

Technical Report No.: 64.181.21.05049.01 Rev.00

Date: 2021-11-08

Client: Report holder's name: Guangzhou Sprsun New Energy Technology Development Co., Ltd
Report holder's Address: No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng District,Guangzhou,511338, China
Contact person of report holder: YE XIN
Manufacturer's name: Guangzhou Sprsun New Energy Technology Development Co., Ltd
Manufacturer's address: No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng District,Guangzhou,511338, China

Factory: Factory's name: Guangzhou Sprsun New Energy Technology Development Co., Ltd
Factory's address: No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng District,Guangzhou,511338, China

Test object: Product: EVI DC Inverter Air Source Heat Pumps
Model: CGK030V3L, CGK050V3L, CGK060V3L
Trade name: SPRSUN

Test specification: EN 14825:2018
 (EU) No 813/2013

Purpose of examination: Test according to the test specification
 EU 2016/2282:2016-11-30

Test result: The test results show that the presented product is in compliance with the above listed test specifications.

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question. It does not imply a general statement regarding the quality of products from regular production. For further details please see testing and certification regulation, chapter A-3.4.

Doc No.: ITC-TTW0902.02E – Rev.10

1 Description of the test object

1.1 Function

Manufacturer's specification for intended use:

The appliance is air to water heat pump.

Manufacturer's specification for predictive use:

According to user manual.

1.2 Consideration of the foreseeable use

- Not applicable
- Covered through the applied standard
- Covered by the following comment
- Covered by attached risk analysis

1.3 Technical Data

Model :	CGK030V3L, CGK050V3L, CGK060V3L
Rated Voltage (V) :	220-240V~
Rated Frequency (Hz) :	50
Rated Power (W) :	3900W for CGK030V3L, 6100W for CGK050V3L, 6900W for CGK060V3L
Rated Current (A) :	18.71A for CGK030V3L, 29.21A for CGK050V3L, 33.04A for CGK060V3L
Protection Class :	Class I
Protection Against Moisture :	IP X4
Construction :	Stationary
Supply connection :	<input type="checkbox"/> Non detachable cord <input checked="" type="checkbox"/> Permanent connection to fixed wiring
Operation mode:	<input checked="" type="checkbox"/> Continuous operation; <input type="checkbox"/> Intermittent operation; <input type="checkbox"/> Short time operation;
Refrigerant/charge (g) :	R32 /1500g for CGK030V3L, 2800g for CGK050V3L&CGK060V3L
Declared parameters :	<input checked="" type="checkbox"/> Average <input type="checkbox"/> Warmer <input type="checkbox"/> Colder
Sound power level dB(A) :	N/A
Series No :	KRZJ09A10300700157 for CGK030V3L, KRZJ09A10500700157 for CGK050V3L, KRZJ09A10600700157 for CGK060V3L

2 Order

2.1 Date of Purchase Order, Customer's Reference

2021-09-02, YE XIN

2.2 Test Sample(s)

- Reception date(s): 2021-09-02

- Location(s) of reception:

For Energy test:

GZ-Lans Experimental Technology Co., Ltd. Laboratory

Address: No.16, Juncheng Road, Huangpu district, Guangzhou, China

- Condition of test sample(s): completed and can be normal operation

2.3 Date(s) of Testing

2021-09-02 to 2021-09-10

2.4 Location(s) of Testing

Same as 2.2

2.5 Points of Non-compliance or Exceptions of the Test Procedure

N/A

3 Test Results

3.1 Positive Test Results

See Appendix I

4 Remark

N/A

4.1 The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.

4.2 When the product is placed on the market, it must be accompanied with safety Instructions written in official language of the country. The instructions shall give information regarding safe operation, installation and maintenance.

