp.(°C)	10~70(Heating)										
Operation water Temp.(°C)	12~30(Cooling)										
Note: (1) Heating condition: water inlet/outlet temperature: 30 °C/35 °C, Ambient temperature: DB 7 °C/WB 6 °C;											
(2) Heating condition: water inlet/outlet temperature: 40 °C/45 °C, Ambient temperature: DB 7 °C/WB 6 °C;											
(3) Cooling condition: water inlet/outlet temperature: 23 °C/18 °C, Ambient temperature: DB35 °C/WB24 °C;											
(4) Cooling condition: water inlet/outlet temperature: 12 °C/7 °C, Ambient temperature: DB35 °C/WB24 °C;											

Installation Diagram

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


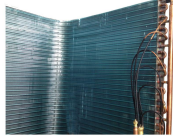









Notice:

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

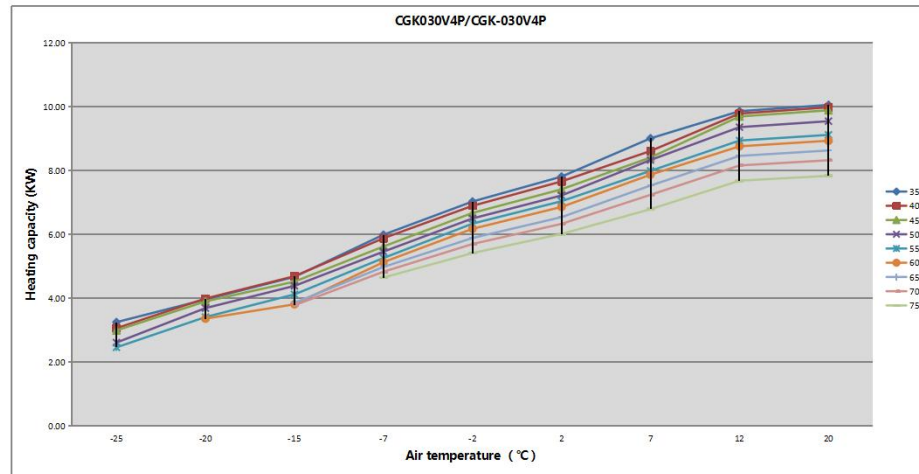


SPRSUN DC inverter air source heat pump

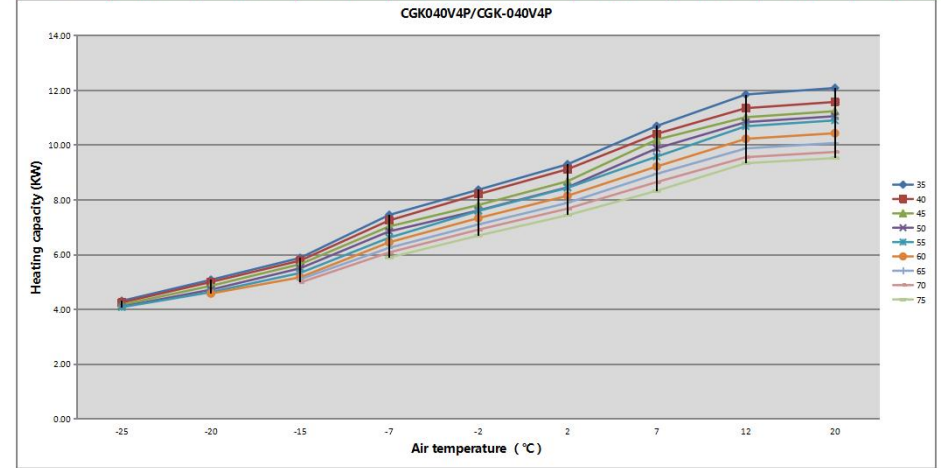
Standard Materials

Name	Description	Picture	Name	Description	Picture	Name	Description	Picture
Condenser	Plate Heat Exchanger		Evaporator	Hydropilic Aluminium foil and internal thread copper pipe heat exchanger		High Pressure Sensor	CAREL 0-4.5MPa	
Compressor	Panasonic Rotary Compressor		Expansion Valve	CAREL Electronic expansion valve		Low Pressure Sensor	CAREL 0-3.45MPa	
4-way valve	SANHUA		DC Fan	WOLONG DC Fan		Package	corrugated board case / plywood case	
Controller	CAREL Touch screen Controller 4.3"		water pump	Grundfos		Flowmeter		

