

#### Technical Report No.: 64.181.23.00445.01 Rev.00

## Date: 2023-04-24

Client:	Report holder's name:	SolarEast Heat Pump Ltd.
	Report holder's Address:	No.73 Defu Road, Xingtan Town Shunde District 528325 Foshan City, Guangdong Province, People's Republic of China
	Contact person of applicant:	Lai XiaoPing
	Manufacturer's name:	SolarEast Heat Pump Ltd.
	Manufacturer's address:	No.73 Defu Road, Xingtan Town Shunde District 528325 Foshan City, Guangdong Province, People's Republic of China
Factory:	Factory's name:	SolarEast Heat Pump Ltd.
	Factory's address:	No.73 Defu Road, Xingtan Town Shunde District 528325 Foshan City, Guangdong Province, People's Republic of China
Test object:	Product:	Air Source Heat Pump
	Model:	BLN-008TC1; BLN-008TC3
	Trade name:	-
Test specification:	$\checkmark$	EN 14825:2022
	$\checkmark$	EN 12102-1:2022
	$\checkmark$	EN 14511-3:2022
		EN 14511-4:2022 Clause 4
Purpose of examination:	Test according to the t	est specification
	$\checkmark$	(EU) No 813/2013
	$\checkmark$	EU 2016/2282:2016-11-30
Test result:	The test results show t listed test specification	that the presented product is in compliance with the above is.
result of a single examination	tion of the object in question. I	iting. This technical report may only be quoted in full. This report is the It does not imply a general statement regarding the quality of products esting and certification regulation, chapter A-3.4

result of a single examination of the object in question. It does not imply a general statement regarding the que from regular production. For further details please see testing and certification regulation, chapter A-3.4.

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#### Description of the test object 1

#### 1.1 Function

Manufacturer's specification for intended use: These appliances are air to water heat pump. Manufacturer's specification for predictive use: According to user manual

#### 1.2 Consideration of the foreseeable use

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

#### 1.3 **Technical Data**

Model :	BLN-008TC1; BLN-008TC3
Rated Voltage (V) :	220-240V~ for BLN-008TC1; 380-415V, 3N~ for BLN-008TC3
Rated Frequency (Hz) :	50
Rated Power (W) :	5400 for BLN-008TC1; 5850 for BLN-008TC3
Rated Current (A) :	25.0 for BLN-008TC1; 10.0 for BLN-008TC3
Protection Class :	Class I
Protection Against Moisture :	IPX4
Construction :	Stationary
Supply connection :	Non detachable cord
	Permanent connection to fixed wiring
Operation mode:	<ul> <li>Continuous operation;</li> </ul>
	□ Intermittent operation;
	□ Short time operation;
Refrigerant/charge (kg) :	R290 / 1.05kg
Declared parameters :	🖂 Average 🗌 Warmer 🛛 Colder
Sound power level dB(A) :	N/A
Series No :	8A00221228003075 for BLN-008TC1

8A00221228003075 for BLN-0081C1; 8A00230129003141 for BLN-008TC3







# 2 Order

## 2.1 Date of Purchase Order, Customer's Reference 2023-01-09, SolarEast Heat Pump Ltd.

## 2.2 Test Sample(s)

- Reception date(s): 2023-03-15
- Location(s) of reception:
- For Energy test:

Guangzhou Customs District Technology Center

Address: No.3, Desheng East Road, Shunde, Daliang, Foshan, Guangdong, China

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

2023-03-15 to 2023-04-16

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 for model BLN-008TC1 is supplied by a 3-pole supply cord connecting to fixed wiring.
- 3) The main power for model BLN-008TC3 is supplied by a 5-pole supply cord connecting to fixed wiring.
- 4) Water enthalpy method was adopted in this report.
- 5) Standby mode power, off mode power and thermostat-off mode power were tested according to clause 12 of standard EN 14825:2022.
- 6) The model has two appearances, only the front panel is different between the two appearances, the rest is exactly the same.

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Tested by:	William Liang, Project Handler
Approved by:	printed name, function & signature Plum Li, Designated Reviewer
	ý <b>3</b>

printed name, function & signature









Appendix I									
Table 1.	Heating mode(Low temperature application):							F	2
Model	BLN-008TC1								
Product	Air to Water Heating 🛛 Averag 🗌 Warmer 🗌						Colder		
type		season		е					
1. Test cond	litions:								
_		Part Loa				Outdoo		Indoor heat	
Condition		in S	-			excha	-	excha	
tipc	Form	nula	A	W	С	Inlet dry bu		temperat	let water
Co						tempe		temperat	ules ( C)
Ũ						tempe °(			
А	(-7-16)/(Tdesi	gnh-16)	88	N/A	N/A	-7(-	·8)	a /	34
В	(+2-16)/ (Tdes		54	N/A	N/A	2(*		a /	
С	(+7-16)/(Tdes		35	N/A	N/A	7(	1	a/	
D	(+12-16)/(Tde		15	N/A	N/A	12(*		a/	
E F		(TOL-16)/ (To				TC Th		a/3	
G F	(11 (-15-16)/(Tde	pivalent-16)/(	N/A	N/A	N/A	Tb -1		a / N	
	ith the water flo		-				-		
	ditions, the ca								
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W34	A2/	W30	A7/W2	27 A12	2/W24	A(-	A(-7)/
conditions/		(88%)	(54	4%)	(35%)	) (1	5%)	10)/W35.	W34
Part-Load								3 (100%)	(88%)
		А		В	С		D	E	F
Data collection period	hh: min:sec	1:10:00	1:1	0:00	1:10:0	0 1:′	0:00	1:10:00	1:10:00
The heat		No	Ν	lo	No		No	No	No
pump defrosts									
Complete Cycles		0		0	0		0	0	0
Barometric pressure	kPa	101.02	10 <sup>-</sup>	1.01	101.0	1 10	1.02	101.01	101.02
Voltage	V	229.7	23	0.0	230.1	23	30.1	229.5	229.7
Current input of the unit	A	9.42	5.	78	3.76	3	.57	12.13	9.42
Power input of the unit	kW	2.152	0.9	934	0.586	6 0	548	2.777	2.152
Test condition	s <b>indoor</b> unit								
<b>Inlet</b> Water temperature, DB	°C	29.49	27	.32	25.00	) 23	3.24	30.37	29.49
<b>Outlet</b> Water temperature, DB	°C	33.95	30	.06	27.91	2	5.83	35.35	33.95