5 Documentation

- Appendix I Test results
- Appendix II Marking plate
- Appendix III photo documentation
- Appendix IV Construction data form
- Appendix V Test equipment list

6 Summary

- 1) The appliance is DC Inverter Type Air To Water Unit, including a whole compression type refrigerant circuit to heat water in another circuit. The appliance was for cooling and heating water function, this report only for heating capacity test.
- 2) The main power is supplied by a 3-pole supply cable not with plug which not supply by manufactory.
- 3) Water enthalpy method was adopted in this report.
- 4) Standby mode power, off mode power and thermostat-off mode power were tested according to clause 12 of standard EN 14825:2018.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch TÜV SÜD Group

Tested by: William Liang, Project Handler

printed name, function & signature

Approved by: Tony Xie, Designated Reviewer

printed name, function & signature



Appendix I Test results

Table 1.	Heating mode(Low temperature application):						P
Model	CGK030V3L						
Product type	Air to Water	Heating season	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder		
1. Test conditions:							
Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger	
	Formula	A	W		Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)	
A	$(-7-16)/(T_{designh-16})$	88	N/A	N/A	-7(-8)	a / 34	
B	$(+2-16)/(T_{designh-16})$	54	N/A	N/A	2(1)	a / 30	
C	$(+7-16)/(T_{designh-16})$	35	N/A	N/A	7(6)	a / 27	
D	$(+12-16)/(T_{designh-16})$	15	N/A	N/A	12(11)	a / 24	
E	$(TOL-16)/(T_{designh-16})$				TOL	a / 35.3	
F	$(T_{bivalent-16})/(T_{designh-16})$				T _{biv}	a / 34	
G	$(-15-16)/(T_{designh-16})$	N/A	N/A	N/A	-15	N/A	
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions.							
2. Tested data/correction data(Average):							
General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	1	0	0	0	2	1
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	232.6	227.0	226.5	231.7	227.2	232.6
Current input of the unit	A	9.41	4.01	3.42	2.82	11.08	9.41
Power input of the unit	kW	2.142	0.850	0.715	0.571	2.475	2.142
Test conditions indoor unit							
Inlet Water temperature, DB	°C	28.23	26.75	23.55	20.17	29.30	28.23
Outlet Water temperature, DB	°C	32.97*	29.82	27.01	24.09	34.51	32.97*

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.94	2.01	7.17	12.01	-10.00	-6.94
Air inlet temperature, WB	°C	-8.23	1.00	6.00	11.00	-11.18	-8.23
Summary of the results							
Total heating capacity	kW	6.106	3.947	4.391	4.962	6.704	6.106
Effective power input	kW	2.160	0.868	0.733	0.589	2.493	2.160
Coefficient of performance (COP)	--	2.83	4.55	5.99	8.42	2.69	2.83
Compressor frequency	Hz	78	30	30	30	78	78
Water flow	m³/h	1.11	1.11	1.11	1.11	1.11	1.11
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	6.903	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	6.903	6.704	2.69	0.00	1.00	2.69	
F	6.106	6.106	2.83	0.00	1.00	2.83	
A	6.106	6.106	2.83	0.00	1.00	2.83	
B	3.717	3.947	4.55	0.00	0.94	4.55	
C	2.389	4.391	5.99	0.99	0.54	5.94	
D	1.062	4.962	8.42	0.99	0.21	8.12	
CR: part load divided by capacity;							

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.013
Standby mode [P_{SB}]	kW	0.013
Crankcase heater [P_{CK}]	kW	0.044
Off mode [P_{OFF}]	kW	0.013

Conclusions:	Unit	Value
SCOP _{on} :	kWh/kWh	4.66
SCOP:	kWh/kWh	4.64
Q_H :	kWh/year	14261
Q_{HE} :	kWh/year	3072
$\eta_{s,h}$	%	182.7
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

