

Technical Report No.: 64.181.23.02543.01 Rev.00

Date: 2023-07-25

Client:	Report holder's name:	Guangzhou Poolworld Environmental Technology Co., Ltd.
	Report holder's Address:	Room 703, Building 11, No. 684, Shibei Industrial Road, Dashi Street, Panyu District, Guangzhou City, CHINA
	Contact person of report holder:	Icy Deng
Manufacturer:	Manufacturer's name:	Guangzhou Poolworld Environmental Technology Co., Ltd.
	Manufacturer's address:	Room 703, Building 11, No. 684, Shibei Industrial Road, Dashi Street, Panyu District, Guangzhou City, CHINA
Factory:	Factory's name:	POWER WORLD MACHINERY EQUIPMENT CO., LTD
	Factory's address:	No. 32, Luxi 2nd Road, Liaobu Town, Dongguan, China
Test object:	Product:	DC Inverter Heat Pump
	Model:	PD50-CRL-DC-E, PD60-CRL-DC-E
	Trade mark:	POOLWORLD
Test specification:	✓	EN 14825:2022

est specification:	\checkmark	EN 14825:2022
	7	EN 12102-1:2022
	7	EN 14511-3:2022
	v	EN 14511-4:2022 Clause 4

Purpose of examination:	Test according to the test specification				
	\checkmark	(EU) No 813/2013			
	7	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	Function Manufacturer's specification for intended use: The appliance is air to water heat pump. Manufacturer's specification for predictive use: According to user manual						
1.2	Consideration of the foreseealNot applicableCovered through the applied stCovered by the following commCovered by attached risk analy	andard					
1.3	Technical Data						
	Model :	PD50-CRL-DC-E, PD60-CRL-DC-E					
	Rated Voltage (V) :	380-415V, 3N~					
	Rated Frequency (Hz) :	50					
	Rated Power (W) :	2080W for PD50-CRL-DC-E, 2800W for PD60-CRL-DC-E					
	Rated Current (A) :	3.72A for PD50-CRL-DC-E, 5.01A for PD60-CRL-DC-E					
	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 (kg) :	R290 / 1.15kg for PD50-CRL-DC-E, 1.40kg for PD60-CRL-DC-E					
	Declared parameters :	☑ Average □ Warmer □ Colder					
	Sound power level dB(A) :	N/A					
	Series No :	PPAL05023041331 for PD50-CRL-DC-E, PPAL06023010054 for PD60-CRL-DC-E					







2 Order

2.1 Date of Purchase Order, Customer's Reference

Date of Purchase Order: 2023-01-09, 2023-02-09, 2023-06-29

Customer's Reference: Guangzhou Poolworld Environmental Technology Co., Ltd.

2.2 Test Sample(s)

- Reception date(s): 2023-04-01, 2023-06-08
- Location(s) of reception:

For Energy test:

Guangzhou Customs District Technology Center

Address: No.3, Desheng East Road, Daliang, Shunde District, 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

2023-04-01 to 2023-04-28, 2023-06-08 to 2023-06-10

Location(s) of Testing

Same as 2.2

2.4

2.5 Points of Non-compliance or Exceptions of the Test Procedure N/A

3 Test Results

☑ Decision rule according to ILAC-G8:09/2019 clause 4.2.1 Binary statement for simple acceptance rule or IEC Guide 115:2021, clause 4.4.3, 4.5.1 Accuracy method was applied.

 $\hfill\square$ Decision rule according to customer's requirements was applied. It is:

 \Box Decision rule according to ILAC-G8:09/2019 clause 4.2.2 Binary statement with guard band - guard band length = 95 % extended measurement uncertainty, was applied.

 \Box Decision rule (based on ILAC-G8:09/2019 clause 4.2.3 Non-binary statement with guard band, guard band length = 95 % extended measurement uncertainty) for an upper specification limit (A lower limit or specification with an up-per and a lower limit is treated similarly.):

• Compliance with the requirement: If a specification limit is not breached by a measurement result plus the expanded uncertainty with a 95% coverage probability, then compliance with the specification will be stated (e. g. Pass).

• Non-compliance with the requirement: If a specification limit is exceeded by the measurement result minus the expanded uncertainty with a 95% coverage probability, then non-compliance with the specification will be stated (e. g. Fail).

