

# Technical Report No.: 64.181.22.03449.01 Rev.00

### Date: 2022-09-20

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:	CGK-025V3L; CGK-030V3L-B; CGK-040V3L; CGK-050V3L-B
	Trade name:	SPRSUN
Test specification:	,	EN 14825:2018
	1	(EU) No 813/2013
	$\checkmark$	EN 14511-3:2018
		EN 14511-4:2018 Clause 4
<b>_</b>		EN 12102-1:2017
Purpose of examination:	Test according to the to	est specification
	$\checkmark$	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.

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1	Description of the test object	
1.1	<b>Function</b> Manufacturer's specification for inter These appliances are air to water he Manufacturer's specification for pred According to user manual.	at pump.
1.2	Consideration of the foreseeat         Not applicable         Covered through the applied state         Covered by the following commany         Covered by attached risk analyse	andard ent
1.3	Technical Data	
	Model :	CGK-025V3L; CGK-030V3L-B; CGK-040V3L; CGK-050V3L-B
	Rated Voltage (V) :	380-420V, 3N~
	Rated Frequency (Hz):	50Hz
	Rated Power (W) :	3000 for CGK-025V3L; 3940 for CGK-030V3L-B; 4900 for CGK-040V3L; 6290 for CGK-050V3L-B
	Rated Current (A) :	6.30 for CGK-025V3L; 8.31 for CGK-030V3L-B; 10.40 for CGK-040V3L; 13.28 for CGK-050V3L-B
	Protection Class :	Class I
	Protection Against Moisture :	IP X4
	Construction :	Stationary
	Supply connection :	Non detachable cord
		Permanent connection to fixed wiring
	Operation mode:	Continuous operation;
		Intermittent operation;
		Short time operation;
	Refrigerant/charge (g) :	R32 / 1500g for CGK-025V3L; 1700g for CGK-030V3L-B; 2000g for CGK-040V3L; 2800g for CGK-050V3L-B
	Declared parameters :	Average 🗌 Warmer 🗌 Colder
	Sound power level dB(A) :	N/A
	Series No :	KRZK07A20250703577 for CGK-025V3L; KRZJ09A20300801957 for CGK-030V3L-B; KRZK07A20400703827 for CGK-040V3L; KRZJ09A20500802377 for CGK-050V3L-B

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### 2 Order

# 2.1 Date of Purchase Order, Customer's Reference

2022-08-15, Guangzhou Sprsun New Energy Technology Development Co., Ltd

### 2.2 Test Sample(s)

Reception date(s): 2022-08-15,
Location(s) of reception: For Energy test:
Guangzhou Lingxin Technology Co., LTD
Address: Room 101, Building 2, No.13 west Route, Kengtou Industrial Zone, Nancun Town, Panyu District, Guangzhou

For Noise tests:

CVC Testing Technology Co., Ltd.

Address: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, Guangdong, 510663, P.R.China

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

### 2.3 Date(s) of Testing

2022-08-15 to 2022-09-19

### 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 par-ticulars 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 re-garding 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) These appliances are Air to Water Heat Pump Unit, each one including a whole compression type refrigerant circuit to heat water in another circuit. These appliances were for cooling and heating water function, this report only for heating capacity test.
- 2) The main power is supplied by a 5-pole supply cord connecting to fixed wiring.
- 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.

	tion and Testing (China) Co., L	td. Guangzhou Branch
TÜV SÜD Group		1/ ///. 1.
Tested by:	William Liang, Project Handler	Valuen . Gang
	printed name, function & signature	TESTING CHINA CONT
Approved by:	Plum Li, Designated Reviewer	TANNOL

Approved by:

printed name, function & signature



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Appendix I T	î .								
Table 1.	Heating mod	e(Low temp	erature	applicat	ion):			1	2
Model	CGK-025V3L								
Product	Air to Water	Heating	1	Averag		Warmer		Colder	
type		season		е					
1. Test cond	itions:								
		Part Loa				Outdoo	r heat	Indoo	r heat
Condition		in S				excha	-		anger
dit	Form	nula	А	W		Inlet dry	• •		let water
ou						bul		temperat	ures (°C)
0						temper °C			
А	(-7-16)/(Tdesi	gnh-16)	88	N/A	N/A	-7(-		a/	34
В	(+2-16)/ (Tdes		54	N/A	N/A	2(1			30
С	(+7-16)/(Tdes		35	N/A	N/A	7(6			27
D	(+12-16)/(Tde		15	N/A	N/A	12(1			24
E F		(TOL-16)/ (To bivalent-16)/(				TO Tbi			35.3 34
G	(-15-16)/(Tdes		N/A	N/A	N/A	-15			<u>34</u> /A
Remark: a) Wi							-		
at 30/35 condit	tions, the capa	city is 7879.6	2W, the						-
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W34		W30	A7/W2		/W24	A(-10)/	A(-7)/
conditions/		(88%)	(54	4%)	(35%	) (1	5%)	W35.3	W34
Part-Load								(100%)	(88%)
		A		В	С		D	E	F
Data	hh: min:sec	4:00:00	2:1	0:00	2:10:0	0 2:1	0:00	4:00:00	4:00:00
collection									
period									
The heat		Yes	Ν	10	No	1	No	Yes	Yes
pump defrosts									
Complete		2	(	0	0		0	2	2
Cycles									
Barometric	kPa	101.02	101	1.02	101.0	2 10	1.02	101.02	101.02
pressure Voltage	V	401.3	40	0.6	399.0	) 39	97.9	400.9	401.3
Current input	A	4.96		65	2.25		.93	5.05	4.96
of the unit	/	4.00	۷.	00	2.20		.00	0.00	4.00
Power input	kW	2.047	0.0	395	0.705	5 0.	555	2.073	2.047
of the unit									
Test conditions									
Inlet Water	°C	29.36	27	.33	24.33	3 20	).76	30.99	29.36
temperature, DB									
Outlet Water	°C	33.27*	29	.98	27.15	5 23	3.96	34.51*	33.27*
temperature,									
DB									

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Test condition	s outdoor unit						
Air <b>inlet</b> temperature,	°C	-6.97	2.03	7.00	12.01	-10.00	-6.97
DB Air <b>inlet</b> temperature, WB	°C	-8.11	1.01	6.00	11.00	-11.11	-8.11
Summary of th	ne results						
Total heating capacity	kW	6.135	4.154	4.433	5.036	5.511	6.135
Effective power input	kW	2.079	0.927	0.737	0.587	2.105	2.079
Coefficient of performance (COP)		2.95	4.48	6.01	8.58	2.62	2.95
Compressor frequency	Hz	70	33	30	30	70	70
		1.35	1.35	1.35	1.35	1.35	1.35
		putlet tempera	ature data is reco				e's data.
Remark: * In p	part condition, c	putlet tempera	ature data is reco	orded by a fu			e's data.
Remark: * In p 3.Calculatio	part condition, c n/conclusior -10	putlet tempera	ature data is reco ( <b>Average):</b>	orded by a fu			e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	part condition, c n/conclusior -10	outlet tempera	ature data is reco ( <b>Average):</b> Tbiv(°C) TOL(°C)	orded by a fu			e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	n/conclusior -10 6.935	outlet tempera	ature data is reco ( <b>Average):</b> Tbiv(°C) TOL(°C)	orded by a fu		bmplete cycl	e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b> /	n/conclusion -10 6.935 A, B, C, D, E,	outlet tempera	Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C)	orded by a fu -7 -10	Il average co	bmplete cycl	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b>	n/conclusion -10 6.935 A, B, C, D, E, Part load	outlet tempera	Ature data is reco (Average): Tbiv(°C) TOL(°C) TOL(°C) TS: COP at measured capacity	-7 -10 Cdh	Il average co	COP at	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b> <u>5</u> <u>5</u> <u>6</u> <u>6</u> <u>6</u> <u>6</u> <u>7</u> E	n/conclusion -10 6.935 A, B, C, D, E, Part load 6.935	outlet tempera for SCOP( F condition Measured capacity 5.511	Ature data is reco (Average): Tbiv(°C) TOL(°C) IS: COP at measured capacity 2.62	-7 -10 Cdh 0.00	Il average co CR 1.00	COP at p	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b> <u>G</u> E F	n/conclusion -10 6.935 A, B, C, D, E, Part load 6.935 6.135	<b>F condition</b> Measured capacity 5.511 6.135	Ature data is reco (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) 2.62 2.95	-7 -10 Cdh 0.00 0.00	II average co II average co CR 1.00 1.00	COP at p 2.1 2.1 2.1	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b> <u>5</u> <u>5</u> <u>6</u> <u>6</u> <u>7</u> E F A	n/conclusion -10 6.935 <b>A, B, C, D, E,</b> Part load 6.935 6.135 6.135	for SCOP F condition Measured capacity 5.511 6.135 6.135	Ature data is reco (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) 2.62 2.95 2.95	-7 -10 Cdh 0.00 0.00 0.00	II average co CR 1.00 1.00 1.00	COP at p 2.1 2.1 2.1 4.1	52 95

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.017
Standby mode [P <sub>SB</sub> ]	kW	0.017
Crankcase heater [P <sub>CK</sub> ]	kW	0.029
Off mode [P <sub>OFF</sub> ]	kW	0.017
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.63
SCOP:	kWh/kWh	4.62
Q <sub>H</sub> :	kWh/year	14327
Q <sub>HE</sub> :	kWh/year	3102
$\eta_{s,h}$	%	181.8
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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Appendix I 1	est results							-	
Table 2.	Heating mod	e(Medium te	mperat	ure app	lication)	:		F	2
Model	CGK-025V3L								
Product	Air to Water	Heating	1	Averag		Warmer		Colder	
type		season		е					
1. Test cond	itions:								
		Part Loa	d Ratio			Outdoo	r heat	Indoo	r heat
и		in S	%			excha	nger	excha	anger
Condition	Form	nula	А	W	С	Inlet dry	/ (wet)		let water
uo						bul		temperat	ures (°C)
Ö						temper °C			
Α	(-7-16)/(Tdesi	gnh-16)	88	N/A	N/A	-7(-		a/	52
В	(+2-16)/ (Tdes		54	N/A	N/A	2(1	)	a/	42
С	(+7-16)/(Tdes		35	N/A	N/A	7(6			36
D	(+12-16)/(Tde	<u> </u>	15	N/A	N/A	12(1			30
E F		(TOL-16)/ (To				TO			55.3
G F	( ) (-15-16)/(Tdes	bivalent-16)/(	N/A	N/A	N/A	Tb -1:		a/ N	
-	ith the water flo						-		
at 47/55 condi									1140112
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W52	A2/	W42	A7/W3	6 A12	/W30	A(-10)/	A(-7)/
conditions/		(88%)	(54	4%)	(35%)	) (1	5%)	W55.3	W52
Part-Load			-					(100%)	(88%)
		Α		В	С		D	E	F
Data collection	hh: min:sec	4:00:00	2:1	0:00	2:10:0	0 2:1	0:00	2:10:00	4:00:00
period									
The heat		Yes	Ν	lo	No		No	No	Yes
pump defrosts									
Complete		1		0	0		0	0	1
Cycles									
Barometric	kPa	101.02	101	1.02	101.02	2 10	1.02	101.02	101.02
pressure Voltage	V	400.7	40	1.7	401.0	) 4(	02.0	403.4	400.7
Current input	A	6.80	3	15	2.76	2	.40	6.70	6.80
of the unit	~	0.00	0.	10	2.70		.40	0.70	0.00
Power input	kW	2.956	1.1	176	0.924	0.	716	3.069	2.956
of the unit									
Test conditions								-	-
Inlet Water	°C	44.67	37	.84	31.89	25	5.14	48.14	44.67
temperature, DB									
Outlet Water	°C	51.27	41	.81	36.15	5 30	).01	54.46*	51.27
temperature, DB									