Appendix I Test results

Table 2.	Heating mode(Medium temperature application):						P
Model	CGK030V3L						
Product type	Air to Water	Heating season	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder		
1. Test conditions:							
Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger	
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)	
A	$(-7-16)/(T_{designh}-16)$	88	N/A	N/A	-7(-8)	a / 52	
B	$(+2-16)/(T_{designh}-16)$	54	N/A	N/A	2(1)	a / 42	
C	$(+7-16)/(T_{designh}-16)$	35	N/A	N/A	7(6)	a / 36	
D	$(+12-16)/(T_{designh}-16)$	15	N/A	N/A	12(11)	a / 30	
E	$(TOL-16)/(T_{designh}-16)$				TOL	a / 55.3	
F	$(T_{bivalent}-16)/(T_{designh}-16)$				Tbiv	a / 52	
G	$(-15-16)/(T_{designh}-16)$	N/A	N/A	N/A	-15	N/A	
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions.							
2. Tested data/correction data(Average):							
General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	1	0	0	0	2	1
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	230.3	229.8	230.1	229.2	229.6	230.3
Current input of the unit	A	15.47	5.77	4.95	3.97	15.99	15.47
Power input of the unit	kW	3.398	1.277	1.088	0.852	3.550	3.398
Test conditions indoor unit							
Inlet Water temperature, DB	°C	45.69	38.52	32.25	25.58	49.08	45.69
Outlet Water temperature, DB	°C	51.06*	41.94	36.07	30.07	54.24*	51.06*

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-7.00	2.15	7.02	12.00	-9.96	-7.00
Air inlet temperature, WB	°C	-8.00	1.00	6.01	11.00	-10.93	-8.00
Summary of the results							
Total heating capacity	kW	7.032	4.304	5.068	5.746	6.758	7.032
Effective power input	kW	3.414	1.294	1.105	0.868	3.566	3.414
Coefficient of performance (COP)	--	2.06	3.33	4.59	6.62	1.90	2.06
Compressor frequency	Hz	78	35	35	35	78	78
Water flow	m ³ /h	1.14	1.14	1.14	1.14	1.14	1.14
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	7.950	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	7.950	6.758	1.90	0.00	1.00	1.90	
F	7.032	7.032	2.06	0.00	1.00	2.06	
A	7.032	7.032	2.06	0.00	1.00	2.06	
B	4.281	4.304	3.33	0.00	0.99	3.33	
C	2.752	5.068	4.59	0.99	0.54	4.55	
D	1.223	5.746	6.62	0.99	0.21	6.38	
CR: part load divided by capacity;							

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.013
Standby mode [P_{SB}]	kW	0.013
Crankcase heater [P_{CK}]	kW	0.044
Off mode [P_{OFF}]	kW	0.013

Conclusions:	Unit	Value
SCOP _{on} :	kWh/kWh	3.45
SCOP:	kWh/kWh	3.44
Q_H :	kWh/year	16424
Q_{HE} :	kWh/year	4776
$\eta_{s,h}$	%	134.5
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A++

Appendix I Test results

Table 3.	Heating mode(Low temperature application):						P
Model	CGK050V3L						
Product type	Air to Water	Heating season	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder		
1. Test conditions:							
Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger	
	Formula	A	W		Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)	
A	$(-7-16)/(T_{designh}-16)$	88	N/A	N/A	-7(-8)	a / 34	
B	$(+2-16)/(T_{designh}-16)$	54	N/A	N/A	2(1)	a / 30	
C	$(+7-16)/(T_{designh}-16)$	35	N/A	N/A	7(6)	a / 27	
D	$(+12-16)/(T_{designh}-16)$	15	N/A	N/A	12(11)	a / 24	
E	$(TOL-16)/(T_{designh}-16)$				TOL	a / 35.3	
F	$(T_{bivalent}-16)/(T_{designh}-16)$				Tbiv	a / 34	
G	$(-15-16)/(T_{designh}-16)$	N/A	N/A	N/A	-15	N/A	
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions.							
2. Tested data/correction data(Average):							
General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	2	0	0	0	2	2
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	228.6	229.5	228.3	231.4	227.5	228.6
Current input of the unit	A	17.06	6.64	5.61	4.50	17.80	17.06
Power input of the unit	kW	3.727	1.520	1.228	0.986	3.859	3.727
Test conditions indoor unit							
Inlet Water temperature, DB	°C	27.74	26.72	23.20	19.61	29.52	27.74
Outlet Water temperature, DB	°C	32.63*	29.96	26.96	23.91	34.57*	32.63*