Heating Capacity at Different Conditions									
Model	CGK030V4P/CGK030V4P								
Air temp °C	Heating capacity (kW)								
	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	2.60	2.45				
-20	3.95	3.98	3.89	3.68	3.40	3.35			
-15	4.66	4.68	4.51	4.38	4.11	3.80	3.85	3.77	
-7	5.98	5.87	5.61	5.45	5.25	5.12	4.97	4.82	4.64
-2	7.02	6.89	6.66	6.49	6.33	6.17	5.88	5.69	5.40
2	7.80	7.65	7.40	7.21	7.03	6.85	6.53	6.32	6.00
7	9.00	8.60	8.40	8.32	7.98	7.86	7.52	7.23	6.78
12	9.85	9.78	9.68	9.35	8.93	8.75	8.45	8.15	7.67
20	10.05	9.97	9.88	9.54	9.11	8.93	8.62	8.31	7.83

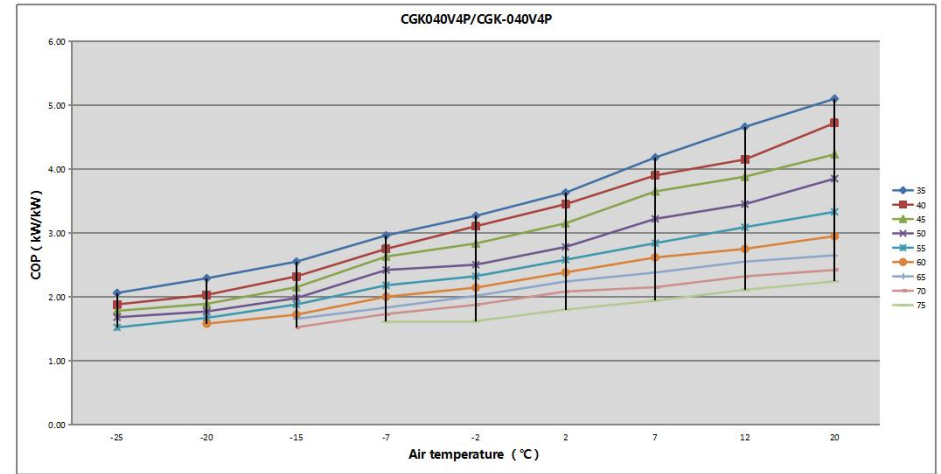
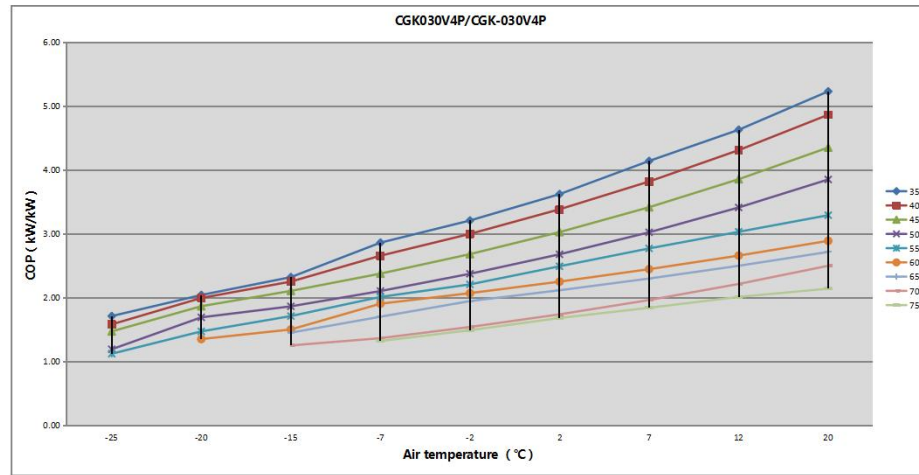