• Inconclusive result: If a measurement result plus/minus the expanded uncertainty with a 95 % coverage probability overlaps the limit it will be stated that it is not possible to state compliance or non-compliance.

3.1 Positive Test Results

See Appendix I

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4 Remarks

4.1 General

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 Test History

- 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 14825:2022.
- 5) This test report 64.181.23.02543.01 Rev.00, dated 2023-07-25 bases on original test report 64.181.23.00458.02 Rev.00, dated 2023-06-20 to include the following changes and/or additions, which were considered technical modifications:

a) Changing report holder name and address, manufacturer name and address, trademark and model name.

b) After evaluating, no additional test was needed.

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







Appendix I 7	Test results								
Table 1.	Heating mod	e(Low temp	erature	applica	tion):			F)
Model	PD50-CRL-D	C-E							
Product type	Air to Water	Heating season	1	Averag e		Warmer		Colder	
1. Test cond	litions:								
		Part Loa	d Ratio			Outdoo	r heat	Indoo	r heat
Б.		in 🤅				excha		excha	
ditio	Form	ula	А	W	С	Inlet dry	. ,	Inlet/out	
Condition						bul temper °C	ature	temperat	ures (°C)
A	(-7-16)/(Tdesi		88	N/A	N/A	-7(-		a/	
В	(+2-16)/ (Tdes		54	N/A	N/A	2(1		a /	
C	(+7-16)/(Tdes		35	N/A	N/A	7(6	<i>i</i>	a/	
D E	(+12-16)/(Tde	TOL-16)/ (To	15 Josianh	N/A	N/A	12(1 TO		a/ a/3	
F						Tbi		a/. a/	
G	(-15-16)/(Tdes		N/A	N/A	N/A	-15		N/	-
	ith the water flo								
	ditions, the ca	-		ne power	r is 2.042	kW, the C	COP is	4.27kW/kW	/.
2.Tested dat	ta/correction	data(Avera	age):						
General test	Unit	A(-7)/W34	A2/	W30	A7/W2		/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	1	١o	No	No
pump defrosts									
Complete Cycles		0		0	0		0	0	0
Barometric pressure	kPa	101.02	101	1.01	101.0 ⁻	1 10	1.02	101.01	101.02
Voltage	V	398.8	39	9.5	398.6	6 39	8.7	398.4	398.8
Current input of the unit	A	5.26	2.	44	2.24	1	.80	6.53	5.26
Power input of the unit	kW	2.851	1.2	260	1.128	3 0.	882	3.743	2.851
Test condition	s indoor unit								
Inlet Water temperature, DB	°C	28.92	26	.93	25.01	23	3.11	29.63	28.92
Outlet Water temperature, DB	°C	33.99	30	.00	28.77	26	5.93	35.30	33.99

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Test condition							
Air inlet temperature, DB	°C	-7.00	2.03	7.01	12.00	-10.07	-7.00
Air inlet temperature, WB	°C	-8.01	1.00	6.01	11.00	-11.03	-8.01
Summary of th	ne results						
Total heating capacity	kW	9.080	5.539	6.732	6.852	10.137	9.080
Effective power input	kW	2.816	1.225	1.092	0.847	3.708	2.816
Coefficient of performance (COP)		3.23	4.52	6.16	8.09	2.73	3.23
Compressor frequency	Hz	70	35	30	30	90	70
Water flow	m³/h	1.55	1.55	1.55	1.55	1.55	1.55
3.Calculatio Tdesignh(°C)	n/conclusior	tor SCOP	Average):				
Pdesignh(kW			Tbiv(°C)	-7			
)	10.265		Tbiv(°C)				
) Test result /	10.265 A, B, C, D, E,	F conditior	TOL(°C)				
A result A Condition		F conditior Measured capacity	TOL(°C)		CR	COP at p	part load
	A, B, C, D, E,	Measured	TOL(°C) ns: COP at measured	-10	CR 1.00	COP at p	
Condition	A, B, C, D, E, Part load	Measured capacity	TOL(°C)	-10 Cdh			73
л Condition	A, B, C, D, E, Part load	Measured capacity 10.137	TOL(°C) ns: COP at measured capacity 2.73	-10 Cdh 0.90	1.00	2.7	73 23
E F	A, B, C, D, E, Part load 10.265 9.080	Measured capacity 10.137 9.080	TOL(°C) ns: COP at measured capacity 2.73 3.23	-10 Cdh 0.90 0.90	1.00	2.7	73 23 23
E F A	A, B, C, D, E, Part load 10.265 9.080 9.080	Measured capacity 10.137 9.080 9.080	TOL(°C) ns: COP at measured capacity 2.73 3.23 3.23	-10 Cdh 0.90 0.90 0.90	1.00 1.00 1.00	2.1 3.2 3.2	73 23 23 52
Condition E A B	A, B, C, D, E, Part load 10.265 9.080 9.080 5.527	Measured capacity 10.137 9.080 9.080 5.539	TOL(°C) ns: COP at measured capacity 2.73 3.23 3.23 4.52	-10 Cdh 0.90 0.90 0.90 0.90	1.00 1.00 1.00 1.00	2.5 3.2 3.2 4.5	73 23 23 52 66