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.87	2.02	7.01	12.00	-9.93	-6.87
Air inlet temperature, WB	°C	-8.09	1.00	6.00	11.00	-11.11	-8.09
Summary of the results							
Total heating capacity	kW	10.862	7.150	8.325	9.464	11.106	10.862
Effective power input	kW	3.753	1.547	1.255	1.013	3.885	3.753
Coefficient of performance (COP)	--	2.89	4.62	6.64	9.34	2.86	2.89
Compressor frequency	Hz	70	30	30	30	70	70
Water flow	m³/h	1.91	1.91	1.91	1.91	1.91	1.91
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	12.279	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	12.279	11.106	2.86	0.00	1.00	2.86	
F	10.862	10.862	2.89	0.00	1.00	2.89	
A	10.862	10.862	2.89	0.00	1.00	2.89	
B	6.612	7.150	4.62	0.00	0.92	4.62	
C	4.250	8.325	6.64	0.99	0.51	6.57	
D	1.889	9.464	9.34	0.99	0.20	8.98	
CR: part load divided by capacity;							

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.013
Standby mode [P_{SB}]	kW	0.013
Crankcase heater [P_{CK}]	kW	0.039
Off mode [P_{OFF}]	kW	0.013

Conclusions:	Unit	Value
SCOP _{on} :	kWh/kWh	4.85
SCOP:	kWh/kWh	4.84
Q_H :	kWh/year	25368
Q_{HE} :	kWh/year	5241
$\eta_{s,h}$	%	190.6
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

Appendix I Test results

Table 4.	Heating mode(Medium temperature application):						P
Model	CGK050V3L						
Product type	Air to Water	Heating season	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder		
1. Test conditions:							
Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger	
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)	
A	$(-7-16)/(T_{designh}-16)$	88	N/A	N/A	-7(-8)	a / 52	
B	$(+2-16)/(T_{designh}-16)$	54	N/A	N/A	2(1)	a / 42	
C	$(+7-16)/(T_{designh}-16)$	35	N/A	N/A	7(6)	a / 36	
D	$(+12-16)/(T_{designh}-16)$	15	N/A	N/A	12(11)	a / 30	
E	$(TOL-16)/(T_{designh}-16)$				TOL	a / 55.3	
F	$(T_{bivalent}-16)/(T_{designh}-16)$				Tbiv	a / 52	
G	$(-15-16)/(T_{designh}-16)$	N/A	N/A	N/A	-15	N/A	
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions.							
2. Tested data/correction data(Average):							
General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	2	0	0	0	1	2
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	227.6	229.0	230.7	227.4	228.6	227.6
Current input of the unit	A	24.32	8.68	7.03	5.73	24.89	24.32
Power input of the unit	kW	5.247	1.905	1.583	1.262	5.493	5.247
Test conditions indoor unit							
Inlet Water temperature, DB	°C	45.57	38.93	32.40	25.88	48.84	45.57
Outlet Water temperature, DB	°C	51.05*	41.95	36.04	30.06	54.13*	51.05*

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.88	2.02	7.30	12.30	-9.80	-6.88
Air inlet temperature, WB	°C	-8.13	1.00	6.02	10.81	-10.97	-8.13
Summary of the results							
Total heating capacity	kW	12.096	6.658	8.009	9.168	11.662	12.096
Effective power input	kW	5.271	1.929	1.607	1.286	5.517	5.271
Coefficient of performance (COP)	--	2.29	3.45	4.98	7.13	2.11	2.29
Compressor frequency	Hz	70	30	30	30	70	70
Water flow	m ³ /h	1.91	1.91	1.91	1.91	1.91	1.91
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	13.674	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	13.674	11.662	2.11	0.00	1.00	2.11	
F	12.096	12.096	2.29	0.00	1.00	2.29	
A	12.096	12.096	2.29	0.00	1.00	2.29	
B	7.363	6.658	3.45	0.00	1.00	3.45	
C	4.733	8.009	4.98	0.99	0.59	4.95	
D	2.104	9.168	7.13	0.99	0.23	6.90	
CR: part load divided by capacity;							