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Appendix I Test condition	s outdoor unit						
Air <b>inlet</b> temperature, DB	°C	-7.01	2.00	6.99	11.99	-10.01	-7.01
Air <b>inlet</b> temperature, WB	°C	-8.01	0.98	5.99	10.99	-11.01	-8.01
Summary of the	ne results						
Total heating capacity	kW	7.265	4.459	3.637	4.264	8.064	7.265
Effective power input	kW	2.135	0.918	0.569	0.532	2.761	2.135
Coefficient of performance (COP)		3.40	4.86	6.39	8.01	2.92	3.40
Compressor frequency	Hz	59	28	20	20	70	59
Water flow	m³/h	1.40	1.40	1.40	1.40	1.40	1.40
Remark: -						I	
	n/conclusior	n for SCOP	( <b>Average):</b> Tbiv(°C)	-7		I	
3.Calculatio	-10	n for SCOP					
<b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW )	-10		Tbiv(°C)				
<b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW )	-10 8.213		Tbiv(°C)		CR	COP at j	part load
<b>3.Calculatio</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result /</b>	-10 8.213 <b>A, B, C, D, E</b> ,	F conditior Measured	ToL(°C) TOL(°C) TOL (°C) TOL(°C) TOL(°C)	-10	CR 1.00	COP at p	
3.Calculatio Tdesignh(°C) Pdesignh(kW ) Test result /	-10 8.213 <b>A, B, C, D, E,</b> Part load	F condition Measured capacity	Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C)	-10 Cdh			92
3.Calculatio Tdesignh(°C) Pdesignh(kW ) Test result /	-10 8.213 A, <b>B, C, D, E,</b> Part load 8.213	F condition Measured capacity 8.064	Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C)	-10 Cdh 0.90	1.00	2.9	92 40
3.Calculatio Tdesignh(°C) Pdesignh(kW ) Test result / O U U U U U U U U U U U U U U U U U U	-10 8.213 <b>A, B, C, D, E,</b> Part load 8.213 7.265	F condition Measured capacity 8.064 7.265	Tbiv(°C) TOL(°C)	-10 Cdh 0.90 0.90	1.00	2.	92 40 40
3.Calculatio Tdesignh(°C) Pdesignh(kW ) Test result A O D D D D D D D D D D D D D D D D D D	-10 8.213 <b>A, B, C, D, E,</b> Part load 8.213 7.265 7.265	F condition Measured capacity 8.064 7.265 7.265	Tbiv(°C) TOL(°C)	-10 Cdh 0.90 0.90 0.90	1.00 1.00 1.00	2.: 3.: 3.: 4.:	92 40 40

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.038
Standby mode [P <sub>SB</sub> ]	kW	0.013
Crankcase heater [P <sub>CK</sub> ]	kW	0.083
Off mode [P <sub>OFF</sub> ]	kW	0.013
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.96
SCOP:	kWh/kWh	4.93
Q <sub>H</sub> :	kWh/year	16968
Q <sub>HE</sub> :	kWh/year	3445
η <sub>s,h</sub>	%	194.0
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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Appendix I 7 Table 2.	Heating mod	le(Medium te	mpera	ture ann	lication)	•		F	)
	BLN-008TC1		mpora		lioutionj	•		•	
Model	BLIN-0081C1								
Product	Air to Water Heating 🛛 🖂 Averag 🔄 Warmer						Colder		
type		season		е					
1. Test cond	litions:	11						1	
		Part Loa	d Ratio			Outdoo	r heat	Indoo	r heat
uo		in %	6			excha		excha	-
Condition	Forn	nula	А	W	С	Inlet dry	. ,		let water
Cor						bul temper		temperat	ures (°C)
U						lemper °C			
А	(-7-16)/(Tdes	ignh-16)	88	N/A	N/A	-7(-	8)	a /	52
В	(+2-16)/ (Tde		54	N/A	N/A	2(1	,	a /	
<u> </u>	(+7-16)/(Tdes	<u> </u>	35	N/A	N/A	7(6	/	a/	
D E	(+12-16)/(Tde	(TOL-16)/ (To	15 Jesianh	N/A	N/A	12(1 TO	1	a/	<u>30</u> 55.3
<u>L</u>		bivalent-16)/(				Tbi		a/0	
G	(-15-16)/(Tde		N/A	N/A	N/A	-1:		N/	
Remark: a) W	ith the water fl	ow rate as de	termine	ed at the	standard	I rating co	ndition	s given in I	EN14511-
2 at 47/55 cor	nditions, the ca	pacity is 8.12	2kW, tł	ne power	is 2.599	kW, the C	COP is	3.13kW/kV	۷.
2.Tested dat	ta/correction	data(Avera	ige):						
General test	Unit	A(-7)/W52		W42	A7/W3	6 412	/W30	A(-	A(-
conditions/	Onit	(88%)		1%)	(35%)		5%)	A(- 10)/W55.	7)/W52
Part-Load		(0070)	(0	.,.,	(0070)	, (1	070)	3	(88%)
								(100%)	( )
		А		В	С		D	E	F
Data	hh: min:sec	1:10:00		0:00	1:10:0		0:00	1:10:00	1:10:00
collection							0100		
period									
The heat		No	Ν	lo	No	1	No	No	No
pump									
defrosts							_		
Complete		0		0	0		0	0	0
Cycles									
Barometric	kPa	99.85	99	.85	99.85	99	9.80	99.75	99.85
pressure								229.2	229.4
VOITAGE	V	229.4	22	99	230.0	22	RO 1		
Voltage	V	229.4		9.9	230.0		30.1		
Current input	V A	229.4 13.75		9.9 37	230.0 4.67		30.1 .90	16.69	13.75
Current input of the unit	A	13.75	7.	37	4.67	3	.90	16.69	13.75
Current input of the unit Power input			7.			3			
Current input of the unit Power input of the unit	A kW	13.75	7.	37	4.67	3	.90	16.69	13.75
Current input of the unit Power input of the unit Test condition	A kW s <b>indoor</b> unit	13.75 3.150	7.	37 229	4.67 0.738	3	.90 607	16.69 3.824	13.75 3.150
Current input of the unit Power input of the unit Test condition Inlet Water	A kW	13.75	7.	37	4.67	3	.90	16.69	13.75
Current input of the unit Power input of the unit Test condition Inlet Water temperature,	A kW s <b>indoor</b> unit	13.75 3.150	7.	37 229	4.67 0.738	3	.90 607	16.69 3.824	13.75 3.150
Current input of the unit Power input of the unit Test condition Inlet Water temperature, DB	A kW s <b>indoor</b> unit °C	13.75 3.150 44.84	7.	37 229 .68	4.67 0.738 33.12	3 5 0. 2 28	.90 607 3.79	16.69 3.824 47.01	13.75 3.150 44.84
Current input of the unit Power input of the unit Test condition	A kW s <b>indoor</b> unit	13.75 3.150	7.	37 229	4.67 0.738	3 5 0. 2 28	.90 607	16.69 3.824	13.75 3.150