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Electric power consumptions	Unit	Value
Thermostat-off mode $[P_{TO}]$	kW	0.024
Standby mode [P _{SB}]	kW	0.007
Crankcase heater [Р _{ск}]	kW	0.043
Off mode [P _{OFF}]	kW	0.007
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.61
SCOP:	kWh/kWh	4.60
Q _H :	kWh/year	21207
Q _{HE} :	kWh/year	4614
$\eta_{s,h}$	%	180.8
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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Appendix I 1								-	
Table 2.	Heating mod	e(Medium te	empera	ture app	lication)):		F	2
Model	PD50-CRL-D	C-E							
Product	Air to Water	Heating season	1	Averag e		Warme	· 🗌	Colder	
type		5645011		ů					
1. Test cond	litions:					•		•	
_		Part Loa				Outdoo		Indoor heat	
Condition		in 9	-		_	excha			anger
ndit	Forn	nula	A	W	С	Inlet dr			let water
So						bu		temperat	ures (°C)
0						tempe °(
A	(-7-16)/(Tdes	ianh-16)	88	N/A	N/A	-7(-	a/	52
B	(+2-16)/ (Tde		54	N/A	N/A	2(42
С	(+7-16)/(Tdes		35	N/A	N/A	7(1	a/	36
D	(+12-16)/(Tde		15	N/A	N/A	12(<i>i</i>		30
E		(TOL-16)/ (To				TC			55.3
F		bivalent-16)/(Tt			52
G	(-15-16)/(Tde		N/A	N/A	N/A	-1	-	N	
Remark: a) W 2 at 47/55 con									
2 at 47/55 con	iuliions, the ca	pacity is 6.97	TKVV, U	ie powei	15 3.143	okvv, trie	COP IS	2.00KVV/KV	V.
2.Tested dat	a/correction	data(Avera	age):						
General test	Unit	A(-7)/W52		W42	A7/W3		2/W30	A(-	A(-
conditions/		(88%)	(54	4%)	(35%)) (1	5%)	10)/W55.	7)/W52
Part-Load								3 (100%)	(88%)
		^		D					
Data		A 1:10:00		B 0:00	C 1:10:0	0 1.	D 10:00	E	F 1:10:00
Data collection	hh: min:sec	1:10:00	1.1	0:00	1:10:0	0 1:	10:00	1:10:00	1:10:00
period									
The heat		No	Ν	lo	No		No	No	No
pump				10					
defrosts									
Complete		0		0	0		0	0	0
Cycles									
Barometric	kPa	99.85	99	.85	99.85	5 9	9.80	99.75	99.85
pressure						_			
Voltage	V	398.9	39	9.1	398.6	6 3	98.6	398.7	398.9
Current input	A	7.49	3.	78	2.39	2	2.12	7.57	7.49
of the unit									
Power input	kW	4.508	2.0	018	1.229) 1	.064	4.587	4.508
of the unit									
Test condition		·						· ·	
Inlet Water	°C	42.16	36	.14	32.24	2	8.33	47.41	42.16
temperature,									
DB									
Outlet Water	°C	52.00	42	.03	37.12	2 3	4.13	55.06	52.00
temperature,									
DB									