Doc No.: ITC-TTW0902.02E – Rev.11

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Appendix	l Test res	ults

Test conditior	is <b>outdoor</b> unit						
Air <b>inlet</b> temperature, DB	°C	-6.93	2.02	7.00	12.00	-10.00	-6.93
Air <b>inlet</b> temperature, WB	°C	-8.13	1.00	6.00	11.00	-11.22	-8.13
Summary of t	he results						
Total heating capacity	kW	6.532	4.007	4.313	4.932	6.336	6.532
Effective power input	kW	2.996	1.216	0.964	0.756	3.109	2.996
Coefficient of performance (COP)		2.18	3.29	4.48	6.52	2.04	2.18
Compressor frequency	Hz	70	33	30	30	70	70
Water flow	m³/h	0.87	0.87	0.87	0.87	0.87	0.87
Remark: * In <sub>I</sub>			ature data is reco	brded by a fu	II average co	pmplete cycl	e's data.
Remark: * In <sub>I</sub>	n/conclusior				II average co	pmplete cycl	e's data.
Remark: * In p 3.Calculatio	n/conclusior		(Average):	-7	II average co	pmplete cycl	e's data.
Remark: * In p <b>3.Calculatic</b> Tdesignh(°C) Pdesignh(kW	n/conclusior	n for SCOP(	( <b>Average):</b> Tbiv(°C) TOL(°C)	-7	II average co	pmplete cycl	e's data.
Remark: * In p <b>3.Calculatic</b> Tdesignh(°C) Pdesignh(kW	n/conclusion -10 ) 7.384	n for SCOP(	( <b>Average):</b> Tbiv(°C) TOL(°C)	-7	II average co		e's data.
Remark: * In p <b>3.Calculatic</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b>	n/conclusior -10 7.384 A, B, C, D, E,	for SCOP( F condition	( <b>Average):</b> Tbiv(°C) TOL(°C) <b>ns:</b> COP at measured	-7 -10			part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b>	<b>n/conclusion</b> -10 7.384 <b>A, B, C, D, E,</b> Part load	F condition Measured capacity	( <b>Average):</b> Tbiv(°C) TOL(°C) <b>ns:</b> COP at measured capacity	-7 -10 Cdh	CR	COP at p	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b> O D D D D D D D D D D D D D	<b>n/conclusion</b> -10 7.384 <b>A, B, C, D, E,</b> Part load 7.384	F condition Measured capacity 6.336	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.04	-7 -10 Cdh 0.00	CR 1.00	COP at p 2.0	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b> O E F	<b>n/conclusion</b> -10 7.384 <b>A, B, C, D, E,</b> Part load 7.384 6.532	F condition Measured capacity 6.336 6.532	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.04 2.18	-7 -10 Cdh 0.00 0.00	CR 1.00 1.00	COP at p 2.0 2.0 2.0	Dart load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW Test result A O E F A	n/conclusion -10 7.384 <b>A, B, C, D, E,</b> Part load 7.384 6.532 6.532	F condition Measured capacity 6.336 6.532 6.532	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.04 2.18 2.18	-7 -10 Cdh 0.00 0.00 0.00	CR 1.00 1.00	COP at p 2.0 2.1 2.1 3.1	Dart load

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.017
Standby mode [P <sub>SB</sub> ]	kW	0.017
Crankcase heater [P <sub>CK</sub> ]	kW	0.029
Off mode [P <sub>OFF</sub> ]	kW	0.017
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.45
SCOP:	kWh/kWh	3.44
Q <sub>H</sub> :	kWh/year	15255
Q <sub>HE</sub> :	kWh/year	4432
η <sub>s,h</sub>	%	134.7
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Appendix I T									
Table 3.	Heating mode(Low temperature application):							1	2
Model	CGK-030V3L	-В						•	
Product	Air to Water	Heating	1	Averag		Warmer		Colder	
type		season		е					
1. Test cond	itions:					1	1		
		Part Loa	d Ratio			Outdoo	r heat	Indoo	r heat
ion		in S				excha			anger
Condition	Form	nula	А	W		Inlet dr			let water
Con						bu		temperat	ures (°C)
0						tempe °(			
А	(-7-16)/(Tdesi	gnh-16)	88	N/A	N/A	-7(-		a/	34
В	(+2-16)/ (Tdes		54	N/A	N/A	2(*			30
С	(+7-16)/(Tdes	<u>u</u> (	35	N/A	N/A	7(6			27
D	(+12-16)/(Tde		15	N/A	N/A	12(*			24
E F		(TOL-16)/ (To bivalent-16)/(				TC Tb			<u>35.3</u> 34
F G	() (-15-16)/(Tdes		N/A	N/A	N/A	-1			<u>34</u> /A
Remark: a) Wi							-		
at 30/35 condit									-
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W34		W30	A7/W2		2/W24	A(-10)/	A(-7)/
conditions/		(88%)	(54	4%)	(35%)	) (1	5%)	W35.3	W34
Part-Load								(100%)	(88%)
Data	 hh: min:sec	A 4:00:00		B 0:00	C 2:10:0	0 0.7	D 10:00	E 4:00:00	F 4:00:00
collection	nn. min.sec	4.00.00	2.1	0.00	2.10.0	0 2.	10.00	4.00.00	4.00.00
period									
The heat		Yes	Ν	lo	No		No	Yes	Yes
pump defrosts									
Complete		1		0	0		0	1	1
Cycles									
Barometric	kPa	101.02	10 <sup>-</sup>	1.02	101.0	2 10	1.02	101.02	101.02
pressure	V	412.8	20	5.0	406 5		00.9	410.7	412.8
Voltage				5.0	406.5				
Current input	A	4.29	2.	.00	1.58	1	.38	4.26	4.29
of the unit									
Power input	kW	2.455	0.9	977	0.762	2 0	595	2.508	2.455
of the unit									
Test conditions									
Inlet Water	°C	29.01	27	.52	34.35	5 2	0.84	30.56	29.01
temperature,									
DB						_			
Outlet Water	°C	33.10*	30	.14	27.07	2	3.93	34.33*	33.10*
temperature,									
DB	l								

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Test condition	s <b>outdoor</b> unit						
Air <b>inlet</b> temperature, DB	°C	-6.96	2.04	7.01	12.01	-9.97	-6.96
Air <b>inlet</b> temperature, WB	°C	-8.12	1.01	6.00	11.00	-10.97	-8.12
Summary of th	ne results				•	•	
Total heating capacity	kW	7.106	4.513	4.828	5.463	6.547	7.106
Effective power input	kW	2.488	1.010	0.795	0.628	2.541	2.488
Coefficient of performance (COP)		2.86	4.47	6.08	8.70	2.58	2.86
Compressor frequency	Hz	78	33	30	30	78	78
Water flow	m³/h	1.49	1.49	1.49	1.49	1.49	1.49
3.Calculatio Tdesignh(°C)	n/conclusior -10		(Average): Tbiv(°C)	-7			
Pdesignh(kW)	8.032		TOL(°C)	-10			
Test result A	A, B, C, D, E,	F conditior	ıs:				
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at	part load
E	8.032	6.547	2.58	0.00	1.00	2.	58
F	7.106	7.106	2.86	0.00	1.00	2.	86
А	7.106	7.106	2.86	0.00	1.00	2.	86
В	4.325	4.513	4.47	0.00	0.96	4.	47
С	2.780	4.828	6.08	0.99	0.58	6.	03
D	1.236	5.463	8.70	0.99	0.23	8.	41
CR: part load	divided by capa	acity;		L	1	1	

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Electric power consumptions	Unit	Value
Thermostat-off mode $[P_{TO}]$	kW	0.008
Standby mode [P <sub>SB</sub> ]	kW	0.008
Crankcase heater [P <sub>CK</sub> ]	kW	0.044
Off mode [P <sub>OFF</sub> ]	kW	0.008
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.62
SCOP:	kWh/kWh	4.61
Q <sub>H</sub> :	kWh/year	16595
Q <sub>HE</sub> :	kWh/year	3601
$\eta_{s,h}$	%	181.4
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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Appendix I 1 Table 4.	Heating mode(Medium temperature application):								
								•	
Model	CGK-030V3L-B								
Product	Air to Water	Air to Water Heating 🛛 🖓 Averag 🗌 Warmer					Colder		
type		season		е					
1. Test cond	itions:	1						l	
	Part Load Ratio Outdoor heat						r heat	Indoo	r heat
ю		in %	6			excha	nger	excha	anger
Condition	Form	nula	А	W	С	Inlet dry	. ,	-	let water
uo						bul		temperat	ures (°C)
o						temper °C			
А	(-7-16)/(Tdesi	gnh-16)	88	N/A	N/A	-7(-		a/	52
В	(+2-16)/ (Tdes	signh-16)	54	N/A	N/A	2(1	)	a/	42
C	(+7-16)/(Tdes		35	N/A	N/A	7(6	1	a/	
D	(+12-16)/(Tde		15	N/A	N/A	12(1 TO	/	a/	
E F		(TOL-16)/ (To bivalent-16)/(				TO Tbi		a/t a/	
G	(-15-16)/(Tdes		N/A	N/A	N/A	-15		A /	
Remark: a) Wi									
at 47/55 condi									
2 Tostod dat	a/correction	data(Avora	ao).						
		·	• ·						
General test	Unit	A(-7)/W52		W42	A7/W3		/W30	A(-10)/	A(-7)/
conditions/		(88%)	(54	1%)	(35%)	) (1	5%)	W55.3	W52
Part-Load								(100%)	(88%)
		-		_					
<u> </u>		A	-	В	C		D	E	F
Data	hh: min:sec	4:00:00	2:10	0:00	2:10:0	0 2:1	0:00	4:00:00	4:00:00
collection period									
The heat		Yes	N	lo			No	Yes	Yes
pump defrosts		105			No	r i r			
F F				10	No	ſ	NU	105	105
				.0	No	ſ	NU	100	105
Complete		1		0	No 0		0	1	1
•		1							
Cycles		1 101.02							
Cycles Barometric pressure	 kPa	101.02	101	0 1.02	0	2 10	0 1.02	1	1
Cycles Barometric pressure			101	0	0	2 10	0	1	1
Cycles Barometric pressure Voltage Current input	 kPa	101.02	10 <sup>7</sup> 39	0 1.02	0	2 10	0 1.02	1	1
Complete Cycles Barometric pressure Voltage Current input of the unit	 kPa V	101.02 408.5	10 <sup>7</sup> 39	0 1.02 3.9	0 101.02 391.3	2 10	0 1.02 91.0	1 101.02 392.3	1 101.02 408.5
Cycles Barometric pressure Voltage Current input of the unit	 kPa V	101.02 408.5	10 <sup>-</sup> 39 2.	0 1.02 3.9	0 101.02 391.3	2 10 39 1	0 1.02 91.0	1 101.02 392.3	1 101.02 408.5
Cycles Barometric pressure Voltage Current input of the unit Power input	 kPa V A	101.02 408.5 5.47	10 <sup>-</sup> 39 2.	0 1.02 3.9 53	0 101.02 391.3 2.11	2 10 39 1	0 1.02 01.0 .71	1 101.02 392.3 6.03	1 101.02 408.5 5.47
Cycles Barometric pressure Voltage Current input of the unit Power input of the unit	 kPa V A kW	101.02 408.5 5.47	10 <sup>-</sup> 39 2.	0 1.02 3.9 53	0 101.02 391.3 2.11	2 10 39 1	0 1.02 01.0 .71	1 101.02 392.3 6.03	1 101.02 408.5 5.47
Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions	 kPa V A kW	101.02 408.5 5.47 3.226	10 <sup>-</sup> 39 2. 1.2	0 1.02 3.9 53 258	0 101.02 391.3 2.11 0.979	2 10 39 1 0.	0 1.02 11.0 .71 755	1 101.02 392.3 6.03 3.593	1 101.02 408.5 5.47 3.226
Cycles Barometric pressure Voltage Current input of the unit Power input of the unit	 kPa V A kW	101.02 408.5 5.47	10 <sup>-</sup> 39 2. 1.2	0 1.02 3.9 53	0 101.02 391.3 2.11	2 10 39 1 0.	0 1.02 01.0 .71	1 101.02 392.3 6.03	1 101.02 408.5 5.47
Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions Inlet Water temperature,	 kPa V A kW	101.02 408.5 5.47 3.226	10 <sup>-</sup> 39 2. 1.2	0 1.02 3.9 53 258	0 101.02 391.3 2.11 0.979	2 10 39 1 0.	0 1.02 11.0 .71 755	1 101.02 392.3 6.03 3.593	1 101.02 408.5 5.47 3.226
Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions Inlet Water	 kPa V A kW	101.02 408.5 5.47 3.226	10 <sup>-</sup> 39 2. 1.2 37	0 1.02 3.9 53 258	0 101.02 391.3 2.11 0.979	2 10 39 1 0. 24	0 1.02 11.0 .71 755	1 101.02 392.3 6.03 3.593	1 101.02 408.5 5.47 3.226
Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions Inlet Water temperature, DB	 kPa V A kW s <b>indoor</b> unit	101.02 408.5 5.47 3.226 44.20	10 <sup>-</sup> 39 2. 1.2 37	0 1.02 3.9 53 258 .96	0 101.02 391.3 2.11 0.979 31.51	2 10 39 1 0. 24	0 1.02 01.0 .71 755 91	1 101.02 392.3 6.03 3.593 47.04	1 101.02 408.5 5.47 3.226 44.20