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Test condition	s <b>outdoor</b> unit						
Air <b>inlet</b> temperature, DB	°C	-7.01	2.00	6.99	11.99	-10.01	-7.01
Air <b>inlet</b> temperature, WB	°C	-7.90	0.98	5.99	10.99	-11.13	-7.90
Summary of th	e results						
Total heating capacity	kW	7.390	4.506	3.558	4.093	8.096	7.390
Effective power input	kW	3.143	1.221	0.731	0.599	3.817	3.143
Coefficient of performance (COP)		2.35	3.69	4.87	6.83	2.12	2.35
Compressor frequency	Hz	63	29	20	20	74	63
Water flow	m³/h	0.88	0.88	0.88	0.88	0.88	0.88
Remark: -							
Remark: - <b>3.Calculation</b> Tdesignh(°C)	n/conclusior	n for SCOP	( <b>Average):</b> Tbiv(°C)	-7			
Remark: - 3.Calculation	n/conclusior -10	n for SCOP					
Remark: - <b>3.Calculation</b> Tdesignh(°C)	n <b>/conclusio</b> r -10 8.354		Tbiv(°C)				
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW )	n <b>/conclusio</b> r -10 8.354		Tbiv(°C)		CR	COP at p	part load
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result</b>	n/conclusior -10 8.354 A, B, C, D, E,	F conditior Measured	ToL(°C) TOL(°C) TOL COP at measured	-10	CR 1.00		Dart load
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b>	n/conclusior -10 8.354 A, <b>B, C, D, E,</b> Part load	F condition Measured capacity	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity	-10 Cdh	1.00	2.	
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result</b> A O U O E	n/conclusior -10 8.354 A, B, C, D, E, Part load 8.354	F condition Measured capacity 8.096	Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C)	-10 Cdh 0.90	1.00	2.	12
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b> <u> <u> <u> <u> </u> </u></u></u>	n/conclusior -10 8.354 A, B, C, D, E, Part load 8.354 7.390	F condition Measured capacity 8.096 7.390	Tbiv(°C) TOL(°C)	-10 Cdh 0.90 0.90	1.00	2. 2. 2.	12 35
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b> O E F A	n/conclusion -10 8.354 A, B, C, D, E, Part load 8.354 7.390 7.390	F condition Measured capacity 8.096 7.390 7.390	Tbiv(°C) TOL(°C)	-10 Cdh 0.90 0.90 0.90	1.00 1.00 1.00	2. 2. 2. 3.	12 35 35

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.038
Standby mode [P <sub>SB</sub> ]	kW	0.013
Crankcase heater [P <sub>CK</sub> ]	kW	0.083
Off mode [P <sub>OFF</sub> ]	kW	0.013
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.74
SCOP:	kWh/kWh	3.72
Q <sub>H</sub> :	kWh/year	17260
Q <sub>HE</sub> :	kWh/year	4634
$\eta_{s,h}$	%	146.0
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Appendix I 1	Test results								
Table 3.	Heating mode(Low temperature application):							Р	
Model	BLN-008TC3								
Product	Air to Water Heating 🛛 Averag 🗌 Warmer 🗌						Colder		
type	season e								
1. Test cond	litions:			1		I	I		
		Part Loa	d Ratio			Outdoo	r heat	Indoo	r heat
Б		in S	%			excha	nger	excha	anger
Condition	Form	iula	А	W	С	Inlet dry	. ,	Inlet/out	
ŭ						bu		temperat	ures (°C)
0						temper °C			
A	(-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	/	a /	
D	(+12-16)/(Tde		15	N/A	N/A	12(*		a/	
E		TOL-16)/ (To				TC		a/3	
F G	(11 (-15-16)/(Tde	pivalent-16)/(	N/A	N/A	N/A	Tb -1:		a / N/	
	ith the water flo								
2 at 30/35 con	ditions, the ca	pacity is 7.99	91kW, tł						
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W34	A2/	W30	A7/W2	27 A12	2/W24	A(-	A(-7)/
conditions/		(88%)	(54	4%)	(35%)	) (1	5%)	10)/W35.	W34
Part-Load								3 (100%)	(88%)
		А		В	С		D	E	F
Data collection period	hh: min:sec	1:10:00	1:1	0:00	1:10:0	0 1:1	0:00	1:10:00	1:10:00
The heat		No	Ν	lo	No		No	No	No
pump defrosts									
Complete		0		0	0		0	0	0
Cycles				-	-		-	-	-
Barometric pressure	kPa	101.02	10 <sup>-</sup>	1.01	101.0	1 10	1.02	101.01	101.02
Voltage	V	398.5	39	9.1	399.2	2 39	99.3	398.3	398.5
Current input of the unit	A	3.81	1.	87	1.29	1	.18	4.62	3.81
Power input of the unit	kW	2.204	0.9	941	0.585	i 0.	522	2.766	2.204
Test condition	s <b>indoor</b> unit	1	I						
<b>Inlet</b> Water temperature, DB	°C	29.34	27	.23	25.11	23	3.14	30.53	29.34
<b>Outlet</b> Water temperature, DB	°C	34.01	30	.01	27.80	) 25	5.68	35.30	34.01