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.013
Standby mode [P_{SB}]	kW	0.013
Crankcase heater [P_{CK}]	kW	0.039
Off mode [P_{OFF}]	kW	0.013

Conclusions:	Unit	Value
SCOP _{on} :	kWh/kWh	3.44
SCOP:	kWh/kWh	3.44
Q_H :	kWh/year	28251
Q_{HE} :	kWh/year	8211
$\eta_{s,h}$	%	134.6
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A++

Appendix I Test results

Table 5.	Heating mode(Low temperature application):						P
Model	CGK060V3L						
Product type	Air to Water	Heating season	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder		
1. Test conditions:							
Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger	
	Formula	A	W		Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)	
A	$(-7-16)/(T_{designh-16})$	88	N/A	N/A	-7(-8)	a / 34	
B	$(+2-16)/(T_{designh-16})$	54	N/A	N/A	2(1)	a / 30	
C	$(+7-16)/(T_{designh-16})$	35	N/A	N/A	7(6)	a / 27	
D	$(+12-16)/(T_{designh-16})$	15	N/A	N/A	12(11)	a / 24	
E	$(TOL-16)/(T_{designh-16})$				TOL	a / 35.3	
F	$(T_{bivalent-16})/(T_{designh-16})$				T _{biv}	a / 34	
G	$(-15-16)/(T_{designh-16})$	N/A	N/A	N/A	-15	N/A	
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions.							
2. Tested data/correction data(Average):							
General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	2	0	0	0	2	2
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	229.7	229.4	228.6	230.6	229.4	229.7
Current input of the unit	A	19.31	7.25	6.12	5.00	19.43	19.31
Power input of the unit	kW	4.190	1.657	1.353	1.103	4.274	4.190
Test conditions indoor unit							
Inlet Water temperature, DB	°C	27.40	26.59	22.90	19.40	29.13	27.40
Outlet Water temperature, DB	°C	32.71*	29.97	26.86	23.91	34.42*	32.71*

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.95	2.03	7.01	12.01	-9.90	-6.95
Air inlet temperature, WB	°C	-8.14	1.00	6.00	11.00	-11.08	-8.14
Summary of the results							
Total heating capacity	kW	12.258	7.829	9.122	10.354	12.242	12.258
Effective power input	kW	4.218	1.685	1.382	1.131	4.302	4.218
Coefficient of performance (COP)	--	2.91	4.65	6.60	9.15	2.85	2.91
Compressor frequency	Hz	78	33	33	33	78	78
Water flow	m³/h	1.99	1.99	1.99	1.99	1.99	1.99
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	13.857	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	13.857	12.242	2.85	0.00	1.00	2.85	
F	12.258	12.258	2.91	0.00	1.00	2.91	
A	12.258	12.258	2.91	0.00	1.00	2.91	
B	7.461	7.829	4.65	0.00	0.95	4.65	
C	4.797	9.122	6.60	0.99	0.53	6.54	
D	2.132	10.354	9.15	0.99	0.21	8.81	
CR: part load divided by capacity;							

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.013
Standby mode [P_{SB}]	kW	0.013
Crankcase heater [P_{CK}]	kW	0.039
Off mode [P_{OFF}]	kW	0.013

Conclusions:	Unit	Value
SCOP _{on} :	kWh/kWh	4.85
SCOP:	kWh/kWh	4.84
Q_H :	kWh/year	28628
Q_{HE} :	kWh/year	5912
$\eta_{s,h}$	%	190.7
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