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Test condition	s <b>outdoor</b> unit						
Air <b>inlet</b> temperature, DB	°C	-6.98	2.02	7.03	12.01	-9.99	-6.98
Air <b>inlet</b> temperature, WB	°C	-8.20	1.00	6.00	11.00	-11.02	-8.20
Summary of tl	ne results						
Total heating capacity	kW	7.258	4.244	4.622	5.360	7.229	7.258
Effective power input	kW	3.246	1.278	0.999	0.775	3.613	3.246
Coefficient of performance (COP)		2.24	3.32	4.63	6.92	2.00	2.24
Compressor frequency	Hz	71	33	30	30	78	71
Water flow	m³/h	0.90	0.90	0.90	0.90	0.90	0.90
Remark: * In p	part condition, c	putlet tempera	iture data is reco	orded by a fu	II average co	pmplete cycl	e's data.
Remark: * In p	part condition, o	putlet tempera	iture data is reco		II average co	omplete cycl	e's data.
Remark: * In p 3.Calculatio	part condition, c n/conclusior -10	putlet tempera	ature data is reco Average):	-7	II average co	omplete cycl	e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW	part condition, c n/conclusior -10	outlet tempera	ature data is reco Average): Tbiv(°C) TOL(°C)	-7	II average co	omplete cycl	e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW	n/conclusior -10 8.205	outlet tempera	ature data is reco Average): Tbiv(°C) TOL(°C)	-7	Il average co	COP at	
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b> 4	n/conclusion -10 8.205 A, B, C, D, E,	outlet tempera	Average): Tbiv(°C) TOL(°C) TOL(°C)	-7 -10		COP at	
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b>	n/conclusion -10 8.205 A, B, C, D, E, Part load	outlet tempera	Average): Tbiv(°C) TOL(°C) IS: COP at measured capacity	-7 -10 Cdh	CR	COP at	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b> <u>unippeo</u> E	n/conclusion -10 8.205 A, B, C, D, E, Part load 8.205	for SCOP( F condition Measured capacity 7.229	Average): Tbiv(°C) TOL(°C) IS: COP at measured capacity 2.00	-7 -10 Cdh 0.00	CR 1.00	COP at 2.	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW <b>Test result</b> United States of the second secon	n/conclusion -10 8.205 <b>A, B, C, D, E,</b> Part load 8.205 7.258	for SCOP( F condition Measured capacity 7.229 7.258	Average): Tbiv(°C) TOL(°C) IS: COP at measured capacity 2.00 2.24	-7 -10 Cdh 0.00 0.00	CR 1.00 1.00	COP at 2.	Dart load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW Test result A D D E F A	n/conclusion -10 8.205 A, B, C, D, E, Part load 8.205 7.258 7.258	for SCOP( F condition Measured capacity 7.229 7.258 7.258	Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) 2.00 2.24 2.24	-7 -10 Cdh 0.00 0.00 0.00	CR 1.00 1.00	COP at 2.	Dart load





Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.008
Standby mode [P <sub>SB</sub> ]	kW	0.008
Crankcase heater [P <sub>CK</sub> ]	kW	0.044
Off mode [P <sub>OFF</sub> ]	kW	0.008
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.43
SCOP:	kWh/kWh	3.42
Q <sub>H</sub> :	kWh/year	16951
Q <sub>HE</sub> :	kWh/year	4951
η <sub>s,h</sub>	%	133.9
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Appendix I T	est results							-	
Table 5.	Heating mode(Low temperature application):							1	2
Model	CGK-040V3L								
Product	Air to Water	Heating season	1	Averag e		Warmer		Colder	
type		coucon		-					
1. Test cond	itions:								
-		Part Loa				Outdoo			r heat
Condition	Form	in <sup>o</sup>	-	14/		excha	-		anger let water
ipc	Form	iula	A	W		Inlet dry bul	• •		ures (°C)
Cor						temper		temperat	ules ( C)
U						°C			
А	(-7-16)/(Tdesi	gnh-16)	88	N/A	N/A	-7(-		a/	34
В	(+2-16)/ (Tdes		54	N/A	N/A	2(1		a/	30
С	(+7-16)/(Tdes		35	N/A	N/A	7(6			27
D	(+12-16)/(Tde		15	N/A	N/A	12(1			24
E		(TOL-16)/ (To				TO			35.3
F		bivalent-16)/(				Tbi			34
G	(-15-16)/(Tdes		N/A	N/A	N/A	-1	-		<u>/A</u>
at 30/35 condit	ith the water flo tions, the capa								14311-2
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W34	A2/	W30	A7/W2	27 A12	/W24	A(-10)/	A(-7)/
conditions/	-	(88%)		4%)	(35%		5%)	W35.3	W34
Part-Load		· · /	``	,	<b>v</b>	, (	,	(100%)	(88%)
									. ,
		A		В	С		D	E	F
Data	hh: min:sec	4:00:00	2:1	0:00	2:10:0	0 2:1	0:00	4:00:00	4:00:00
collection									
period									
The heat		Yes	N	lo	No	1	No	Yes	Yes
pump defrosts									
Complete		2		0	0		0	2	2
Complete Cycles		2		0	0		0	2	2
-		404.00	10	1.00	101.0	0 10	4.00	404.00	404.00
Barometric	kPa	101.02	10	1.02	101.0	2 10	1.02	101.02	101.02
pressure Voltage	V	405.7	30	7.1	397.0	) 30	9.1	400.3	405.7
Current input	A	6.88	3.	46	3.18	2	.76	7.28	6.88
of the unit									
Power input	kW	3.171	1.2	298	1.110	) 0.	912	3.374	3.171
of the unit									
Test conditions	s <b>indoor</b> unit		L						1
Inlet Water	°C	29.33	27	.48	24.06	3 20	).88	30.78	29.33
temperature,	-	_0.00	-1						
DB									
		00.40					05	04.54	00.40
Outlet Water	°C	33.10	29	.90	26.84	1 24	1.05	34.54	33.10
<b>Outlet</b> Water temperature,	°C	33.10	29	.90	26.84	1 22	.05	34.54	33.10

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Test condition	s outdoor unit						
Air <b>inlet</b> temperature, DB	°C	-7.00	2.01	7.01	12.00	-9.99	-7.00
Air <b>inlet</b> temperature, WB	°C	-8.20	1.01	6.01	11.00	-11.13	-8.20
Summary of th	ne results			•			
Total heating capacity	kW	9.307	6.004	6.890	7.848	9.284	9.307
Effective power input	kW	3.219	1.346	1.158	0.960	3.422	3.219
Coefficient of performance (COP)		2.89	4.46	5.95	8.18	2.71	2.89
Compressor frequency	Hz	57	25	25	25	60	57
Water flow	m³/h	2.13	2.13	2.13	2.13	2.13	2.13
Remark: * In p	part condition, c	putlet tempera	ature data is reco				e's data.
Remark: * In p		putlet tempera	ature data is reco	orded by a fu			e's data.
Remark: * In p <b>3.Calculatio</b>	part condition, c n/conclusior -10	putlet tempera	ature data is reco ( <b>Average):</b>	orded by a fu			e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	part condition, c n/conclusior -10	outlet tempera	ature data is reco ( <b>Average):</b> Tbiv(°C) TOL(°C)	orded by a fu			e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	n/conclusior -10 10.521	outlet tempera	ature data is reco ( <b>Average):</b> Tbiv(°C) TOL(°C)	orded by a fu		omplete cycl	e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result /</b>	n/conclusion -10 10.521	n for SCOP( F condition Measured	Ature data is reco Average): Tbiv(°C) TOL(°C) TS: COP at measured	orded by a fu	Il average co	omplete cycl	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b>	n/conclusion -10 10.521 A, B, C, D, E, Part load	n for SCOP( F condition Measured capacity	Ature data is reco (Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity	-7 -10 Cdh	Il average co	COP at	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) Test result / Dippeo E	n/conclusion -10 10.521 A, B, C, D, E, Part load	n for SCOP( F condition Measured capacity 9.284	Ature data is reco (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) as: COP at measured capacity 2.71	-7 -10 Cdh	Il average co CR 1.00	COP at p	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) Test result / Unit of the second	n/conclusion -10 10.521 <b>A, B, C, D, E,</b> Part load 10.521 9.307	n for SCOP( F condition Measured capacity 9.284 9.307	Ature data is reco (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) 2.71 2.89	-7 -10 Cdh 0.00 0.00	II average co CR 1.00 1.00	COP at pression of the second	part load 71 39
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) Test result / E F A	n/conclusion -10 10.521 A, B, C, D, E, Part load 10.521 9.307 9.307	F condition Measured capacity 9.284 9.307 9.307	Ature data is reco (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) 15: COP at measured capacity 2.71 2.89 2.89	-7 -10 Cdh 0.00 0.00 0.00	Il average co CR 1.00 1.00 1.00	COP at 2. 2. 2. 4.	5art load 71 39