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Air <b>inlet</b>							
temperature, DB	°C	-7.00	2.00	6.99	11.99	-10.00	-7.00
Air <b>inlet</b> temperature, WB	°C	-7.96	0.98	5.98	10.99	-11.11	-7.96
Summary of the	ne results						
Total heating capacity	kW	7.249	4.448	3.478	4.075	8.041	7.249
Effective power input	kW	2.188	0.925	0.569	0.506	2.750	2.188
Coefficient of performance (COP)		3.31	4.81	6.11	8.06	2.92	3.31
Compressor frequency	Hz	59	28	20	20	70	59
Water flow	m³/h	1.40	1.40	1.40	1.40	1.40	1.40
<b>3.Calculatio</b> Tdesignh(°C)	n/conclusion	o for SCOP	( <b>Average):</b> Tbiv(°C)	-7			
	-10	for SCOP					
Tdesignh(°C) Pdesignh(kW )	-10		Tbiv(°C) TOL(°C)				
Tdesignh(°C) Pdesignh(kW )	-10 8.195		Tbiv(°C) TOL(°C)		CR	COP at p	part load
Tdesignh(°C) Pdesignh(kW ) <b>Test result /</b>	-10 8.195 <b>A, B, C, D, E</b> ,	F conditior Measured	ToL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C)	-10	CR 1.00	COP at p	
Tdesignh(°C) Pdesignh(kW ) Test result /	-10 8.195 <b>A, B, C, D, E,</b> Part load	F condition Measured capacity	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity	-10 Cdh			92
Tdesignh(°C) Pdesignh(kW ) Test result /	-10 8.195 <b>A, B, C, D, E,</b> Part load 8.195	F condition Measured capacity 8.041	Tbiv(°C) TOL(°C) TOL(°C) TOL COP at measured capacity 2.92	-10 Cdh 0.90	1.00	2.9	92 31
Tdesignh(°C) Pdesignh(kW ) Test result / O U U U U U U U U U U U U U U U U U U	-10 8.195 <b>A, B, C, D, E,</b> Part load 8.195 7.249	F condition Measured capacity 8.041 7.249	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity 2.92 3.31	-10 Cdh 0.90 0.90	1.00	2.0	92 31 31
Tdesignh(°C) Pdesignh(kW ) Test result / G G E F A	-10 8.195 <b>A, B, C, D, E,</b> Part load 8.195 7.249 7.249	F condition Measured capacity 8.041 7.249 7.249	Tbiv(°C) TOL(°C)	-10 Cdh 0.90 0.90 0.90	1.00 1.00 1.00	2.0 3.0 3.0	92 31 31 31

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.038
Standby mode [P <sub>SB</sub> ]	kW	0.013
Crankcase heater [P <sub>CK</sub> ]	kW	0.083
Off mode [P <sub>OFF</sub> ]	kW	0.013
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.87
SCOP:	kWh/kWh	4.84
Q <sub>H</sub> :	kWh/year	16931
Q <sub>HE</sub> :	kWh/year	3497
η <sub>s,h</sub>	%	190.6
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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Appendix I Table 4.		leating mode(Medium temperature application):							2
	-	-	mpera		lication,	-		•	
Model	BLN-008TC3								
Product	Air to Water	Heating	<b>\</b>	Averag		Warmer		Colder	
type		season		е					
1. Test cond	litions:								
		Part Loa	d Ratio			Outdoo	r heat	Indoo	r heat
on		in 9	%			excha			anger
Condition	Form	nula	А	W	С	Inlet dry	. ,		let water
Sor						bu tempei		temperat	ures (°C)
U						°C			
А	(-7-16)/(Tdes	ignh-16)	88	N/A	N/A	-7(-	8)	a/	52
В	(+2-16)/ (Tde		54	N/A	N/A	2(*			42
C	(+7-16)/(Tdes	ě í	35	N/A	N/A	7(6	1		36
D E	(+12-16)/(Tde	(TOL-16)/ (To	15 Iosianh	N/A	N/A	12(* TC	- /		<u>30</u> 55.3
 F		bivalent-16)/(				Tb			52
G	(-15-16)/(Tde		N/A	N/A	N/A	-1			/A
Remark: a) W	ith the water fl	ow rate as de	etermine	ed at the	standard	rating co	ondition	s given in l	EN14511-
2 at 47/55 cor	ditions, the ca	pacity is 8.12	2kW, tł	ne power	is 2.599	kW, the (	COP is	3.13kW/kV	۷.
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	-		W42	A7/W3	6 410	2/W30	Δ.(	A(-
conditions/	Onit	A(-7)/W52 (88%)		vv42 4%)	(35%)		5%)	A(- 10)/W55.	7)/W52
Part-Load		(0070)	(0-	+70)	(0070)	, ('	070)	3	(88%)
								(100%)	· · · ·
		Α		В	С		D	E	F
Data	hh: min:sec	1:10:00		0:00	1:10:0		0:00	1:10:00	1:10:00
collection									
period									
The heat		No	Ν	lo	No		No	No	No
pump									
defrosts									
Complete		0		0	0		0	0	0
Cycles									
Barometric	kPa	99.85	99	.85	99.85	5 99	9.80	99.75	99.85
pressure Voltage	V	398.3	30	8.9	399.2	) 3(	99.2	398.2	398.3
-									
Current input	A	5.02	2.	34	1.54	1	.39	6.18	5.02
of the unit									
Power input	kW	3.053	1.2	218	0.748	8 0.	638	3.883	3.053
of the unit									
Test condition								T	-
Inlet Water	°C	45.23	37	.97	33.08	8 28	3.74	47.56	45.23
temperature,									
DB		50.40			07.07		. 70		50.10
Outlet Water	°C	52.13	42	.03	37.02	2 32	2.72	55.00	52.13
temperature, DB									
טט									