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Ap	pendix	11	Test	results
		-		

	s outdoor unit						
Air inlet temperature, DB	°C	-7.00	2.02	7.01	12.00	-10.06	-7.00
Air inlet temperature, WB	°C	-8.00	0.99	6.01	11.00	-11.05	-8.00
Summary of th	e results						
Total heating capacity	kW	10.765	6.691	5.520	6.581	8.726	10.765
Effective power input	kW	4.497	2.007	1.217	1.053	4.576	4.497
Coefficient of performance (COP)		2.39	3.33	4.53	6.25	1.91	2.39
Compressor frequency	Hz	74	35	30	30	90	74
Water flow	m³/h	0.98	0.98	0.98	0.98	0.98	0.98
	<u>,</u>	(
3.Calculation		for SCOP	(Average): Tbiv(°C)	-7			
	-10	o for SCOP					
Tdesignh(°C)	-10 12.169		Tbiv(°C) TOL(°C)				
Tdesignh(°C) Pdesignh(kW)	-10 12.169		Tbiv(°C) TOL(°C)		CR	COP at j	part load
Tdesignh(°C) Pdesignh(kW) Test result <i>A</i>	-10 12.169 A, B, C, D, E,	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 A	-10 12.169 A, B, C, D, E, Part load	F conditior Measured capacity	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity	-10 Cdh		1.9	
Tdesignh(°C) Pdesignh(kW) Test result A <u>G</u> U U U U U U U U U U U U U U U U U U U	-10 12.169 A, B, C, D, E, Part load 12.169	F condition Measured capacity 8.726	Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C)	-10 Cdh 0.90	1.00	1.9	91
Tdesignh(°C) Pdesignh(kW) Test result A	-10 12.169 A, B, C, D, E, Part load 12.169 10.765	F condition Measured capacity 8.726 10.765	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity 1.91 2.39	-10 Cdh 0.90 0.90	1.00	1.1 2.3 2.3	91 39
Tdesignh(°C) Pdesignh(kW) Test result A	-10 12.169 A, B, C, D, E, Part load 12.169 10.765 10.765	F condition Measured capacity 8.726 10.765 10.765	Tbiv(°C) TOL(°C)	-10 Cdh 0.90 0.90 0.90	1.00 1.00 1.00	1.: 2.: 2.: 3.:	91 39 39
Tdesignh(°C) Pdesignh(kW) Test result A	-10 12.169 A, B, C, D, E, Part load 12.169 10.765 10.765 6.553	F condition Measured capacity 8.726 10.765 10.765 6.691	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity 1.91 2.39 2.39 2.39 3.33	-10 Cdh 0.90 0.90 0.90 0.90	1.00 1.00 1.00 0.98	1.1 2.3 2.3 3.3 4.4	91 39 39 33

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Electric power consumptions	Unit	Value
Thermostat-off mode [P _{TO}]	kW	0.024
Standby mode [P _{SB}]	kW	0.007
Crankcase heater [P _{CK}]	kW	0.043
Off mode [P _{OFF}]	kW	0.007
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.45
SCOP:	kWh/kWh	3.44
Q _H :	kWh/year	25141
Q _{HE} :	kWh/year	7302
$\eta_{s,h}$	%	134.7
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Appendix I 7	est results									
Table 3.	Heating mod	e(Low temp	erature	applica	tion):			F)	
Model	PD60-CRL-D	C-E								
Product type	Air to Water	Heating season	7	Averag e		Warmer		Colder		
1. Test cond	litions:						l			
	Part Load Ratio Outdoor heat								Indoor heat	
uo		in 🤅	%			excha	nger	excha	anger	
Condition	Form	ula	A W		С	Inlet dry bul temper °C	b ature	Inlet/outlet water temperatures (°C)		
A	(-7-16)/(Tdesi		88	N/A	N/A	-7(-		a/	34	
В	(+2-16)/ (Tdes		54	N/A	N/A	2(1		a/		
C	(+7-16)/(Tdes		35	N/A	N/A	7(6	<i>i</i>	a/		
D	(+12-16)/(Tde		15	N/A	N/A	12(1 TO		a/		
E F		TOL-16)/ (To pivalent-16)/(Tbi		a/3 a/		
G	(-15-16)/(Tdes		N/A	N/A	N/A	-15		a / N/	-	
Remark: a) Wi 2 at 30/35 con	ith the water flo ditions, the cap	ow rate as de pacity is 12.7	etermine 82kW,	ed at the	standard	I rating co	ndition	s given in E	N14511-	
2.Tested dat	a/correction	data(Avera	age):							
General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)		W30 4%)	A7/W2 (35%)		/W24 5%)	A(- 10)/W35. 3 (100%)	A(-7)/ W34 (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 pump defrosts		No	Ν	10	No	1	No	No	No	
Complete Cycles		0		0	0		0	0	0	
Barometric pressure	kPa	101.02	10′	1.01	101.0 ⁻	1 10	1.02	101.01	101.02	
Voltage	V	399.6	39	9.7	398.8	39	9.1	398.6	399.6	
Current input of the unit	A	6.38	3.	19	2.55	2	.26	8.33	6.38	
Power input of the unit	kW	3.755	1.7	711	1.310) 1.	141	5.103	3.755	
Test condition	s indoor unit							•		
Inlet Water temperature, DB	°C	29.25	27	.02	25.13	23	8.17	29.93	29.25	
Outlet Water temperature, DB	°C	34.04	29	.94	28.26	26	63	35.31	34.04	