Heating Capacity at Different Conditions									
Model	CGK040V4P/CGK040V4P								
Air temp °C	Heating capacity (kW)								
	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75
-25	4.31	4.25	4.17	4.10	4.08				
-20	5.08	5.00	4.86	4.72	4.63	4.58			
-15	5.88	5.78	5.65	5.50	5.33	5.17	5.10	4.98	
-7	7.45	7.25	7.03	6.85	6.62	6.45	6.25	6.08	5.89
-2	8.37	8.21	7.81	7.61	7.60	7.34	7.10	6.91	6.70
2	9.30	9.12	8.68	8.46	8.44	8.15	7.89	7.68	7.44
7	10.70	10.41	10.20	9.88	9.58	9.22	8.95	8.65	8.33
12	11.85	11.35	11.02	10.84	10.69	10.23	9.88	9.56	9.34
20	12.09	11.68	11.24	11.06	10.89	10.43	10.08	9.76	9.53



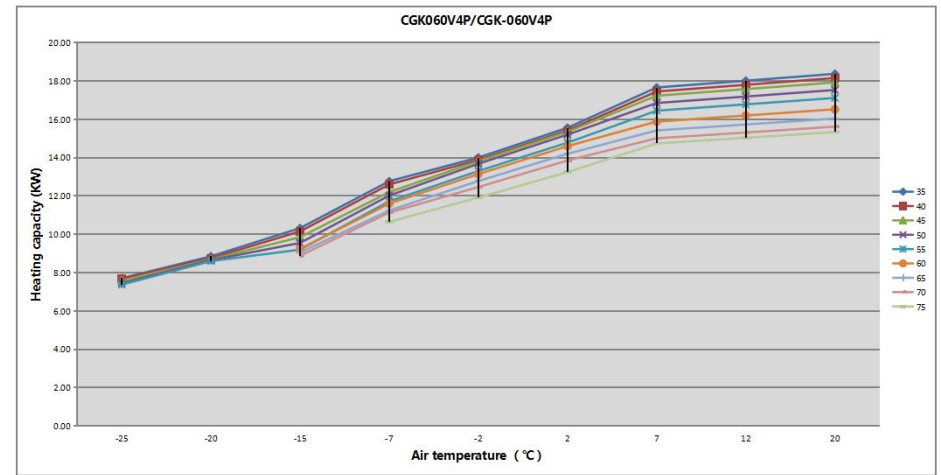
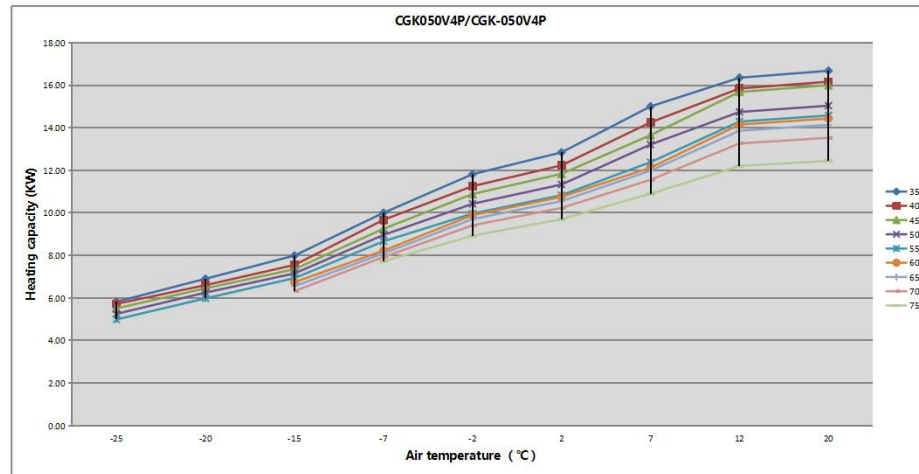
Heating Capacity at Different Conditions									
Model	CGK030V4P/CGK030V4P								
	COP (kW/kW)								
Air temp °C	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75
-25	1.71	1.58	1.47	1.19	1.12				
-20	2.04	1.99	1.86	1.69	1.47	1.35			
-15	2.32	2.25	2.10	1.86	1.71	1.50	1.45	1.25	
-7	2.86	2.66	2.37	2.10	2.01	1.90	1.70	1.36	1.32
-2	3.21	3.00	2.68	2.37	2.21	2.07	1.95	1.54	1.49
2	3.62	3.38	3.03	2.68	2.49	2.25	2.11	1.74	1.68
7	4.14	3.82	3.41	3.02	2.77	2.44	2.30	1.96	1.84
12	4.63	4.31	3.85	3.41	3.03	2.66	2.50	2.21	2.01
20	5.23	4.86	4.35	3.85	3.29	2.89	2.72	2.50	2.14