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Appendix I I Test condition	s <b>outdoor</b> unit						
Air <b>inlet</b> temperature, DB	°C	-7.00	2.00	6.99	11.99	-10.01	-7.00
Air <b>inlet</b> temperature, WB	°C	-8.03	0.99	5.99	10.98	-11.10	-8.03
Summary of th	ne results						
Total heating capacity	kW	7.110	4.342	3.426	3.951	7.793	7.110
Effective power input	kW	3.046	1.211	0.740	0.631	3.875	3.046
Coefficient of performance (COP)		2.33	3.59	4.63	6.26	2.01	2.33
Compressor frequency	Hz	63	29	20	20	74	63
		0.88	0.88	0.88	0.88	0.88	0.88
	m³/h	0.00					
Water flow Remark: - <b>3.Calculatio</b> Tdesignh(°C)	n/conclusior			-7			
Remark: - <b>3.Calculatio</b> Tdesignh(°C)	n/conclusior		(Average):				
Remark: - <b>3.Calculatio</b> Tdesignh(°C)	n <b>/conclusio</b> r -10 8.037	n for SCOP	( <b>Average):</b> Tbiv(°C) TOL(°C)				
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW )	n <b>/conclusio</b> r -10 8.037	n for SCOP	( <b>Average):</b> Tbiv(°C) TOL(°C)		CR	COP at p	part load
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b>	n/conclusior -10 8.037 A, B, C, D, E,	for SCOP F condition Measured	(Average): Tbiv(°C) TOL(°C) ns: COP at measured	-10		COP at p	
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b> <u>ip</u> O	n/conclusior -10 8.037 A, B, C, D, E, Part load 8.037 7.110	F condition Measured capacity 7.793 7.110	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity	-10 Cdh	CR 1.00 1.00		01
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b> <u>ip</u> CO E	n/conclusior -10 8.037 A, B, C, D, E, Part load 8.037	F condition Measured capacity 7.793	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.01	-10 Cdh 0.90	CR 1.00	2.0	01
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b> <u> <u> <u> <u> </u> <u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u></u></u></u></u>	n/conclusior -10 8.037 A, B, C, D, E, Part load 8.037 7.110	F condition Measured capacity 7.793 7.110	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.01 2.33	-10 Cdh 0.90 0.90	CR 1.00 1.00	2.0	D1 33
Remark: - <b>3.Calculation</b> Tdesignh(°C) Pdesignh(kW ) <b>Test result A</b> <u>ip</u> CO E F A	<b>n/conclusio</b> -10 8.037 <b>A, B, C, D, E,</b> Part load 8.037 7.110 7.110	F condition Measured capacity 7.793 7.110 7.110	(Average): Tbiv(°C) TOL(°C) ns: COP at measured capacity 2.01 2.33 2.33	-10 Cdh 0.90 0.90 0.90	CR 1.00 1.00	2.0 2.3 2.3 3.0	01 33 33

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Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.038
Standby mode [P <sub>SB</sub> ]	kW	0.013
Crankcase heater [P <sub>CK</sub> ]	kW	0.083
Off mode [P <sub>OFF</sub> ]	kW	0.013
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.61
SCOP:	kWh/kWh	3.60
Q <sub>H</sub> :	kWh/year	16605
Q <sub>HE</sub> :	kWh/year	4615
$\eta_{s,h}$	%	140.9
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Sound power level measurement(Low temperature P application)								
BLN-008TC1								
Product type :			Air to Water					
Outdoor heat excha	anger, Air temperature	DB/WB (°C):	7.0 /6.0					
Indoor heat exchar	iger, Water inlet/outlet t	emperature (°C):	30.0 /35.0					
Voltage (V):			230					
Frequency (Hz):         Working condition class :         Acoustical environment :         Windshield type :								
				Measured position amount :				
				Water flow (m <sup>3</sup> /h):			1.40	
				sured quantity	L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark	
ure level ` $L_{p(ST)}^{****}$		43						
ius d *		1.0m						
r level L <sub>wA</sub> ****		58						
	application)         BLN-008TC1         Product type :         Outdoor heat exchan         Indoor heat exchan         Voltage (V):         Frequency (Hz):         Working condition         Acoustical environr         Windshield type :         Measured position         Water flow (m³/h):         sured quantity         ure level ` L <sub>p(ST)</sub> ****         us d *	application)         BLN-008TC1         Product type :         Outdoor heat exchanger, Air temperature         Indoor heat exchanger, Water inlet/outlet t         Voltage (V):         Frequency (Hz):         Working condition class :         Acoustical environment :         Windshield type :         Measured position amount :         Water flow (m³/h):         sured quantity       L <sub>WA,indoors</sub> (dB(A)))         ure level `L <sub>p(ST)</sub> ****          us d *	application)         BLN-008TC1         Product type :         Outdoor heat exchanger, Air temperature DB/WB (°C):         Indoor heat exchanger, Water inlet/outlet temperature (°C):         Voltage (V):         Frequency (Hz):         Working condition class :         Acoustical environment :         Windshield type :         Measured position amount :         Water flow (m³/h):         sured quantity       L <sub>wA,indoors</sub> (dB(A))         us d *					

#### Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 450 r/min, compressor speed: 46Hz.







Table 5b.	Sound power level measurement(Medium temperature P application)					
Model	BLN-008TC1					
	Product type :			Air to Water		
	Outdoor heat excha	nger, Air temperature	DB/WB (°C):	7.0 /6.0		
	47.0 /55.0					
	230					
	Frequency (Hz):					
	Working condition class :					
	Hemi-anechoic room					
	Sponge					
	Measured position a	amount :		14		
	Water flow (m <sup>3</sup> /h):			0.88		
Measured quantity		L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark		
Sound pressure level `L <sub>p(ST)</sub> ****			43			
Spheres rad	ius d *		1.0m			
Sound powe	r level L <sub>wA</sub> ****		58			
Setting of co Duct connec	ntrols: according to us	er manual.		1		

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 450 r/min, compressor speed: 49Hz.







Table 6a.	Sound power leve application)	und power level measurement(Low temperature plication)				
Model	BLN-008TC3					
	Product type :					
	Outdoor heat exchanger, Air temperature DB/WB (°C):					
	30.0 /35.0					
	Voltage (V):					
	Frequency (Hz):	cy (Hz):				
	Working condition	Vorking condition class :				
	Hemi-anechoi room					
	Sponge					
	Measured position	amount :		14		
	Water flow (m <sup>3</sup> /h):			1.40		
Measured quantity		L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark		
Sound pressure level `L <sub>p(ST)</sub> ****			43			
Spheres radi	ius d *		1.0m			
Sound power level L <sub>wA</sub> ****			58			

#### . ... . . . - - 1 .14

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; nearest integer Fan speed: 450 r/min, compressor speed: 46Hz.