Appendix I Test results

Table 6.	Heating mode(Medium temperature application):						P	
Model	CGK060V3L							
Product type	Air to Water	Heating season	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder			
1. Test conditions:								
Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger		
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)		
A	$(-7-16)/(T_{designh}-16)$	88	N/A	N/A	-7(-8)	a / 52		
B	$(+2-16)/(T_{designh}-16)$	54	N/A	N/A	2(1)	a / 42		
C	$(+7-16)/(T_{designh}-16)$	35	N/A	N/A	7(6)	a / 36		
D	$(+12-16)/(T_{designh}-16)$	15	N/A	N/A	12(11)	a / 30		
E	$(TOL-16)/(T_{designh}-16)$				TOL	a / 55.3		
F	$(T_{bivalent}-16)/(T_{designh}-16)$				Tbiv	a / 52		
G	$(-15-16)/(T_{designh}-16)$	N/A	N/A	N/A	-15	N/A		
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions.								
2. Tested data/correction data(Average):								
General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)	
	--	A	B	C	D	E	F	
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00	
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes	
Complete Cycles	--	1	0	0	0	2	1	
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02	
Voltage	V	229.8	230.6	226.8	232.3	228.6	229.8	
Current input of the unit	A	26.26	9.08	7.68	6.11	27.68	26.26	
Power input of the unit	kW	5.830	2.054	1.735	1.376	6.084	5.830	
Test conditions indoor unit								
Inlet Water temperature, DB	°C	45.28	38.66	32.12	25.44	48.89	45.28	
Outlet Water temperature, DB	°C	51.05*	41.88	35.93	29.81	54.35*	51.05*	

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.87	2.01	7.05	12.01	-9.94	-6.87
Air inlet temperature, WB	°C	-8.02	1.00	6.00	11.00	-11.00	-8.02
Summary of the results							
Total heating capacity	kW	13.413	7.457	8.799	10.118	12.602	13.413
Effective power input	kW	5.861	2.085	1.765	1.407	6.115	5.861
Coefficient of performance (COP)	--	2.29	3.58	4.98	7.19	2.06	2.29
Compressor frequency	Hz	78	33	33	33	78	78
Water flow	m ³ /h	2.01	2.01	2.01	2.01	2.01	2.01
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	15.163	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	15.163	12.602	2.06	0.00	1.00	2.06	
F	13.413	13.413	2.29	0.00	1.00	2.29	
A	13.413	13.413	2.29	0.00	1.00	2.29	
B	8.165	7.457	3.58	0.00	1.00	3.58	
C	5.249	8.799	4.98	0.99	0.60	4.95	
D	2.333	10.118	7.19	0.99	0.23	6.96	
CR: part load divided by capacity;							





Doc No.: ITC-TTW0902.02E – Rev.10

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.013
Standby mode [P_{SB}]	kW	0.013
Crankcase heater [P_{CK}]	kW	0.039
Off mode [P_{OFF}]	kW	0.013





Conclusions:	Unit	Value
SCOP _{on} :	kWh/kWh	3.52
SCOP:	kWh/kWh	3.52
Q_H :	kWh/year	31326
Q_{HE} :	kWh/year	8910
$\eta_{s,h}$	%	137.6
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A++

Appendix II Marking plate

Nameplate	
Model: <u>CGK030V3L</u>	
 	
EVI DC Inverter Air Source Heat Pumps	
Model	CGK030V3L
Power Supply	220-240V~/50Hz
Heating Capacity Min./Max.	5.52/12kW
Heating Input Power Min./Max.	1.0/2.7kW
Cooling Capacity Min./Max.	3.97/8.64kW
Cooling Input Power Min./Max.	1.1/3.44kW
Rated. Input Power/Current	3.9kW/18.71A
Max. Water Outlet Temperature	55°C
Water Flow	2.06m ³ /h
Refrigerant/Weight	R32/1500g
Low/High side operation pressure	1.5/4.4MPa
Maximum allowable pressure	4.4MPa
Max Water Pressure	1.0MPa
Shock Proof Grade	I
WaterProof Level	IPX4
Water Pressure Drop	20kPa
Water Pipe Connection	1 inch
Net Weight	95kg
Date/NO.	See bar code
System CO ₂ equivalent charge weight: 1.05 ton	
Guangzhou Sprsun New Energy Technology Development Co., Ltd  	
No. 15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng	