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.018
Standby mode [P <sub>SB</sub> ]	kW	0.018
Crankcase heater [P <sub>CK</sub> ]	kW	0.041
Off mode [P <sub>OFF</sub> ]	kW	0.018
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.60
SCOP:	kWh/kWh	4.59
Q <sub>H</sub> :	kWh/year	21736
Q <sub>HE</sub> :	kWh/year	4737
η <sub>s,h</sub>	%	180.5
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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Appendix I 1								-	
Table 6.	Heating mod	e(Medium te	emperat	ure app	lication)	:		Р	
Model	CGK-040V3L								
Product	Air to Water	Heating	1	Averag		Warme		Colder	
type		season		e					
1. Test cond	itions:								
		Part Loa	d Ratio			Outdo	or heat	Indoo	r heat
5		in 9					anger		anger
Condition	Form	nula	А	W	С	Inlet dr	-		let water
ouc						bu	lb	temperat	ures (°C)
Ŭ						tempe			
A	(-7-16)/(Tdesi	anh-16)	88	N/A	N/A	°, -7(		a/	52
В	(+2-16)/ (Tde		54	N/A	N/A	2(	1		42
С	(+7-16)/(Tdes		35	N/A	N/A	7(		1	36
D	(+12-16)/(Tde		15	N/A	N/A	12(			30
<u> </u>		(TOL-16)/ (To				T(			55.3
F G		bivalent-16)/(			N/A				<u>52</u> /A
	(-15-16)/(Tdea ith the water flo		N/A	N/A					
at 47/55 condi									14011-2
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W52	A2/	W42	A7/W3	36 A1	2/W30	A(-10)/	A(-7)/
conditions/		(88%)	(54	4%)	(35%)	) (*	15%)	W55.3	W52
Part-Load								(100%)	(88%)
		А		В	С		D	E	F
Data	hh: min:sec	4:00:00	2:1	0:00	2:10:0	0 2:	10:00	4:00:00	4:00:00
collection									
period									
The heat		Yes	N	10	No		No	Yes	Yes
pump defrosts									
Complete		1		0	0		0	2	1
Cycles									
Barometric	kPa	101.02	10 <sup>-</sup>	1.02	101.0	2 10	01.02	101.02	101.02
pressure									
Voltage	V	400.7		4.4	400.3		95.0	401.6	400.7
Current input	A	9.07	4.	16	3.65	;	3.04	10.50	9.07
of the unit									
Power input	kW	4.559	1.6	664	1.395	5   1	.118	4.807	4.559
of the unit									
Test condition								-	
Inlet Water	°C	45.38	38	.41	31.84	2	5.01	47.72	45.38
temperature,									
DB									
Outlet Water	°C	51.21	42	.01	36.06	5 3	0.05	54.04*	51.21
temperature,									
DB									

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Test condition	s <b>outdoor</b> unit						
Air <b>inlet</b> temperature, DB	°C	-6.97	2.02	7.02	12.00	-9.86	-6.97
Air <b>inlet</b> temperature, WB	°C	-8.20	1.00	6.00	11.00	-11.11	-8.20
Summary of th	ne results						
Total heating capacity	kW	9.264	5.652	6.652	7.648	9.862	9.264
Effective power input	kW	4.592	1.697	1.428	1.151	4.840	4.592
Coefficient of performance (COP)		2.02	3.33	4.66	6.65	2.04	2.02
Compressor frequency	Hz	52	25	25	25	60	52
Water flow	m³/h	1.36	1.36	1.36	1.36	1.36	1.36
Remark: * In p			ature data is reco	orded by a fu	II average co	 omplete cycl	e's data.
Remark: * In p	n/conclusior				II average co	pmplete cycl	e's data.
Remark: * In p <b>3.Calculatio</b>	n/conclusior -10		(Average):	-7	II average co	pmplete cycl	e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	n/conclusior -10	n for SCOP(	( <b>Average):</b> Tbiv(°C) TOL(°C)	-7	II average co	pmplete cycl	e's data.
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	<b>n/conclusio</b> -10 10.472	n for SCOP(	( <b>Average):</b> Tbiv(°C) TOL(°C)	-7	II average co		e's data.
Remark: * In p 3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result /	n/conclusior -10 10.472 A, B, C, D, E,	for SCOP( F condition	(Average): Tbiv(°C) TOL(°C) ns: COP at measured	-7 -10		COP at j	
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b>	<b>n/conclusio</b> r -10 10.472 <b>A, B, C, D, E,</b> Part load	for SCOP( F condition Measured capacity	( <b>Average):</b> Tbiv(°C) TOL(°C) <b>ns:</b> COP at measured capacity	-7 -10 Cdh	CR	COP at p	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) Test result / <u> <u> uitpuno</u> C E</u>	n/conclusion -10 10.472 A, B, C, D, E, Part load 10.472	F condition Measured capacity 9.862	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.04	-7 -10 Cdh 0.00	CR 1.00	COP at 1 2.1	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result /</b> United States E F	n/conclusion -10 10.472 A, B, C, D, E, Part load 10.472 9.264	F condition Measured capacity 9.862 9.264	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.04 2.02	-7 -10 Cdh 0.00 0.00	CR 1.00 1.00	COP at 1	part load
Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) Test result / <u> <u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> </u></u>	n/conclusion -10 10.472 A, B, C, D, E, Part load 10.472 9.264 9.264	F condition Measured capacity 9.862 9.264 9.264	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.04 2.02 2.02	-7 -10 Cdh 0.00 0.00 0.00	CR 1.00 1.00	COP at 2.0 2.0 2.0 2.0 3.0	04 02 02





Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.018
Standby mode [P <sub>SB</sub> ]	kW	0.018
Crankcase heater [P <sub>CK</sub> ]	kW	0.041
Off mode [P <sub>OFF</sub> ]	kW	0.018
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.46
SCOP:	kWh/kWh	3.45
Q <sub>H</sub> :	kWh/year	21636
Q <sub>HE</sub> :	kWh/year	6264
$\eta_{s,h}$	%	135.2
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Appendix I 1 Table 7.				annliact				r -	2
Table 7.	Heating mode(Low temperature application):								
Model	CGK-050V3L	-В							
Product	Air to Water Heating 🛛 Averag 🗌 Warmer 🗌						Colder		
type		season		e					
1. Test cond	litions:			1					
		Part Loa				Outdoo	r heat	Indoo	r heat
Condition		in S	%			excha	-		anger
dit	Form	nula	А	W		Inlet dry	• •		let water
ou						bul		temperat	ures (°C)
0						temper °C			
А	(-7-16)/(Tdesi		88	N/A	N/A	-7(-		a/	34
В	(+2-16)/ (Tdes		54	N/A	N/A	2(1			30
C D	(+7-16)/(Tdes		35	N/A	N/A	7(6			27
E	(+12-16)/(Tde	(TOL-16)/ (To	15 Tesianh	N/A	N/A	12(1 TO			24 35.3
<u>L</u>		bivalent-16)/(				Tbi			34
G	(-15-16)/(Tdes		N/A	N/A	N/A	-1:			/A
Remark: a) Wi	ith the water flo		termine	d at the s	standard	rating cor	ditions	given in El	N14511-2
at 30/35 condi	tions, the capa	city is 15607.	.70W, th	ne power	is 3278.	59W, the	COP is	4.76W/W.	
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W34		W30	A7/W2		/W24	A(-10)	A(-7)/
conditions/		(88%)	(54	4%)	(35%)	) (1	5%)	/W35.3	W34
Part-Load								(100%)	(88%)
		A		В	С		D	E	F
Data	hh: min:sec	4:00:00	2:1	0:00	2:10:0	0 2:1	0:00	4:00:00	4:00:00
collection									
period									
The heat		Yes	N	10	No	ſ	No	Yes	Yes
pump defrosts									
Complete		1		0	0		0	1	1
Cycles									
Barometric	kPa	101.02	101.02 101.02		2 10	1.02	101.02	101.02	
pressure Voltage	V	398.5	40	0.2	408.1	40	)4.7	398.6	398.5
-									
Current input of the unit	A	6.29	Ζ.	86	2.42	2	.06	6.82	6.29
Power input	kW	3.670	1.4	496	1.278	3 1.	033	3.916	3.670
of the unit									
Test conditions		-						-	-
Inlet Water	°C	29.40	27	.59	24.25	5 20	).84	31.00	29.40
temperature,									
DB .		•						1	1
DB	°C	33.08*	30	02	27 05	; 0/	04	31 80*	33 08*
DB <b>Outlet</b> Water temperature,	°C	33.28*	30	.02	27.05	j 24	1.04	34.80*	33.28*

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Test condition	s outdoor unit						
Air <b>inlet</b> temperature,	°C	-6.87	2.01	7.09	12.01	-9.97	-6.87
DB Air <b>inlet</b> temperature, WB	°C	-8.09	1.00	6.00	11.00	-11.09	-8.09
Summary of th	e results	<u>.                                    </u>				_ <b>I</b>	
Total heating capacity	kW	11.841	7.394	8.493	9.724	11.578	11.841
Effective power input	kW	3.767	1.593	1.375	1.130	4.013	3.767
Coefficient of performance (COP)		3.14	4.64	6.18	8.60	2.88	3.14
Compressor frequency	Hz	67	30	30	30	70	67
1 2							
Water flow Remark: * In p			2.62 ature data is rec	2.62 orded by a fu	2.62 Il average co	2.62 omplete cycl	2.62 e's data.
Water flow Remark: * In p	art condition, c	putlet tempera	ature data is rec	orded by a fu			
Water flow Remark: * In p 3.Calculatio	art condition, c n/conclusior -10	putlet tempera	ature data is rec ( <b>Average):</b>	orded by a fu			
Water flow Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	art condition, c n/conclusior -10	outlet tempera	ature data is rec ( <b>Average):</b> Tbiv(°C) TOL(°C)	orded by a fu			
Water flow Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW)	n/conclusion -10 13.386	outlet tempera	ature data is rec ( <b>Average):</b> Tbiv(°C) TOL(°C)	orded by a fu		pmplete cycl	
Water flow Remark: * In p 3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result /	n/conclusior -10 13.386	outlet tempera	ature data is rec (Average): Tbiv(°C) TOL(°C) ns: COP at measured	orded by a fu -7 -10	II average co	COP at	e's data.
Water flow Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b>	n/conclusion -10 13.386 A, B, C, D, E, Part load	outlet tempera	( <b>Average):</b> Tbiv(°C) TOL(°C) <b>TOL</b> (°C) <b>ns:</b> COP at measured capacity	orded by a fu	Il average co	COP at 1	e's data.
Water flow Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b> A	art condition, c n/conclusior -10 13.386 A, B, C, D, E, Part load 13.386	for SCOP( F condition Measured capacity 11.578	Ature data is rec (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) as: COP at measured capacity 2.88	-7 -10 Cdh 0.00	II average co CR 1.00	COP at 2.	e's data.
Water flow Remark: * In p <b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW) <b>Test result</b> A S E E F	art condition, c n/conclusior -10 13.386 A, B, C, D, E, Part load 13.386 11.841	<b>F condition</b> Measured capacity 11.578 11.841	Ature data is rec (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) 2.88 3.14	-7 -10 Cdh 0.00 0.00	U average co CR 1.00 1.00	COP at 2. 3.	e's data. Dart load
Water flow Remark: * In p 3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result A S S C E F A	art condition, c n/conclusior -10 13.386 A, B, C, D, E, Part load 13.386 11.841 11.841	F condition Measured capacity 11.578 11.841 11.841	Ature data is rec (Average): Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity 2.88 3.14 3.14	-7 -10 Cdh 0.00 0.00 0.00	CR 1.00 1.00	COP at 2. 3. 3.	e's data. Dart load