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Test condition	s outdoor unit	-					
Air inlet temperature, DB	°C	-7.08	2.02	7.01	12.02	-10.00	-7.08
Air inlet temperature, WB	°C	-8.06	1.05	6.01	11.02	-11.04	-8.06
Summary of the	ne results						
Total heating capacity	kW	12.431	7.574	8.142	8.979	14.005	12.431
Effective power input	kW	3.721	1.677	1.276	1.107	5.069	3.721
Coefficient of performance (COP)		3.34	4.52	6.38	8.11	2.76	3.34
Compressor frequency	Hz	70	35	30	30	90	70
Water flow	m³/h	2.24	2.24	2.24	2.24	2.24	2.24
Remark: -							
	n/conclusior	n for SCOP	(Average): Tbiv(°C)	-7			
3.Calculatio		n for SCOP					
3.Calculatio Tdesignh(°C) Pdesignh(kW)	-10		Tbiv(°C)				
3.Calculatio Tdesignh(°C) Pdesignh(kW)	-10 14.053		Tbiv(°C)		CR	COP at p	part load
3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result <i>I</i>	-10 14.053 A, B, C, D, E,	F condition Measured	Tbiv(°C) TOL(°C) ns: COP at measured	-10	CR 1.00	COP at p	
3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result A	-10 14.053 A, B, C, D, E, Part load	F condition Measured capacity	Tbiv(°C) TOL(°C) ns: COP at measured capacity	-10 Cdh		2.	
3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result A Uotippeo O E	-10 14.053 A, B, C, D, E, Part load 14.053	F condition Measured capacity 14.005	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity 2.76	-10 Cdh 0.90	1.00	2.	76
3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result A O O E F	-10 14.053 A, B, C, D, E, Part load 14.053 12.431	F condition Measured capacity 14.005 12.431	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity 2.76 3.34	-10 Cdh 0.90 0.90	1.00	2. 3. 3.	76 34
3.Calculatio Tdesignh(°C) Pdesignh(kW) Test result A O D D D O C E F A	-10 14.053 A, B, C, D, E, Part load 14.053 12.431 12.431	F condition Measured capacity 14.005 12.431 12.431	Tbiv(°C) TOL(°C) TOL(°C) ns: COP at measured capacity 2.76 3.34 3.34	-10 Cdh 0.90 0.90 0.90	1.00 1.00 1.00	2. 3. 3. 4.	76 34 34

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Electric power consumptions	Unit	Value
Thermostat-off mode [P _{TO}]	kW	0.039
Standby mode [P _{SB}]	kW	0.013
Crankcase heater [Р _{ск}]	kW	0.054
Off mode [P _{OFF}]	kW	0.013
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.70
SCOP:	kWh/kWh	4.69
Q _H :	kWh/year	29033
Q _{HE} :	kWh/year	6189
$\eta_{s,h}$	%	184.6
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)		A+++