Table 6b.	Sound power level measurement(Medium temperature P application)				
Model	BLN-008TC3				
	Product type :			Air to Water	
	Outdoor heat exch	anger, Air temperature	DB/WB (°C):	7.0 /6.0	
	Indoor heat exchar	temperature (°C):	47.0 /55.0		
	Voltage (V):				
	Frequency (Hz):				
	Working condition	Class A			
	Acoustical environ	Hemi-anechoic room			
	Windshield type :				
	14				
	Water flow (m <sup>3</sup> /h):			0.88	
Measured quantity		L <sub>WA,indoors</sub> (dB(A))	L <sub>WA,outdoors</sub> (dB(A))	Remark	
Sound pressure level `L <sub>p(ST)</sub> ****			43		
Spheres rad	lius d *		1.0m		
Sound powe	er level L <sub>wA</sub> ****		58		
	ontrols: according to u	ser manual.			

Rounding to: \*) 1 decimal places; \*\*) 2 decimal places; \*\*\*) 3 decimal places; \*\*\*\*) nearest integer Fan speed: 450 r/min, compressor speed: 49Hz.







Table 7.		EN 14511-4:	2022		Р
Model Customer Code	Date [dd-	1 Testing item	Standard Reference	Comment	Test Response
TEST 1	mm-yyyy] 01-04-2023	STARTING	EN14511-	The "lower" starting operating conditions	Passed
	01 04 2020	TEST	4:2022, §	declared by the manufacturer for the heating mode- i.e. Tair=-24.78°C, T out water 9.98° C, Flow rate 0.70m <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.	
TEST 2	01-04-2023	OPERATIN G TEST	EN14511- 4:2022, § 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=-25.03°C, T out water 64.76°C, Flow rate 0.70m <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	01-04-2023	SHUTTING OFF WATER FLOW	EN14511- 4:2022, § 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	01-04-2023	SHUTTING OFF AIR FLOW	EN14511- 4:2022, § 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	01-04-2023	Complet E Power Supply Failure	EN14511- 4:2022, § 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 8.		EN 14511-4:	:2022		Р
Model	BLN-008TC			-	
Customer Code	Execution Date [dd- mm-yyyy]	Testing item	Standard Reference	Comment	Test Response
TEST 1	02-04-2023	STARTING TEST	4:2022, §	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.00°C, T out water 10.01°C, Flow rate 0.70m <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	02-04-2023	OPERATIN G TEST	EN14511- 4:2022, § 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=-25.07°C, T out water 65.11°C, Flow rate 0.69m <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	02-04-2023	SHUTTING OFF WATER FLOW		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	02-04-2023	SHUTTING OFF AIR FLOW		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	02-04-2023	Complet E Power Supply Failure	EN14511- 4:2022, § 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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## **Appendix II Marking plate**

#### Nameplate

#### Model: <u>BLN-008TC1</u>

Model			BLN-008TC1
Power Sup	vla	1 1	220-240V~ / 50Hz
	Capacity	kW	4.10 -12.10
	Input Power	kW	0.79 -2.85
Heating <sup>1</sup>	Input Current	A	3.45-13.04
	COP	W/W	4.24 - 5.57
	Capacity	kW	4.05-12.15
Hoating 2	Input Power	kW	1.38-4.06
Heating	Input Current	A	5.73-17.70
	COP	W/W	2.99 - 3.45
	Capacity	kW	3.65-8.59
Cooling	Input Power	kW	1.12-3.31
	Input Current	A	5.18-14.47
Rated Inpu	t Power	kW	5.40
Rated Inpu	t Current	A	25.0
Refrigerant	Type/Charge/GWP	/kg	R290 / 1.05 /3
CO <sub>2</sub> Equiva		/	0.0032t
Operation F	Pressure(Low Side)	MPa	0.8
	Pressure(High Side)	MPa	3.0
	Allowable Pressure	MPa	3.2
Electrical S	hockproof	/	
P Class		1	IPX4
	Water Temp.	°C	75
	Ambient Temperature	°C	-25 ~ 45
	ng Connections	inch	G1
Rated Wate		m ∛h	1.40
Nater Pres		kPa	20
	ater pressure	MPa	0.1/0.3
Sound pres		dB(A)	43
	sions(L×W×H)	mm	1287 ×448 ×904
Net Weight Rated Test Co		kg	134
leating <sup>2</sup> Amb Cooling:Ambi ColarEast Hea Io.73 Defu R	ient Temp 7°C/6°C(DB/WB),Water-In ient Temp 7°C/6°C(DB/WB),Water-In ent Temp 35°C/24°C(DB/WB),Water- at Pump Ltd. oad, Xingtan Town Shunde District 5 ple's Republic of China	/Out Temp 4 In/Out Temp	97°C/55°C 912°C/7°C
(			



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#### Appendix II Marking plate