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.014
Standby mode [P <sub>SB</sub> ]	kW	0.014
Crankcase heater [P <sub>CK</sub> ]	kW	0.032
Off mode [P <sub>OFF</sub> ]	kW	0.014
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.82
SCOP:	kWh/kWh	4.81
Q <sub>H</sub> :	kWh/year	27655
Q <sub>HE</sub> :	kWh/year	5745
$\eta_{s,h}$	%	189.6
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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								1	
Table 8.	Heating mod	e(Medium te	mperat	ure appl	ication)	:		F	2
Model	CGK-050V3L	-B							
Product	Air to Water Heating 🛛 Averag 🗌 Warmer 🗌						Colder		
type		season		e					
1. Test cond	itions:								
_		Part Loa				Outdoo			r heat
Condition		in 9				excha	-		anger
ndit	Form	nula	А	W	С	Inlet dry	• •		let water
Sor						bu		temperat	ures ( C)
0						tempei °C			
A	(-7-16)/(Tdesi	gnh-16)	88	N/A	N/A	-7(-		a/	52
В	(+2-16)/ (Tdes	signh-16)	54	N/A	N/A	2(*		a/	42
С	(+7-16)/(Tdes		35	N/A	N/A	7(6		a/	
D	(+12-16)/(Tde		15	N/A	N/A	12(*		a/	
E		(TOL-16)/ (To				TC		a/5	
F G	( ) (-15-16)/(Tdes	bivalent-16)/(	I desigr N/A	n-16) N/A	N/A	Tb -1		a/ N	
Remark: a) Wi						-	-		
at 47/55 condit									14011-2
2.Tested dat	-	•		I		,			
			• <i>i</i>	A.40		0 440		A ( 40) (	
General test	Unit	A(-7)/W52		W42	A7/W3		2/W30	A(-10)/	A(-7)/
conditions/ Part-Load		(88%)	(54	4%)	(35%)	) (1	5%)	W55.3 (100%)	W52
Part-Loau								(100%)	(88%)
				_					
		A					-		-
		4 0 0 0 0		B	C		D	E	F
Data	hh: min:sec	4:00:00		в 0:00	C 2:10:0		D 0:00	E 4:00:00	F 4:00:00
collection	hh: min:sec	4:00:00			-		=		
collection period			2:1	0:00	2:10:0	0 2:1	0:00	4:00:00	4:00:00
collection period The heat		4:00:00 Yes	2:1		-	0 2:1	=		
collection period			2:1	0:00	2:10:0	0 2:1	0:00	4:00:00	4:00:00
collection period The heat pump defrosts			2:1 N	0:00	2:10:0	0 2:1	0:00	4:00:00	4:00:00
collection period The heat		Yes	2:1 N	0:00 Io	2:10:0	0 2:1	0:00 No	4:00:00 Yes	4:00:00 Yes
collection period The heat pump defrosts Complete Cycles		Yes 1	2:1 N	0:00 lo 0	2:10:0 No 0	0 2:1	0:00 No 0	4:00:00 Yes 1	4:00:00 Yes 1
collection period The heat pump defrosts Complete Cycles		Yes	2:1 N	0:00 Io	2:10:0	0 2:1	0:00 No	4:00:00 Yes	4:00:00 Yes
collection period The heat pump defrosts Complete Cycles Barometric		Yes 1	2:1	0:00 lo 0	2:10:0 No 0	2 10	0:00 No 0	4:00:00 Yes 1	4:00:00 Yes 1
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage	  kPa V	Yes 1 101.02 398.2	2:1 N 10 40	0:00 No 0 1.02 7.6	2:10:0 No 0 101.02 409.0	0 2:1 2 10 0 4(	0:00 No 0 1.02 05.4	4:00:00 Yes 1 101.02 391.3	4:00:00 Yes 1 101.02 398.2
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input	  kPa	Yes 1 101.02	2:1 N 10 40	0:00 lo 0 1.02	2:10:0 No 0 101.02	0 2:1 2 10 0 4(	0:00 No 0 1.02	4:00:00 Yes 1 101.02	4:00:00 Yes 1 101.02
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input of the unit	 kPa V A	Yes 1 101.02 398.2 8.02	2:1 N 10 40 3.	0:00 No 0 1.02 7.6 54	2:10:0 No 0 101.02 409.0 3.06	0 2:1 2 10 0 4( 2	0:00 No 0 1.02 05.4 .52	4:00:00 Yes 1 101.02 391.3 9.27	4:00:00 Yes 1 101.02 398.2 8.02
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input of the unit Power input	  kPa V	Yes 1 101.02 398.2	2:1 N 10 40 3.	0:00 No 0 1.02 7.6	2:10:0 No 0 101.02 409.0	0 2:1 2 10 0 4( 2	0:00 No 0 1.02 05.4	4:00:00 Yes 1 101.02 391.3	4:00:00 Yes 1 101.02 398.2
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage	 kPa V A kW	Yes 1 101.02 398.2 8.02	2:1 N 10 40 3.	0:00 No 0 1.02 7.6 54	2:10:0 No 0 101.02 409.0 3.06	0 2:1 2 10 0 4( 2	0:00 No 0 1.02 05.4 .52	4:00:00 Yes 1 101.02 391.3 9.27	4:00:00 Yes 1 101.02 398.2 8.02
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input of the unit Power input of the unit	 kPa V A kW	Yes 1 101.02 398.2 8.02	2:1 N 10 40 3. 2.0	0:00 No 0 1.02 7.6 54	2:10:0 No 0 101.02 409.0 3.06	0 2:1 2 10 0 4( 2 1.	0:00 No 0 1.02 05.4 .52	4:00:00 Yes 1 101.02 391.3 9.27	4:00:00 Yes 1 101.02 398.2 8.02
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions	 kPa V A kW	Yes 1 101.02 398.2 8.02 4.763	2:1 N 10 40 3. 2.0	0:00 No 0 1.02 7.6 54 038	2:10:0 No 0 101.0 3.06 1.622	0 2:1 2 10 0 4( 2 1.	0:00 No 0 1.02 05.4 .52 278	4:00:00 Yes 1 101.02 391.3 9.27 5.567	4:00:00 Yes 1 101.02 398.2 8.02 4.763
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions Inlet Water temperature,	 kPa V A kW	Yes 1 101.02 398.2 8.02 4.763	2:1 N 10 40 3. 2.0	0:00 No 0 1.02 7.6 54 038	2:10:0 No 0 101.0 3.06 1.622	0 2:1 2 10 0 4( 2 1.	0:00 No 0 1.02 05.4 .52 278	4:00:00 Yes 1 101.02 391.3 9.27 5.567	4:00:00 Yes 1 101.02 398.2 8.02 4.763
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions Inlet Water temperature, DB	 kPa V A kW	Yes 1 101.02 398.2 8.02 4.763	2:1 N 10' 40 3. 2.0	0:00 No 0 1.02 7.6 54 038	2:10:0 No 0 101.0 3.06 1.622	0 2:1 2 10 2 10 2 1. 3 2!	0:00 No 0 1.02 05.4 .52 278	4:00:00 Yes 1 101.02 391.3 9.27 5.567	4:00:00 Yes 1 101.02 398.2 8.02 4.763
collection period The heat pump defrosts Complete Cycles Barometric pressure Voltage Current input of the unit Power input of the unit Test conditions Inlet Water	 kPa V A kW s <b>indoor</b> unit	Yes 1 101.02 398.2 8.02 4.763 45.28	2:1 N 10' 40 3. 2.0	0:00 lo 0 1.02 7.6 54 038 .52	2:10:0 No 0 101.02 3.06 1.622 31.98	0 2:1 2 10 2 10 2 1. 3 2!	0:00 No 0 1.02 05.4 .52 278 5.32	4:00:00 Yes 1 101.02 391.3 9.27 5.567 48.09	4:00:00 Yes 1 101.02 398.2 8.02 4.763 45.28

# Annondix | Tost results

Doc No.: ITC-TTW0902.02E - Rev.11

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Test conditions outdoor unit         Air inlet       °C       -6.98       2.19	7.00	12.00	-9.86	-6.98
temperature, DB				
Air <b>inlet</b> °C -8.18 1.01 temperature, WB	6.00	11.00	-11.07	-8.18
Summary of the results				
Total heating kW 11.423 6.996 capacity	8.143	9.436	11.795	11.423
Effective kW 4.877 2.152 power input	1.736	1.392	5.681	4.877
Coefficient of 2.34 3.25 performance (COP)	4.69	6.78	2.08	2.34
Compressor Hz 63 30 frequency	30	30	70	63
Water flow         m³/h         1.70         1.70	1.70	1.70	1.70	1.70
3.Calculation/conclusion for SCOP(Average):				
3.Calculation/conclusion for SCOP(Average):         Tdesignh(°C)       -10         Tbiv(°C)       -7	7			
3.Calculation/conclusion for SCOP(Average):         Tdesignh(°C)       -10       Tbiv(°C)       -7         Pdesignh(kW)       12.913       TOL(°C)       -1				
Tdesignh(°C) -10 Tbiv(°C) -7				
Tdesignh(°C)       -10       Tbiv(°C)       -7         Pdesignh(kW)       12.913       TOL(°C)       -1		CR	COP at p	part load
Tdesignh(°C)         -10         Tbiv(°C)         -7           Pdesignh(kW)         12.913         TOL(°C)         -1           Test result A, B, C, D, E, F conditions:	10	CR 1.00	COP at p	
Tdesignh(°C)       -10       Tbiv(°C)       -7         Pdesignh(kW)       12.913       TOL(°C)       -1         Test result A, B, C, D, E, F conditions:       Image: Color of the stress of the	Cdh			08
Tdesignh(°C)       -10       Tbiv(°C)       -7         Pdesignh(kW)       12.913       TOL(°C)       -1         Test result A, B, C, D, E, F conditions:       Part load       Measured capacity       COP at measured capacity         E       12.913       11.795       2.08	Cdh 0.00	1.00	2.0	08 34
Tdesignh(°C)-10Tour of the constraint of the const	Cdh 0.00 0.00	1.00	2.0 2.0 2.0	08 34
Tdesignh(°C)       -10       Tour of the construction of	Cdh 0.00 0.00 0.00	1.00 1.00 1.00	2.1 2.3 2.3 3.2	08 34 34
Tdesignh(°C)       -10       Tbiv(°C)       -7         Pdesignh(kW)       12.913       TOL(°C)       -1         Test result A, B, C, D, E, F conditions:       Part load       Measured capacity       COP at measured capacity         E       12.913       11.795       2.08         F       11.423       11.423       2.34         A       11.423       11.423       2.34         B       6.953       6.996       3.25	Cdh 0.00 0.00 0.00 0.00	1.00 1.00 1.00 0.99	2.1 2.2 3.2 4.0	08 34 34 25