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Appendix I	Test results								
Table 4.	Heating mod	e(Medium te	empera	ture app	lication)):		F	0
Model	PD60-CRL-D	C-E							
Product	Air to Water	Heating	\	Averag		Warmer		Colder	
type		season		e					
1. Test cond	litions:								
		Part Loa				Outdoo			r heat
Condition		in 9	-			excha	-	excha	-
ndit	Form	nula	A	W	С	Inlet dry			let water
Co						bu		temperat	ures (°C)
0						tempe °(
А	(-7-16)/(Tdes	ignh-16)	88	N/A	N/A	-7(-		a/	52
В	(+2-16)/ (Tde	signh-16)	54	N/A	N/A	2(*		a/	42
С	(+7-16)/(Tdes		35	N/A	N/A	7(6	,		36
D	(+12-16)/(Tde		15	N/A	N/A	12(*			30
E F		(TOL-16)/ (To				TC Th			55.3
G F	(1) (-15-16)/(Tde	bivalent-16)/(N/A	N/A	N/A	Tb -1		a/ N	52
-	ith the water fl			-					
2 at 47/55 con						•		•	
				ine perio	10 0.00	interv, are		5 0.100070	•••
2.Tested dat	ta/correction	data(Avera	age):						
General test	Unit	A(-7)/W52	A2/	W42	A7/W3	6 A12	2/W30	A(-	A(-
conditions/		(88%)	(54	4%)	(35%)) (1	5%)	10)/W55.	7)/W52
Part-Load								3	(88%)
								(100%)	
		А		В	С		D	E	F
Data	hh: min:sec	1:10:00	1:1	0:00	1:10:0	0 1:1	0:00	1:10:00	1:10:00
collection									
period									
The heat		No	١	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	398.7	39	8.8	398.8	3 3	98.9	398.6	398.7
Current input	А	8.20	3.	88	3.09	2	.68	10.28	8.20
of the unit									
Power input	kW	5.019	2.1	101	1.635	5 1.	382	6.394	5.019
of the unit									
Test condition	s indoor unit	L	<u>.</u>			I		L	
Inlet Water	°C	44.11	37	.11	33.03	3 23	8.65	46.15	44.11
temperature,							:		
DB									
Outlet Water	°C	52.06	41	.98	38.15	5 34	4.59	55.02	52.06
temperature,									
DB									

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Ap	pendix	I	Test	results	

Test conditions	s outdoor unit						
Air inlet temperature, DB	°C	-7.00	2.01	7.01	12.02	-10.00	-7.00
Air inlet temperature, WB	°C	-7.95	1.00	6.00	11.03	-10.96	-7.95
Summary of th	e results						
Total heating capacity	kW	11.913	7.285	7.662	8.886	13.288	11.913
Effective power input	kW	5.004	2.087	1.621	1.368	6.380	5.004
Coefficient of performance (COP)		2.38	3.49	4.73	6.50	2.08	2.38
Compressor frequency	Hz	71	35	30	30	90	71
A.L			1 00	1 00	1.29	4.00	1.29
			1.29 ature data is rec are been detern		ull average o		
Remark: * In p data. **The inle	art condition, c et and outlet te	outlet temper emperatures	ature data is rec are been detern	corded by a f	ull average o	complete cy	
Remark: * In p data. **The inle 14825:2022.	art condition, c et and outlet te	outlet temper emperatures	ature data is rec are been detern	corded by a f	ull average o	complete cy	
Remark: * In p data. **The inle 14825:2022. 3.Calculatio r	art condition, c et and outlet te n/conclusion	outlet temper emperatures	ature data is red are been detern (Average):	corded by a f nined accord	ull average o	complete cy	
Remark: * In p data. **The inle 14825:2022. 3.Calculatior Tdesignh(°C)	art condition, c et and outlet te n/conclusion -10 13.467	outlet temper emperatures	ature data is rec are been detern (Average): Tbiv(°C) TOL(°C)	corded by a f nined accord	ull average o	complete cy	
Remark: * In p data. **The ink 14825:2022. 3.Calculatior Tdesignh(°C) Pdesignh(kW)	art condition, c et and outlet te n/conclusion -10 13.467	outlet temper emperatures	ature data is rec are been detern (Average): Tbiv(°C) TOL(°C)	corded by a f nined accord	ull average o	complete cy	cle's
Remark: * In p data. **The inle 14825:2022. 3.Calculatior Tdesignh(°C) Pdesignh(kW) Test result A	art condition, c et and outlet te n/conclusion -10 13.467 A, B, C, D, E,	for SCOP F conditior Measured	ature data is rec are been detern (Average): Tbiv(°C) TOL(°C) ns: COP at measured	corded by a f nined accord -7 -10	full average of ling to CI.11.	COP at p	cle's
Remark: * In p data. **The ink 14825:2022. 3.Calculation Tdesignh(°C) Pdesignh(kW) Test result A	art condition, c et and outlet te n/conclusion -10 13.467 A, B, C, D, E, Part load	outlet temper emperatures for SCOP(F condition Measured capacity	ature data is rec are been detern (Average): Tbiv(°C) TOL(°C) TOL(°C) IS: COP at measured capacity	-7 -10 Cdh	full average of ling to CI.11.	COP at p	cle's
Remark: * In p data. **The ink 14825:2022. 3.Calculation Tdesignh(°C) Pdesignh(kW) Test result A	art condition, c et and outlet te n/conclusion -10 13.467 A, B, C, D, E, Part load 13.467	for SCOP F condition Measured capacity 13.288	Ature data is recare been detern (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) TOL(°C) 2.08	-7 -10 Cdh	CR	COP at p	oart load
Remark: * In p data. **The info 14825:2022. 3.Calculation Tdesignh(°C) Pdesignh(kW) Test result A <u>ip</u> O E F	art condition, c et and outlet te n/conclusion -10 13.467 A, B, C, D, E, Part load 13.467 11.913	F condition Measured capacity 13.288 11.913	Ature data is recare been detern (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) 15: COP at measured capacity 2.08 2.38	-7 -10 Cdh 0.90 0.90	CR 1.00 1.00	COP at p	oart load
Remark: * In p data. **The info 14825:2022. 3.Calculation Tdesignh(°C) Pdesignh(kW) Test result A UD DU O E E F A	art condition, c et and outlet te n/conclusion -10 13.467 A, B, C, D, E, Part load 13.467 11.913 11.913	F condition Measured capacity 13.288 11.913 11.913	Ature data is recare been detern (Average): Tbiv(°C) TOL(°C) TOL(°C) TOL(°C) 15: COP at measured capacity 2.08 2.38 2.38	-7 -10 Cdh 0.90 0.90 0.90	CR 1.00 1.00	COP at p	cle's