Heating Capacity at Different Conditions									
Model	CGK040V4P/CGK040V4P								
	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	1.88	1.78	1.68	1.52				
-20	2.29	2.03	1.89	1.77	1.67	1.58			
-15	2.55	2.32	2.15	1.98	1.88	1.72	1.66	1.52	
-7	2.96	2.75	2.63	2.42	2.18	2.00	1.83	1.73	1.61
-2	3.27	3.11	2.84	2.50	2.32	2.14	2.02	1.87	1.62
2	3.63	3.45	3.15	2.78	2.58	2.38	2.24	2.08	1.80
7	4.18	3.90	3.65	3.22	2.84	2.62	2.38	2.15	1.94
12	4.66	4.15	3.88	3.45	3.09	2.75	2.55	2.32	2.11
20	5.10	4.72	4.23	3.85	3.33	2.95	2.65	2.42	2.24

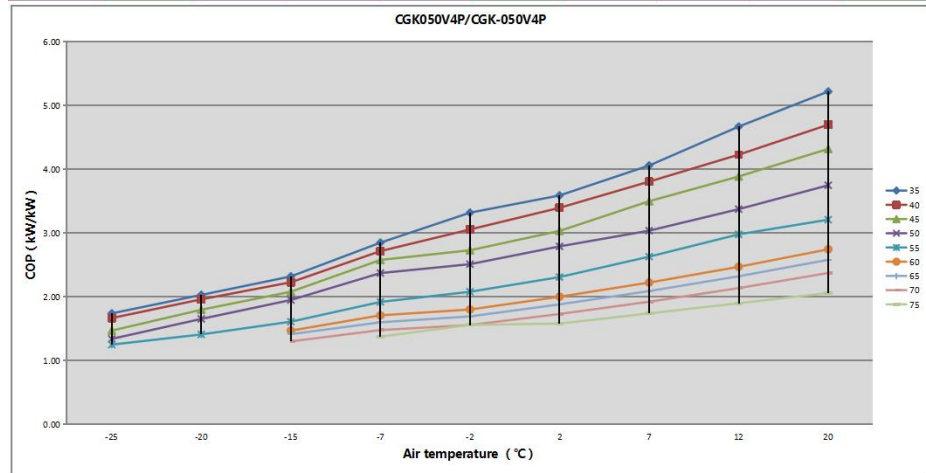


Heating Capacity at Different Conditions									
Model	CGK050V4P/CGK050V4P								
	Heating capacity (kW)								
	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75
Air temp °C									
-25	5.82	5.72	5.51	5.25	4.99				
-20	6.90	6.60	6.45	6.25	5.98				
-15	7.99	7.55	7.35	7.15	6.93	6.74	6.55	6.32	
-7	10.00	9.67	9.25	8.96	8.66	8.22	8.09	7.92	7.72
-2	11.81	11.25	10.88	10.42	9.96	9.89	9.71	9.41	8.92
2	12.84	12.23	11.83	11.33	10.83	10.75	10.55	10.23	9.70
7	15.00	14.25	13.65	13.21	12.38	12.12	11.98	11.55	10.90
12	16.35	15.84	15.68	14.74	14.29	14.15	13.86	13.26	12.20
20	16.68	16.16	16.00	15.04	14.58	14.43	14.14	13.53	12.44