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.014
Standby mode [P <sub>SB</sub> ]	kW	0.014
Crankcase heater [P <sub>CK</sub> ]	kW	0.032
Off mode [P <sub>OFF</sub> ]	kW	0.014
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.52
SCOP:	kWh/kWh	3.51
Q <sub>H</sub> :	kWh/year	26677
Q <sub>HE</sub> :	kWh/year	7591
$\eta_{s,h}$	%	137.6
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Table 9. Model	Clause 4 of CGK-025V3	<u>EN 14511-4:2</u> ∟	2018		Р
Customer Code		Testing item	Standard Reference	Comment	Test Response
TEST 1	16-09-2022	STARTING TEST	EN14511- 4:2018, §4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.09°C, T out water 14.90°C, Flow rate 0.85m <sup>3</sup> /h have been set and obtained. At those conditions, the machine was switched on. It started without any problem and worked for 30 minutes without showing any warning or allarm. During the test the machine operated in automode. No damage was recorded on the machine during and after the test.	Passed
TEST 2	16-09-2022	OPERATIN G TEST	EN14511- 4:2018, § 4.2.1.2Table 3	From the machine "lower" starting conditions - i.e the machine was brought to the lower operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-24.99°C, T out water 56.42°C, Flow rate 0.85m <sup>3</sup> /h. Once these conditions were obtained, the machine was let operate for over 1 hour in automode. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 3	16-09-2022	SHUTTING OFF WATER FLOW	EN14511- 4:2018, § 4.5	The water flow rate was shutted off through manual and automatic valves of the test rig. The machine switched off and only the flow switch Protection appeared on the user interface of indoor unit. Perform error reset operation, once the water flow rate was restored, the machine restarted automatically and worked for 30 minutes normally. No damage was recorded on the machine during and after the test.	Passed
TEST 4	16-09-2022	SHUTTING OFF AIR FLOW	EN14511- 4:2018, § 4.5	The air flow rate was shutted off through a plastic sheet and a panel. The machine never turned off. It continued to operate with continuous frosting and defrosting cycles. After more than half an hour, the air flow rate was restored and the machine started to operate normally. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 5	16-09-2022	COMPLETE POWER SUPPLY FAILURE	EN14511- 4:2018, § 4.6	The power supply was cut off for about 10 seconds.The unit restarted automatically within about 3 minutes after the power supply was reactivated.	Passed

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Table 10. Model	Clause 4 of CGK-030V3	<u>EN 14511-4:2</u> L-B	2018		Р
Customer Code		Testing item	Standard Reference	Comment	Test Response
TEST 1	17-09-2022	STARTING TEST	EN14511- 4:2018, §4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.12°C, T out water 14.70°C, Flow rate 0.80m <sup>3</sup> /h have been set and obtained. At those conditions, the machine was switched on. It started without any problem and worked for 30 minutes without showing any warning or allarm. During the test the machine operated in automode. No damage was recorded on the machine during and after the test.	Passed
TEST 2	17-09-2022	OPERATIN G TEST	EN14511- 4:2018, § 4.2.1.2Table 3	From the machine "lower" starting conditions - i.e the machine was brought to the lower operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.21°C, T out water 56.25°C, Flow rate 0.82m <sup>3</sup> /h. Once these conditions were obtained, the machine was let operate for over 1 hour in automode. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 3	17-09-2022	SHUTTING OFF WATER FLOW	EN14511- 4:2018, § 4.5	The water flow rate was shutted off through manual and automatic valves of the test rig. The machine switched off and only the flow switch Protection appeared on the user interface of indoor unit. Perform error reset operation, once the water flow rate was restored, the machine restarted automatically and worked for 30 minutes normally. No damage was recorded on the machine during and after the test.	Passed
TEST 4	17-09-2022	SHUTTING OFF AIR FLOW	EN14511- 4:2018, § 4.5	The air flow rate was shutted off through a plastic sheet and a panel. The machine never turned off. It continued to operate with continuous frosting and defrosting cycles. After more than half an hour, the air flow rate was restored and the machine started to operate normally. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 5	17-09-2022	Complete Power Supply Failure	EN14511- 4:2018, § 4.6	The power supply was cut off for about 10 seconds.The unit restarted automatically within about 3 minutes after the power supply was reactivated.	Passed

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<u>Table 11.</u> Model	Clause 4 of CGK-040V3	<u>EN 14511-4:2</u> L	2018		P
Customer Code	Execution Date [dd- mm-yyyy]	Testing item	Standard Reference	Comment	Test Response
TEST 1	18-09-2022	STARTING TEST	EN14511- 4:2018, §4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.05°C, T out water 14.77°C, Flow rate 1.23m <sup>3</sup> /h have been set and obtained. At those conditions, the machine was switched on. It started without any problem and worked for 30 minutes without showing any warning or allarm. During the test the machine operated in automode. No damage was recorded on the machine during and after the test.	Passed
TEST 2	18-09-2022	OPERATIN G TEST	EN14511- 4:2018, § 4.2.1.2Table 3	From the machine "lower" starting conditions - i.e the machine was brought to the lower operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.01°C, T out water 56.37°C, Flow rate 1.23m <sup>3</sup> /h. Once these conditions were obtained, the machine was let operate for over 1 hour in automode. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 3	18-09-2022	SHUTTING OFF WATER FLOW	EN14511- 4:2018, § 4.5	The water flow rate was shutted off through manual and automatic valves of the test rig. The machine switched off and only the flow switch Protection appeared on the user interface of indoor unit. Perform error reset operation, once the water flow rate was restored, the machine restarted automatically and worked for 30 minutes normally. No damage was recorded on the machine during and after the test.	Passed
TEST 4	18-09-2022	SHUTTING OFF AIR FLOW	EN14511- 4:2018, § 4.5	The air flow rate was shutted off through a plastic sheet and a panel. The machine never turned off. It continued to operate with continuous frosting and defrosting cycles. After more than half an hour, the air flow rate was restored and the machine started to operate normally. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 5	18-09-2022	Complete Power Supply Failure	EN14511- 4:2018, § 4.6	The power supply was cut off for about 10 seconds.The unit restarted automatically within about 3 minutes after the power supply was reactivated.	Passed

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Table 12. Model	Clause 4 of CGK-050V3	<u>EN 14511-4:2</u> L-B	2018		Р
Customer Code		Testing item	Standard Reference	Comment	Test Response
TEST 1	19-09-2022	STARTING TEST	EN14511- 4:2018, §4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-24.92°C, T out water 14.05°C, Flow rate 1.55m <sup>3</sup> /h have been set and obtained. At those conditions, the machine was switched on. It started without any problem and worked for 30 minutes without showing any warning or allarm. During the test the machine operated in automode. No damage was recorded on the machine during and after the test.	Passed
TEST 2	19-09-2022	OPERATIN G TEST	EN14511- 4:2018, § 4.2.1.2Table 3	From the machine "lower" starting conditions - i.e the machine was brought to the lower operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-24.15°C, T out water 56.89°C, Flow rate 1.53m <sup>3</sup> /h. Once these conditions were obtained, the machine was let operate for over 1 hour in automode. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 3	19-09-2022	SHUTTING OFF WATER FLOW	EN14511- 4:2018, § 4.5	The water flow rate was shutted off through manual and automatic valves of the test rig. The machine switched off and only the flow switch Protection appeared on the user interface of indoor unit. Perform error reset operation, once the water flow rate was restored, the machine restarted automatically and worked for 30 minutes normally. No damage was recorded on the machine during and after the test.	Passed
TEST 4	19-09-2022	SHUTTING OFF AIR FLOW	EN14511- 4:2018, § 4.5	The air flow rate was shutted off through a plastic sheet and a panel. The machine never turned off. It continued to operate with continuous frosting and defrosting cycles. After more than half an hour, the air flow rate was restored and the machine started to operate normally. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 5	19-09-2022	Complete Power Supply Failure	EN14511- 4:2018, § 4.6	The power supply was cut off for about 10 seconds.The unit restarted automatically within about 3 minutes after the power supply was reactivated.	Passed

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Table 13a.	Sound power leve	el measurement(Low te	mperature application)	Р			
Model	CGK-025V3L						
	Product type :			Air to Water			
	Outdoor heat excha	anger, Air temperature D	B/WB (°C):	7.0 /6.0			
	Indoor heat exchan	ger, Water inlet/outlet te	mperature (°C):	30.0 /35.0			
	Voltage (V):			400			
	Frequency (Hz):			50			
	Working condition	class :		Class A			
	Acoustical environr		Hemi-anechoic room				
	Windshield type :						
	Measured position	amount :		14			
	Water flow (m³/h):			1.35			
Meas	ured quantity	L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark			
Sound press	ound pressure level $\overline{L}_{p(ST)}^{****}$ 44						
Spheres radi	1.0m						
Sound power	58						
Duct connect			3 decimal places; ****) ne	earest integer			

Fan speed: 450 r/min, compressor speed: 55Hz.







Table 13b.	Sound power level application)	measurement(Mediu	m temperature	Р		
Model	CGK-025V3L					
	Product type :	Air to Water				
	Outdoor heat exchanger, Air temperature DB/WB (°C):			7.0 /6.0		
	Indoor heat exchanger, Water inlet/outlet temperature (°C):			47.0 /55.0		
	Voltage (V):			400		
	Frequency (Hz):			50		
	Working condition class :			Class A		
	Acoustical environment :			Hemi-anechoic room		
	Windshield type :			Sponge		
	Measured position amount :			14		
	Water flow (m³/h):	0.87				
Measured quantity		L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark		
Sound pressure level $\overline{L}_{p(ST)}^{****}$			47			
Spheres radius d *			1.0m			
Sound power level L <sub>wA</sub> ****			61			

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 460 r/min, compressor speed: 55Hz.







Table 14a.	Sound power leve	I measurement(Low te	emperature application)	Р		
Model	CGK-030V3L-B					
	Product type :	Air to Water				
	Outdoor heat exchanger, Air temperature DB/WB (°C):			7.0 /6.0		
	Indoor heat exchanger, Water inlet/outlet temperature (°C):			30.0 /35.0		
	Voltage (V):			400		
	Frequency (Hz):			50		
	Working condition class :			Class A		
	Acoustical environment :			Hemi-anechoio room		
	Windshield type :			Sponge		
	Measured position amount :			14		
	Water flow (m <sup>3</sup> /h):	1.49				
Measured quantity		L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark		
Sound pressure level $\overline{L}_{p(ST)}^{****}$			50			
Spheres radius d *			1.0m			
Sound power level L <sub>wA</sub> ****			64			
Duct connect Rounding to:	*) 1 decimal places; *		3 decimal places; ****) ne	earest integer		

Fan speed: 680 r/min, compressor speed: 55Hz. )







Table 14b.	Sound power leve application)	Р				
Model	CGK-030V3L-B					
	Product type :	Air to Water				
	Outdoor heat excha	7.0 /6.0				
	Indoor heat exchanger, Water inlet/outlet temperature (°C):			47.0 /55.0		
	Voltage (V):			400		
	Frequency (Hz):			50		
	Working condition class :			Class A		
	Acoustical environment :			Hemi-anechoic room		
	Windshield type :			Sponge		
	Measured position amount :			14		
	Water flow (m³/h):	0.90				
Measured quantity		L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark		
Sound pressure level $\overline{L}_{p(ST)}^{****}$			50			
Spheres radius d *			1.0m			
Sound power level L <sub>wA</sub> ****			65			

Duct connection:--

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 630 r/min, compressor speed: 55Hz.