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Electric power consumptions	Unit	Value
Thermostat-off mode $[P_{TO}]$	kW	0.039
Standby mode [P _{SB}]	kW	0.013
Crankcase heater [P _{CK}]	kW	0.054
Off mode [P _{OFF}]	kW	0.013
Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.55
SCOP:	kWh/kWh	3.55
Q _H :	kWh/year	27823
Q _{HE} :	kWh/year	7844
η _{s,h}	%	138.9
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)		A++

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Table 5a.	Sound power level application)	Р		
Model	PD50-CRL-DC-E			l
	Product type :			Air to Water
	Outdoor heat exchan	nger, Air temperature I	DB/WB (°C):	7.0 / 6.0
	Indoor heat exchang	ger, Water inlet/outlet t	emperature (°C):	30.0 / 35.0
	Voltage (V):			400
	Frequency (Hz):			50
	Working condition c	Class A		
	Acoustical environm	Hemi-anechoic room		
	Windshield type :			Sponge
	Measured position a	imount :		14
	Water flow (m ³ /h):			1.55
Measured quantity L _v		L _{WA,indoors} (dB(A))	L _{WA,outdoors} (dB(A))	Remark
Sound pressure level `L _{p(ST)} ****			44	
Measuremer	nt distance d *		1.0m	
Sound power level L _{wA} **** 59				

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Duct connection:--

Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer Fan speed: 400 r/min, compressor speed: 50Hz.



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Table 5b.	Sound power level application)	Р		
Model	PD50-CRL-DC-E			
	Product type :			Air to Water
	Outdoor heat excha	nger, Air temperature I	DB/WB (°C):	7.0 / 6.0
	Indoor heat exchang	ger, Water inlet/outlet t	emperature (°C):	47.0 / 55.0
	Voltage (V):			400
	Frequency (Hz):			50
	Working condition c	Class A		
	Acoustical environm	Hemi-anechoic room		
	Windshield type :			Sponge
	Measured position a	amount :		14
	Water flow (m ³ /h):			0.98
Meas	sured quantity	L _{WA,indoors} (dB(A))	L _{WA,outdoors} (dB(A))	Remark
Sound pressure level `L _{p(ST)} ****			45	
Measuremer	nt distance d *		1.0m	
Sound power level L _{wA} ****			59	

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Duct connection:--

Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer Fan speed: 400 r/min, compressor speed: 56Hz.