Nameplate

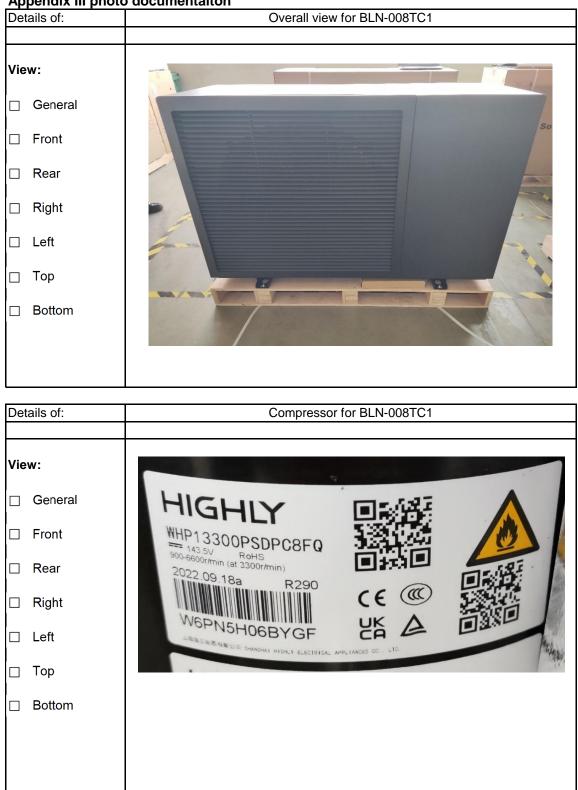
#### Model: <u>BLN-008TC3</u>

Model			BLN-008TC3		
Power Sup	vla	380-4	380-415V / 3N~ / 50Hz		
	Capacity	kW	4.10 -12.10		
	Input Power	kW	0.79 -2.85		
leating '	Input Current	A	1.62-4.57		
	COP	w/w	4.24 - 5.57		
	Capacity	kW	4.05-12.15		
Jooting 2	Input Power	kW	1.38-4.06		
reating -	Input Current	A	2.70-6.43		
	COP	w/w	2.99- 3.45		
	Capacity	kW	3.65-8.59		
Cooling	Input Power	kW	1.12-3.31		
	Input Current	A	1.97-5.25		
ated Inpu	t Power	kW	5.85		
ated Inpu	t Current	A	10.0		
	Type/Charge/GWP	\/kg	R290 / 1.05 /3		
CO <sub>2</sub> Equiva		/	0.0032t		
	Pressure(Low Side)	MPa	0.8		
	Pressure(High Side)	MPa	3.0		
	Allowable Pressure	MPa	3.2		
	hockproof	1	I		
<sup>o</sup> Class		/	IPX4		
	Water Temp.	°C	75		
	Ambient Temperature	°C	-25 ~ 45		
	ng Connections	inch	G1		
Rated Wate		m <sup>9</sup> h	1.40		
	sure Drop	kPa	20		
	ater pressure sure level	MPa dP(A)	0.1 / 0.3		
	sions (L×W×H)	dB(A)	43 1287 ×448 ×904		
let Weight		mm	134		
ated Test Co		kg	134		
eating <sup>2</sup> Amb ooling:Ambi olarEast Hea o.73 Defu R	ient Temp 7°C/6°C(DB/WB),Water ient Temp 7°C/6°C(DB/WB),Water ent Temp 35°C/24°C(DB/WB),Wat at Pump Ltd. oad, Xingtan Town Shunde Distric ple's Republic of China	r-In/Out Temp 47 er-In/Out Temp 1	°C/55°C 2°C/7°C		
CE			i		



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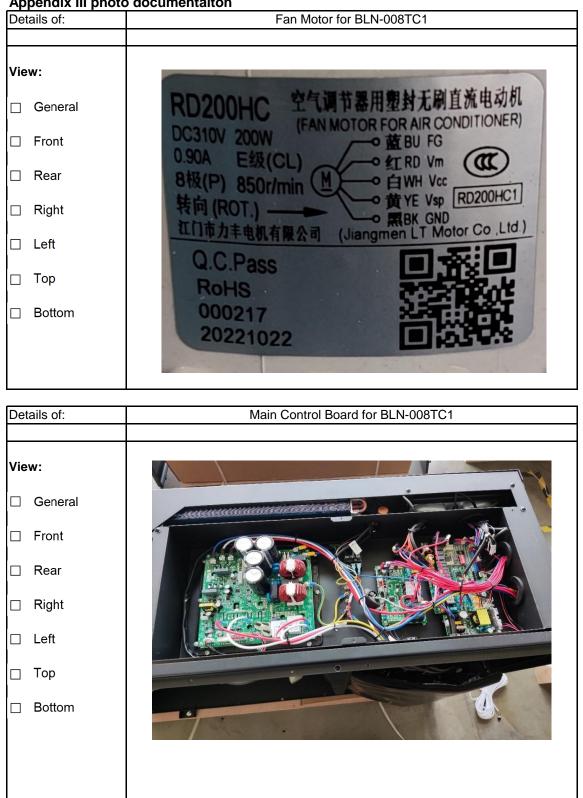


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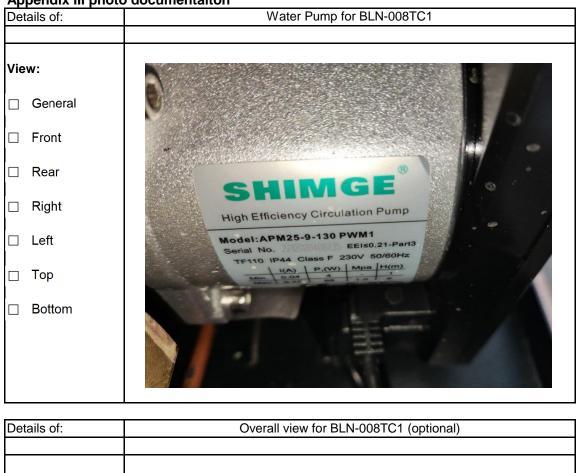


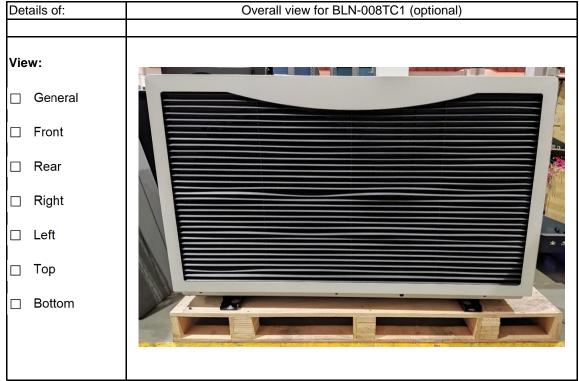
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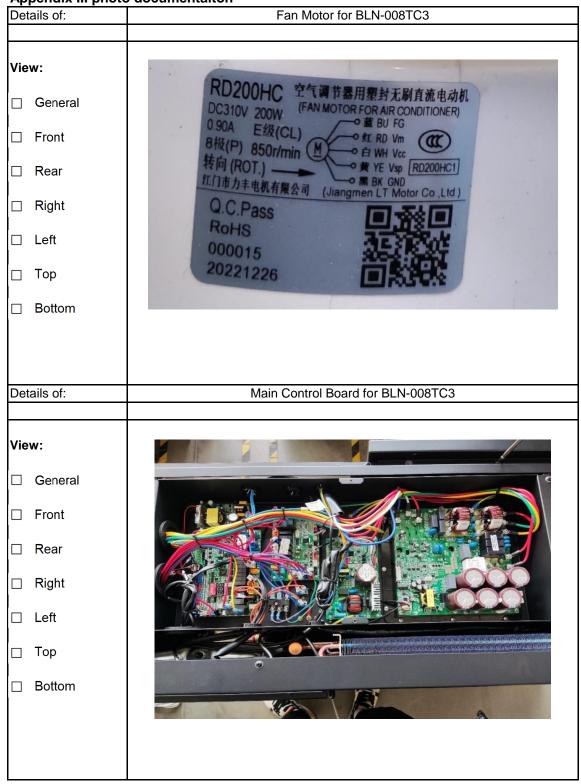