Table 15a.	Sound power level measurement(Low temperature application)			Р			
Model	CGK-040V3L	CGK-040V3L					
	Product type :			Air to Water			
	Outdoor heat excha	anger, Air temperature D	B/WB (°C):	7.0 /6.0 30.0 /35.0 400			
	Indoor heat exchan	ger, Water inlet/outlet te	emperature (°C):				
	Voltage (V):						
	Frequency (Hz):	50 Class A					
	Working condition of						
	Acoustical environr	Hemi-anechoid room					
	Windshield type :	Sponge					
	Measured position	14					
	Water flow (m³/h):			2.13			
Measured quantity		L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark			
Sound pressure level $\overline{L}_{p(ST)}^{****}$			48				
Spheres radi	us d *		1.0m				
Sound power level L <sub>wA</sub> ****			63				
Duct connect Rounding to:	*) 1 decimal places; *		3 decimal places; ****) ne	earest integer			

Fan speed: 460 r/min, compressor speed: 45Hz.







loor heat exchang Itage (V): equency (Hz): orking condition c oustical environm			Air to Water 7.0 /6.0 47.0 /55.0 400 50 Class A Hemi-anechoic		
tdoor heat exchange loor heat exchange ltage (V): equency (Hz): prking condition constical environme	ger, Water inlet/outlet te		7.0 /6.0 47.0 /55.0 400 50 Class A		
loor heat exchang Itage (V): equency (Hz): orking condition c oustical environm	ger, Water inlet/outlet te		47.0 /55.0 400 50 Class A		
Itage (V): equency (Hz): orking condition c oustical environm	class :	emperature (°C):	400 50 Class A		
equency (Hz): orking condition c oustical environm			50 Class A		
orking condition c			Class A		
oustical environm					
	nent :		Hemi-anechoic		
	Acoustical environment :				
ndshield type :	Sponge				
asured position a	14				
ater flow (m <sup>3</sup> /h):	1.36				
quantity	L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark		
evel $\overline{L}_{p(ST)}^{****}$		52			
Spheres radius d *		1.0m			
I L <sub>wA</sub> ****		67			
	I L <sub>wA</sub> ****	evel L <sub>p(ST)</sub> ****            *            I L <sub>wA</sub> ****	evel $\overline{L}_{p(ST)}^{****}$ 52 * 1.0m		

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 680 r/min, compressor speed: 45Hz.







Table 16a.	Sound power leve	Р				
Model	CGK-050V3L-B					
	Product type :			Air to Water		
	Outdoor heat excha	anger, Air temperature D	DB/WB (°C):	7.0 /6.0 30.0 /35.0 400		
	Indoor heat exchan	ger, Water inlet/outlet te	emperature (°C):			
	Voltage (V):					
	Frequency (Hz):	50 Class A				
	Working condition of					
	Acoustical environn	Hemi-anechoio room				
	Windshield type :	Sponge				
	Measured position	14				
	Water flow (m <sup>3</sup> /h):			2.62		
Meas	ured quantity	L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark		
Sound pressure level $\overline{L}_{p(ST)}^{****}$			48			
Spheres radius d *			1.0m			
Sound power level L <sub>wA</sub> ****			63			
Setting of cor Duct connect	itrols: according to us	er manual.	63 ) 3 decimal places; ****) ne	 earest integ		

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 560 r/min, compressor speed: 55Hz.







Table 16b.	Sound power leve application)	Р		
Model	CGK-050V3L-B			
	Product type :			Air to Water
	Outdoor heat excha	anger, Air temperature D	DB/WB (°C):	7.0 /6.0
	Indoor heat exchan	ger, Water inlet/outlet te	emperature (°C):	47.0 /55.0
	Voltage (V):	400		
	Frequency (Hz):	50		
	Working condition of	Class A		
	Acoustical environn	Hemi-anechoic room		
	Windshield type :	Sponge		
	Measured position a	14		
	Water flow (m³/h):	1.70		
Meas	ured quantity	L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark
Sound pressure level $\overline{L}_{p(ST)}^{****}$			53	
Spheres radius d *			1.0m	
Sound power level L <sub>wA</sub> ****			68	

Duct connection:--

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 650 r/min, compressor speed: 55Hz.







### Appendix II Marking plate

Nameplate GK-025V3L		
SPRS	and the second sec	
Model	r Source Heat Pumps CGK-025V3L	
Power Supply	380-420V, 3N~/50Hz	
*Heating Capacity Min./Max.	4.37/9.5kW	
*Heating Input Power Min./Max.	0.76/2.07kW	
*Heating COP Min./Max.	4.59/5.75W/W	
Cooling Capacity Min./Max.	2.85/6.2kW	
Cooling Input Power Min./Max.	0.76/2.4kW	
Rated. Input Power/Current	3kW/6.3A	
Max. Water Outlet Temperature	55°C	
Water Flow	1.6m <sup>3</sup> /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	18kPa	
Water Pipe Connection	1 inch	
Net Weight	80kg	
Date/NO.	See bar code	
System CO2 equivalent	charge weight: 1.01 ton	
Guangz	hou, China	

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## Appendix II Marking plate

Sprsun 🛦 (e 🕱			
CALLAR CONTRACTOR OF	r Source Heat Pumps		
Model	CGK-030V3L-B		
Power Supply	380-420V, 3N~/50Hz		
*Heating Capacity Min./Max.	5.34/11.6kW		
*Heating Input Power Min./Max.	0.97/2.62kW		
*Heating COP Min./Max.	4.43/5.51W/W		
Cooling Capacity Min./Max.	3.43/7.46kW		
Cooling Input Power Min./Max.	0.95/3.11kW		
Rated. Input Power/Current	3.94kW/8.31A		
Max. Water Outlet Temperature	55°C		
Water Flow	2m³/h		
Refrigerant/Weight	R32/1700g		
Low/High side operation pressure	1.5/4.4MPa		
Maximum allowable pressure	4.4MPa		
Max Water Pressure	1.0MPa		
Shock Proof Grade	1		
WaterProof Level	IPX4		
Water Pressure Drop	20kPa		
Water Pipe Connection	1 inch		
Net Weight	88kg		
Date/NO.	See bar code		
System CO2 equivalent	charge weight: 1.15 ton		
*Heating working condition: Dry bulb temperature 7°C, Wet b Inlet water temperature 30°C, Ou			
No. 15 Tangxi Road, Yinsha Ind	Fechnology Development Co., Ltd ustrial Park, Xintang, Zengcheng, nou, China		







## Appendix II Marking plate

SPRSU	Ν 🛕 Cε 🗵
EVI DC Inverter Air	· · · · · · · · · · · · · · · · · · ·
Model	CGK-040V3L
Power Supply	380-420V, 3N~/50Hz
*Heating Capacity Min./Max.	7.36/16kW
*Heating Input Power Min./Max.	1.25/3.4kW
*Heating COP Min./Max.	4.70/5.89W/W
Cooling Capacity Min./Max.	4.8/10.44kW
Cooling Input Power Min./Max.	1.25/3.93kW
Rated. Input Power/Current	4.9kW/10.4A
Max. Water Outlet Temperature	55°C
Water Flow	2.7m <sup>3</sup> /h
Refrigerant/Weight	R32/2000g
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	21kPa
Water Pipe Connection	1 inch
Net Weight	98kg
Date/NO.	See bar code
System CO2 equivalent ch	arge weight: 1.35 ton
*Heating working condition: Dry bulb temperature 7°C, Wet bulb Inlet water temperature 30°C, Outlet	t water temperature 35°C.
Guangzhou Sprsun New Energy Teo No. 15 Tangxi Road, Yinsha Indust Guangzhou	rial Park, Xintang, Zengcheng,
	rial Park, Xintang, Zengcheng,





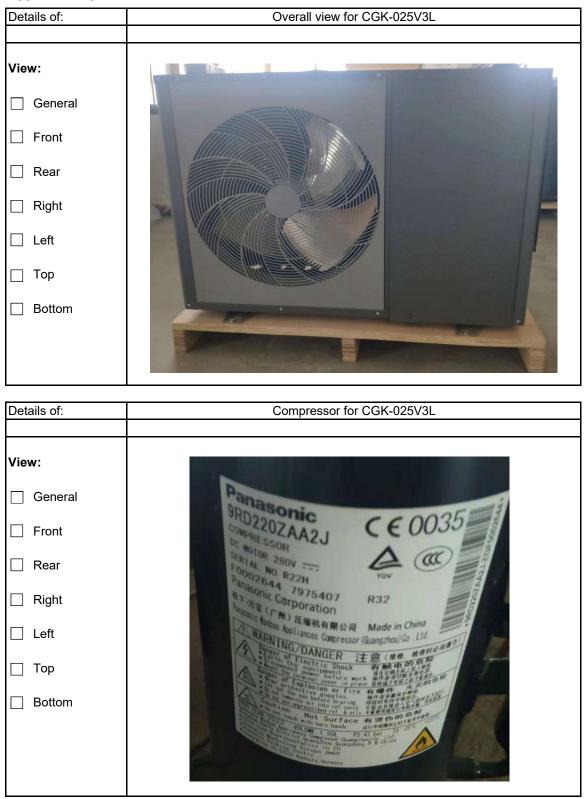


## Appendix II Marking plate

SPRS	UN 🛕 CE 🕱
EVI DC Inverter Air	r Source Heat Pumps
Model	CGK-050V3L-B
Power Supply	380-420V, 3N~/50Hz
*Heating Capacity Min./Max.	9.11/19.8kW
*Heating Input Power Min./Max.	1.54/4.2kW
*Heating COP Min./Max.	4.71/5.92W/W
Cooling Capacity Min./Max.	5.86/12.74kW
Cooling Input Power Min./Max.	1.52/4.97kW
Rated. Input Power/Current	6.29kW/13.28A
Max. Water Outlet Temperature	55°C
Water Flow	3.4m³/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	124kg
Date/NO.	See bar code
	charge weight: 1.89 ton
*Heating working condition: Dry bulb temperature 7°C, Wet b Inlet water temperature 30°C, Ou	
No. 15 Tangxi Road, Yinsha Indu	echnology Development Co., Ltd Istrial Park, Xintang, Zengcheng, ou, China

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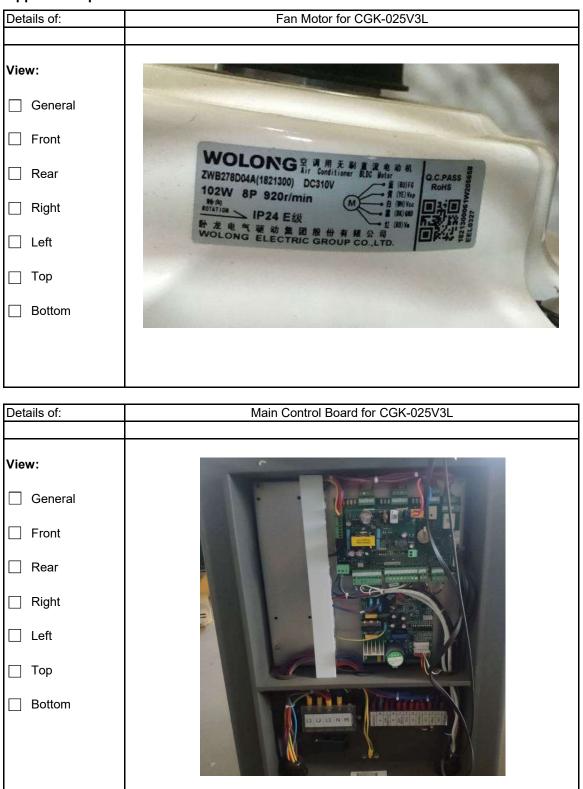