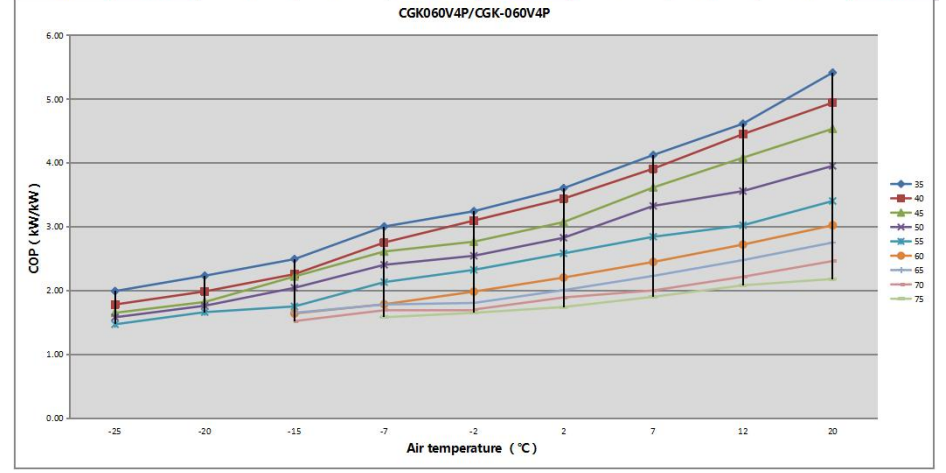
Heating Capacity at Different Conditions									
Model	CGK060V4P/CGK060V4P								
	Heating capacity (kW)								
	30/35	35/40	40/45	45/50	50/55	55/60	60/65	65/70	70/75
Air temp °C									
-25	7.71	7.68	7.58	7.45	7.37				
-20	8.85	8.75	8.69	8.65	8.60				
-15	10.32	10.15	9.85	9.55	9.20	9.24	9.05	8.88	
-7	12.77	12.60	12.20	12.02	11.72	11.60	11.24	11.13	10.65
-2	14.00	13.88	13.82	13.68	13.30	13.14	12.78	12.47	11.92
2	15.56	15.42	15.35	15.20	14.78	14.60	14.20	13.85	13.24
7	17.66	17.45	17.23	16.85	16.45	15.88	15.42	15.01	14.74
12	18.01	17.80	17.57	17.19	16.78	16.20	15.73	15.31	15.03
20	18.37	18.15	17.93	17.53	17.11	16.82	16.04	15.62	15.34



Heating Capacity at Different Conditions									
Model	CGK050V4P/CGK050V4P								
	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	1.47	1.34	1.25				
-20	2.03	1.96	1.80	1.65	1.41				
-15	2.32	2.23	2.08	1.95	1.61	1.47	1.41	1.30	
-7	2.85	2.72	2.58	2.37	1.92	1.71	1.60	1.48	1.37
-2	3.32	3.06	2.73	2.51	2.08	1.80	1.69	1.56	1.56
2	3.59	3.40	3.03	2.79	2.31	2.00	1.88	1.73	1.58
7	4.06	3.81	3.50	3.04	2.63	2.22	2.09	1.92	1.74
12	4.67	4.23	3.89	3.38	2.98	2.47	2.32	2.14	1.90
20	5.22	4.70	4.32	3.75	3.21	2.75	2.58	2.37	2.06



Heating Capacity at Different Conditions									
Model	CGK060V4P/CGK060V4P								
	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	1.78	1.65	1.58	1.47				
-20	2.23	1.98	1.82	1.76	1.66				
-15	2.49	2.25	2.22	2.04	1.75	1.64	1.65	1.52	
-7	3.00	2.75	2.61	2.40	2.13	1.78	1.78	1.69	1.58
-2	3.24	3.09	2.76	2.54	2.32	1.98	1.80	1.70	1.65
2	3.60	3.44	3.07	2.82	2.58	2.20	2.00	1.89	1.74
7	4.12	3.91	3.61	3.32	2.84	2.45	2.23	2.00	1.90
12	4.61	4.45	4.08	3.56	3.02	2.72	2.48	2.21	2.08
20	5.41	4.94	4.53	3.95	3.40	3.02	2.75	2.46	2.18



Functions

1. How to Start Electric Heater?

There are two kinds of electric heaters: backup electric heater and crank heater. The corresponding electric heater can be enabled in M04 menu.

In heating mode (without defrosting), start backup electric heater when all the following conditions are met:

- (1) Enable the backup electric heater function;
- (2) Ambient temperature \leq the ambient temperature when starting electric heater (default value 0°C);
- (3) Target temperature \leq heating temperature set point - deviation value under electric heating (default value 5°C);
- (4) It takes more than 5min to start the compressor (adjustable);

In heating mode (without defrosting), turn off backup electric heater if any of the following conditions are met:

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

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 is 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°C (this condition is ignored when there is ambient temperature sensor error);
- (3) Ambient temperature - evaporation temperature \geq defrosting temperature difference, lasting for 2s, the default value is 5°C ; this condition is ignored when there is ambient temperature sensor error;
- (4) Evaporation temperature \leq defrosting set point, lasting for 2s, default value -1°C ;

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

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°C ;
- (3) Power off.