Doc No.: ITC-TTW0902.02E – Rev.10

Appendix II Marking plate

Nameplate	
Model: <u>CGK050V3L</u>	
 	
EVI DC Inverter Air Source Heat Pumps	
Model	CGK050V3L
Power Supply	220-240V~/50Hz
Heating Capacity Min./Max.	9.2/20kW
Heating Input Power Min./Max.	1.55/4.2kW
Cooling Capacity Min./Max.	6.62/14.4kW
Cooling Input Power Min./Max.	1.7/5.36kW
Rated. Input Power/Current	6.1kW/29.21A
Max. Water Outlet Temperature	55°C
Water Flow	3.4m ³ /h
Refrigerant/Weight	R32/2800g
Low/High side operation pressure	1.5/4.4MPa
Maximum allowable pressure	4.4MPa
Max Water Pressure	1.0MPa
Shock Proof Grade	I
WaterProof Level	IPX4
Water Pressure Drop	23kPa
Water Pipe Connection	1 inch
Net Weight	130kg
Date/NO.	See bar code
System CO ₂ equivalent charge weight: 1.96 ton	
Guangzhou Sprsun New Energy Technology Development Co., Ltd  	
No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng	

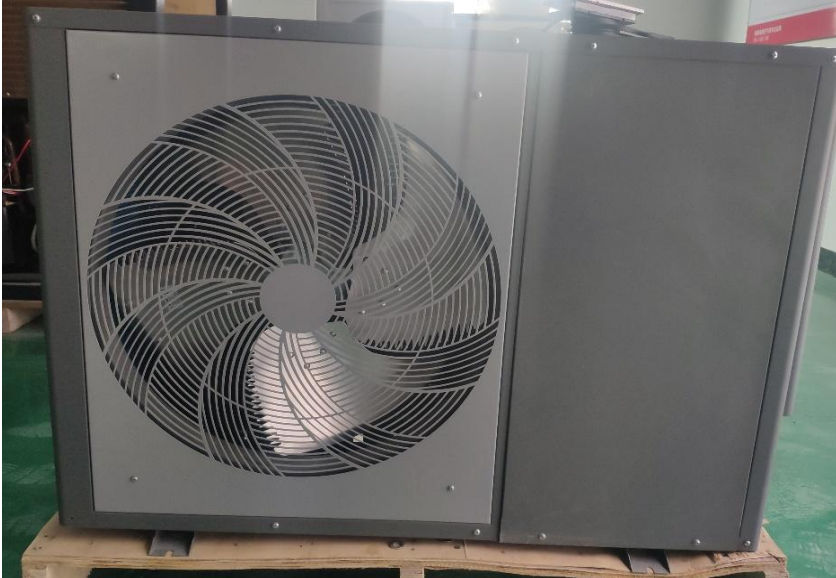
Doc No.: ITC-TTW0902.02E – Rev.10


Appendix II Marking plate

Nameplate	
Model: <u>CGK060V3L</u>	
 	
EVI DC Inverter Air Source Heat Pumps	
Model	CGK060V3L
Power Supply	220-240V~/50Hz
Heating Capacity Min./Max.	10.12/22kW
Heating Input Power Min./Max.	1.75/4.76kW
Cooling Capacity Min./Max.	7.29/15.84kW
Cooling Input Power Min./Max.	1.93/6.08kW
Rated. Input Power/Current	6.9kW/33.04A
Max. Water Outlet Temperature	55°C
Water Flow	3.8m ³ /h
Refrigerant/Weight	R32/2800g
Low/High side operation pressure	1.5/4.4MPa
Maximum allowable pressure	4.4MPa
Max Water Pressure	1.0MPa
Shock Proof Grade	I
WaterProof Level	IPX4
Water Pressure Drop	25kPa
Water Pipe Connection	1 inch
Net Weight	130kg
Date/NO.	See bar code
System CO ₂ aquivalent charge weight: 1.96 ton	
Guangzhou Sprsun New Energy Technology Development Co., Ltd  	
No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng	