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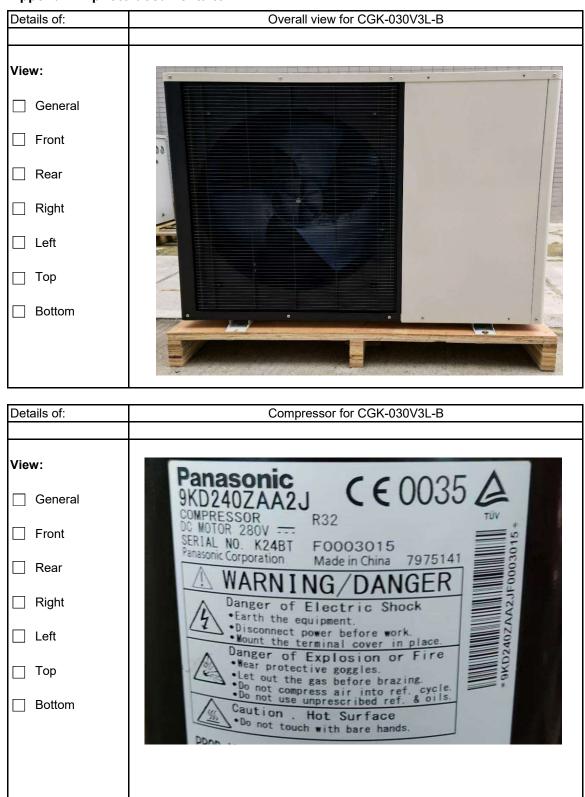




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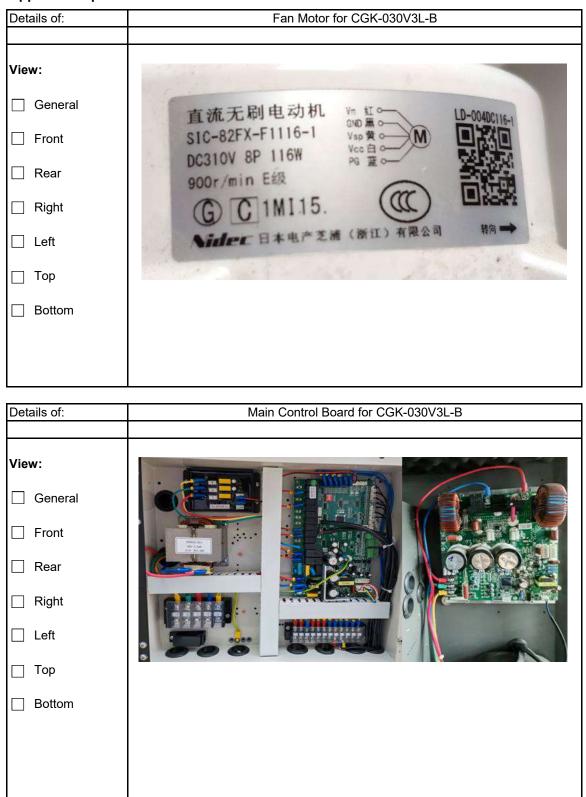




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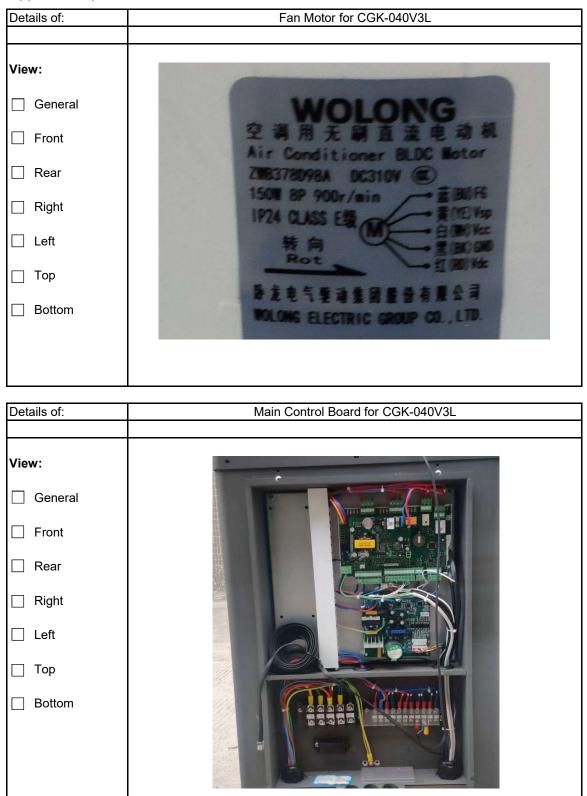




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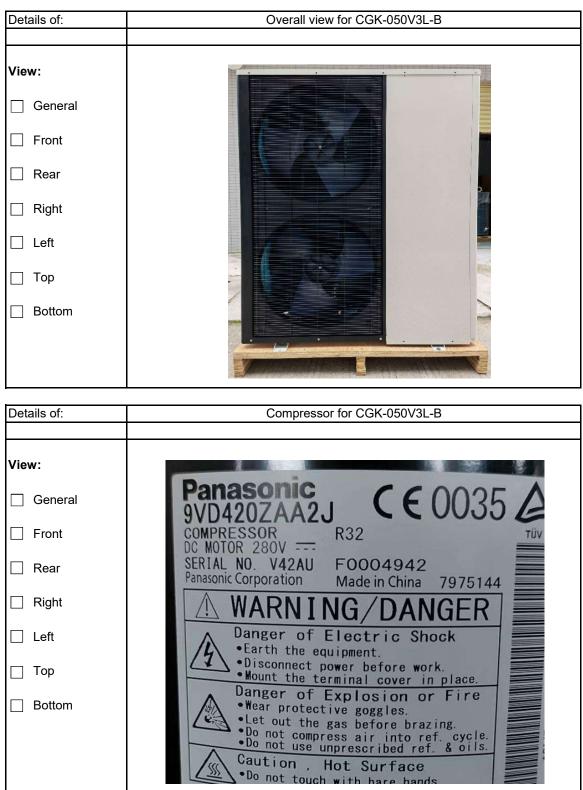




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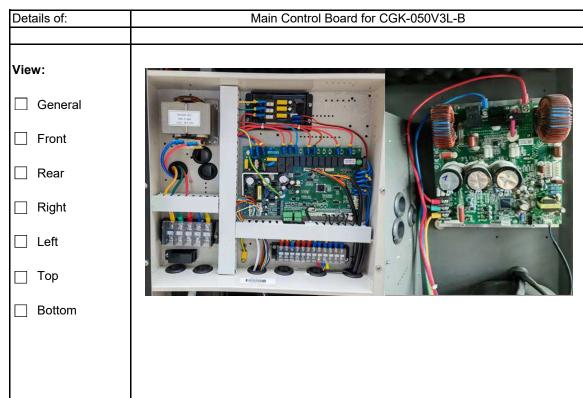
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TÜV







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Model: <u>CGK-025V3L</u>		
Part		Technical data
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor
		(Guangzhou) Co.,Ltd.
	Туре:	9RD220ZAA2J
	Rated capacity:	2265W
	Serial-number:	F0002644
	Specification:	DC280V; R32
2. Condenser		
	Manufacture:	East -Alliance Thermal Equipment
	Туре:	EATB61-D-22-2M-2L
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	539(L)mmX125(H)mmX64(D)mm
<ol><li>Evaporator</li></ol>		
	Manufacture:	Guangzhou Aotai Refrigeration EquipmentCo.,Ltd.
	Туре:	03KA-CP-04
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX750(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Wolong Electric Group Co., Ltd
	Туре:	ZWB278D04A
	Fan type:	3 blade
	Specification:	DC310V; 102W
5. Main control board		
	Manufacture:	CAREL
	Туре:	UP3CON0S00
	Specification:	380-420V; 50Hz





Model: <u>CGK-030V3L-I</u>	<u>B</u>	
Part		Technical data
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor
		(Guangzhou) Co.,Ltd.
	Туре:	9KD240ZAA2J
	Rated capacity:	2580W
	Serial-number:	F0003015
	Specification:	DC280V; R32
2. Condenser		
	Manufacture:	Jiangsu Yuanzhuo Equipment Manfactur Co.,Ltd
	Туре:	ZL62FA-26AD-CG
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	526(L)mmX119(H)mmX63(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration EquipmentCo.,Ltd
	Туре:	03KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX750(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Nidec Shibaura (Zhejiang) Co., Ltd.
	Туре:	SIC-82FX-F1116-1
	Fan type:	3 blade
	Specification:	DC310V; 116W
5. Main control board		
	Manufacture:	CHICO
	Туре:	CG248075
	Specification:	380-420V; 50Hz





Model: <u>CGK-040V3L</u>		
Part		Technical data
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor
		(Guangzhou) Co.,Ltd.
	Туре:	9VD420ZAA2J
	Rated capacity:	4390W
	Serial-number:	F0006867
	Specification:	DC280V; R32
2. Condenser		
	Manufacture:	East -Alliance Thermal Equipment
	Туре:	EATB61-D-30-2M-2L
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	542(L)mmX126(H)mmX83(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration EquipmentCo.,Ltd.
	Туре:	04KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX910(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Wolong Electric Group Co., Ltd
	Туре:	ZWB378D98A
	Fan type:	3 blade
	Specification:	DC310V; 150W
5. Main control board		
	Manufacture:	CAREL
	Туре:	UP3CON0S00
	Specification:	380-420V; 50Hz





Model: <u>CGK-050V3L-I</u>	<u>B</u>	
Part		Technical data
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor
		(Guangzhou) Co.,Ltd.
	Туре:	9VD420ZAA2J
	Rated capacity:	4390W
	Serial-number:	F0004942
	Specification:	DC280V; R32
2. Condenser		
	Manufacture:	Jiangsu Yuanzhuo Equipment Manfactur Co.,Ltd
	Туре:	ZL62FA-40AD-CG
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	526(L)mmX119(H)mmX91(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration EquipmentCo.,Ltd
	Туре:	05KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX1300(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Nidec Shibaura (Zhejiang) Co., Ltd.
	Туре:	SIC-82FX-F1116-1
	Fan type:	3 blade
	Specification:	DC310V; 116W
5. Main control board		
	Manufacture:	CHICO
	Туре:	CG248075
	Specification:	380-420V; 50Hz





# Appendix V Equipment List

No.	Туре	Manufacture	Model	Equipment ID	Calibration Due Date
1	Digital power meter	YOKOGAWA	WT230	91HC39024	2023-01-04
2	Platinum resistance	CHINO	Pt100	TS-019XC0130	2023-01-04
3	Platinum resistance	CHINO	Pt100	TS3XA0248	2023-01-04
4	Temperature and humidity sensor	YOKOGAWA	HMD62	S4610294	2023-01-04
5	Water pressure gauge	YOKOGAWA	MPM489	B86832	2023-01-04
6	Water pressure gauge	YOKOGAWA	MPM489	B86833	2023-01-04
7	Flowmeter	YOKOGAWA	AXG032	S5W920561039	2023-01-04
8	Anechoic rooms (hemi-anechoic rooms)	Guangzhou Kinte	-	NC-036-2	2023-10-07
9	AC source Supply	YANGHONG	YF-3600	VGDS-0637	2022-11-07
10	6 channel data logger	—	PXI-1033	VGDY-0257	2023-05-20
11	PULSE system	B & K	3660C	VGDY-0184	2023-04-12
12	Calibrator	В&К	4231	HJ-000095	2023-06-30
13	Long steel tape	_	5m	HJ-000150	2023-01-04
14	Temperature measurement system		-	NC-036-1	2023-06-07
15	Atmospheric pressure meter		—	HJ-000165	2022-11-22
16	Constant temperature water system	B & K	—	VGDS-0448	2023-04-18
17	Windscreen	В&К	WS002-5	—	-

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