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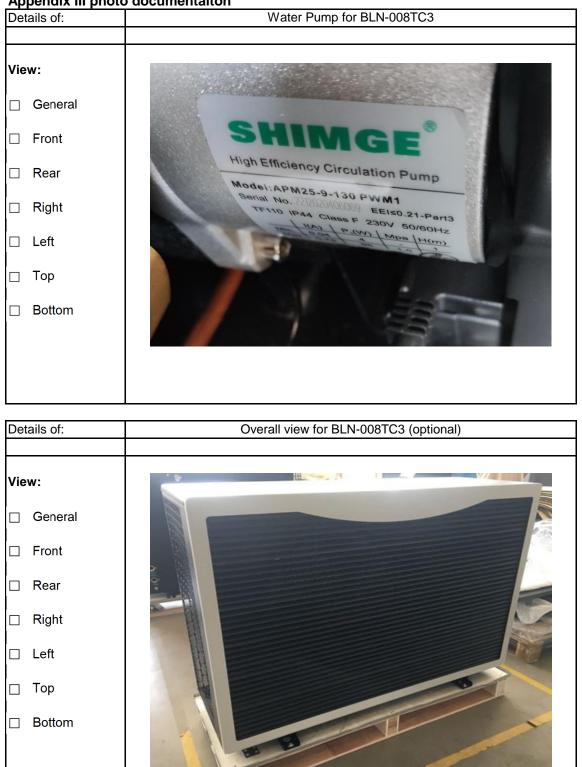






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# Appendix IV Construction data form

Model: <u>BLN-008TC1</u>		
Part		Technical data
1. Compressor		
	Manufacture:	SHANGHAI HIGHLY ELECTRICAL
		APPLIANCES CO., LTD.
	Туре:	WHP13300PSDPC8FQ
	Rated capacity:	2860W
	Serial-number:	W6PN5H06BYGF
	Specification:	DC143.5V; R290
2. Condenser		
	Manufacture:	danfoss (Hangzhou) Plate Heat Exchanger Co., Ltd.
	Туре:	C39L-EZ-54
	Heat exchanger:	Plate heat exchanger
	Dimension(mm):	332mm*118mm*77mm
3. Evaporator		
	Manufacture:	Guangzhou AOTAI Refrigeration Equipment Co., LTD.
	Туре:	DKLNSC-010PN9A1-LQ-1
	Heat exchanger:	Finned heat exchanger
	Dimension(mm):	900mm*307mm*850mm
4. Fan motor		
	Manufacture:	Jiangmen LT Motor Co., Ltd.
	Туре:	RD200HC
	Fan type:	3 blade
	Specification:	DC310V; 200W
5. Main control board		
	Manufacture:	GUANGDONG REAL-DESIGN INTELLIGENCE TECHNOLOGY CO., LTD.
	Туре:	R-SY001-M-V2.0
	Specification:	220-240V; 50Hz
6. Water pump		
	Manufacture:	SHIMGE PUMP INDUSTRY (JIANGSU) CO., LTD.
	Туре:	APM25-9-130 PWM1
	Specification:	inputpower: 95W; L=130mm; G1.5"

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# Appendix IV Construction data form

Appendix IV Construction data form Model: <u>BLN-008TC3</u>						
Part		Technical data				
1. Compressor						
	Manufacture:	SHANGHAI HIGHLY ELECTRICAL				
		APPLIANCES CO., LTD.				
	Туре:	WHP13300PSDPC8FQ				
	Rated capacity:	2860W				
	Serial-number:	W6PN5H06JJQ9				
	Specification:	DC143.5V; R290				
2. Condenser						
	Manufacture:	Weyee Heat Exchanger Corporation Limited				
	Туре:	C39L-EZ-54				
	Heat exchanger:	Plate heat exchanger				
	Dimension(mm):	332mm*118mm*77mm				
3. Evaporator						
	Manufacture:	Guangzhou AOTAI Refrigeration Equipment Co., LTD.				
	Туре:	DKLNSC-010PN9A1-LQ-1				
	Heat exchanger:	Finned heat exchanger				
	Dimension(mm):	900mm*307mm*850mm				
4. Fan motor						
	Manufacture:	Jiangmen LT Motor Co., Ltd.				
	Туре:	RD200HC				
	Fan type:	3 blade				
	Specification:	DC310V; 200W				
5. Main control board						
	Manufacture:	GUANGDONG REAL-DESIGN INTELLIGENCE TECHNOLOGY CO., LTD.				
	Туре:	R-SY001-M-V2.0				
	Specification:	380-415V; 50Hz				
6. Water pump						
	Manufacture:	SHIMGE PUMP INDUSTRY (JIANGSU) CO., LTD.				
	Туре:	APM25-9-130 PWM1				
	Specification:	inputpower: 95W; L=130mm; G1.5"				

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# **Appendix V Equipment List**

No.	Туре	Manufacture	Model	Equipment ID	Calibration Due Date
1	Heat pump energy efficiency testing system	PINXIN	10HP	2017J00001	2023-11-24
2	Electromagnetic flowmeter	KROHNE	OPTIFLUX4100 C	H17221264	2023-12-21
3	Anechoic rooms (hemi-anechoic rooms)	Guangzhou Kinte	-	NC-036-2	2023-10-07
4	AC source Supply	YANGHONG	YF-3600	VGDS-0637	2023-11-07
5	6 channel data logger	—	PXI-1033	VGDY-0257	2023-05-20
6	PULSE system	B & K	3660C	VGDY-0184	2023-04-12
7	Calibrator	B & K	4231	HJ-000095	2023-06-30
8	Long steel tape		5m	HJ-000150	2024-01-01
9	Temperature measurement system	_	—	NC-036-1	2023-06-07
10	Atmospheric pressure meter		—	HJ-000165	2023-11-22
11	Constant temperature water system	B & K	—	VGDS-0448	2023-04-18
12	Windscreen	B & K	WS002-5		—

-- End of Report --

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