Doc No.: ITC-TTW0902.02E – Rev.10


Appendix III photo documentaiton


Details of:	Overall view for CGK030V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Details of:	Compressor for CGK030V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Doc No.: ITC-TTW0902.02E – Rev.10


Appendix III photo documentaiton

Details of:	Fan Motor for CGK030V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Details of:	Main Control Board for CGK030V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Doc No.: ITC-TTW0902.02E – Rev.10


Appendix III photo documentaiton


Details of:	Overall view for CGK050V3L & CGK060V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Details of:	Compressor for CGK050V3L & CGK060V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix III photo documentaiton

Details of:	Fan Motor for CGK050V3L & CGK060V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Details of:	Main Control Board for CGK050V3L & CGK060V3L
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Doc No.: ITC-TTW0902.02E – Rev.10

Appendix IV Construction data form

Model: CGK030V3L		
Part		Technical data
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor (Guangzhou) Co., Ltd
	Type:	9KD240ZAA2J
	Rated capacity:	2405W; R32
	Serial-number:	N/A
2. Condenser		
	Manufacture:	East -Alliance Thermal Equipment
	Type:	EATB61-D-26-2M-2L
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	539(L)mmX125(H)mmX103(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration Equipment Co.,Ltd.
	Type:	03KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX750(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Wolong Electric Group Co., Ltd
	Type:	ZWB278D04A
	Fan type:	3 blade
5. Main control board		
	Manufacture:	CAREL
	Type:	UP3CON0S00
	Specification:	220-240V; 50Hz

Appendix IV Construction data form

Model: CGK050V3L, CGK060V3L

Part	Technical data	
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor (Guangzhou) Co., Ltd
	Type:	9VD420ZAA2J
	Rated capacity:	4390W; R32
	Serial-number:	N/A
2. Condenser		
	Manufacture:	East -Alliance Thermal Equipment
	Type:	EATB61-D-40-2M-2L
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	539(L)mmX125(H)mmX103(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration EquipmentCo.,Ltd.
	Type:	05KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX1300(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Wolong Electric Group Co., Ltd
	Type:	ZWB278D04A
	Fan type:	3 blade
5. Main control board		
	Manufacture:	CAREL
	Type:	UP3CON0S00
	Specification:	220-240V; 50Hz

Appendix V Equipment List

No.	Type	Manufacture	Model	Equipment ID	Calibration Due Date
1	R&A performance measuring system	GEI	20kW	-	2022-08-02
2	Temperature and humidity meter	VAISALA	HMD42	H5110021	2022-08-02
3	Platinum resistance	YINUO	Pt100	7430F	2022-05-20
4	Platinum resistance	YINUO	Pt100	7434F	2022-05-20
5	Flowmeter	YOKOGAWA	AXF015G	S5M201965	2022-05-20
6	Flowmeter	YOKOGAWA	AXF040G	S5M805005	2022-05-20
7	Pressure transmitter	MICRO	MPM489	240502	2022-08-02
8	Pressure transmitter	MICRO	MPM489	240503	2022-08-02
9	Water pressure difference transmitter	MICRO	MDM3051	291459	2022-08-02
10	AC source Supply	YANGHONG	YF-3600	-	2022-01-01
11	Water pressure difference transmitter	MICRO	MDM3051	291459	2022-08-02
12	AC source Supply	YANGHONG	YF-3600	-	2022-01-01
13	Temperature and humidity meter	H5110021	HMD42	VAISALA	2022-08-02

-- End of Report --