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Table 6a.	I Test results Sound power level application)	measurement(Low te	Р	
Model		I		
	Product type :			Air to Water
	Outdoor heat excha	nger, Air temperature [DB/WB (°C):	7.0 / 6.0
	Indoor heat exchange	ger, Water inlet/outlet to	emperature (°C):	30.0 / 35.0
	Voltage (V):			400
	Frequency (Hz):			50
	Working condition c	lass :		Class A
	Acoustical environm	nent :		Hemi-anechoic room
	Windshield type :			Sponge
	Measured position a	amount :		14
	Water flow (m ³ /h):			2.24
Measured quantity		L _{WA,indoors} (dB(A))	L _{WA,outdoors} (dB(A))	Remark
Sound pressure level `L _{p(ST)} ****			45	
Measurement distance d * 1.0m				
Sound power level L _{wA} **** 60				
Duct connect Rounding to		*) 2 decimal places; ***) 3 decimal places; ****)	nearest integer

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Table 6b.	Sound power leve application)	I measurement(Mediu	Р		
Model	PD60-CRL-DC-E			1	
	Product type :			Air to Water	
	Outdoor heat excha	inger, Air temperature I	DB/WB (°C):	7.0 / 6.0	
	Indoor heat exchan	ger, Water inlet/outlet t	emperature (°C):	47.0 / 55.0	
	Voltage (V):			400	
	Frequency (Hz):			50	
	Working condition of	class :		Class A	
	Acoustical environment :				
	Windshield type :			Sponge	
	Measured position a	amount :		14	
	Water flow (m ³ /h):			1.29	
Meas	Measured quantity L _{WA,indoors} (dB(A)) L _{WA,outdoors} (dB(A))			Remark	
Sound pressure level `L _{p(ST)} ****			46		
Measurement distance d * 1.0m		1.0m			
Sound power level L _{wA} **** 62					

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Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; *) nearest integer Fan speed: 400 r/min, compressor speed: 54Hz.







Table 7. Clause 4 of EN 14511-4:2022 Ρ Model PD50-CRL-DC-E Customer Execution Standard Comment Testing Test Referenc Code Date [dditem Response mm-yyyy] е TEST 1 08-06-2023 STARTING EN14511-The "lower" starting operating conditions Passed TEST 4:2022, § declared by the manufacturer for the heating mode- i.e. Tair=-25.12°C, T out water 9.02°C, 4.2.1.2 Table 3 Flow rate 0.96m³/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 08-06-2023 OPERATIN EN14511-From the machine "lower" starting conditions -Passed G TEST 4:2022, § i.e. - the machine was brought to the lower 4.2.1.2 operating conditions declared by the Table 3 manufacturer for the heating mode- i.e. Tair=-25.33°C, T out water 60.09°C, Flow rate 0.96m³/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. TEST 3 08-06-2023 SHUTTING EN14511-The water flow rate was shutted off through Passed manual and automatic valves of the test rig. The OFF 4:2022. § 4.5 WATER machine switched off and only the flow switch FLOW 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. TEST 4 08-06-2023 SHUTTING EN14511-The air flow rate was shutted off through a Passed OFF AIR plastic sheet and a panel. The machine never 4:2022, § FLOW turned off. It continued to operate with 4.5 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. TEST 5 08-06-2023 COMPLET EN14511-The power supply was cut off for about 10 Passed **E POWER** 4:2022, § seconds. The unit restarted automatically within SUPPLY 4.6 about 3 minutes after the power supply was FAILURE reactivated.

Appendix I Test results

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Table 8.	Clause 4 of	EN 14511-4:	2022		Р
Model	PD60-CRL-	DC-E			
Customer Code	Execution Date [dd- mm-yyyy]	Testing item	Standard Reference	Comment	Test Response
TEST 1	09-06-2023	STARTING TEST	EN14511- 4:2022, § 4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.17°C, T out water 9.11°C, Flow rate 1.28m ³ /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	09-06-2023	OPERATIN G TEST	EN14511- 4:2022, § 4.2.1.2 Table 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 60.03°C, Flow rate 1.28m ³ /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	09-06-2023	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	09-06-2023	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	09-06-2023	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>PD50-CRL-DC-E</u>

Model	PD50-CRL-DC-E
Power supply	380−415V/3N~/50 Hz
*Heating Capacity Range	5.9~14.8 kW
*Heating input Range	1.13~3.83 kW
**Cooling capacity Range	4. 3∼10. 8 kW
**Cooling input power	1. 39∼3. 99 k₩
***Heating capacity Range(DWH)	6. 6∼13. 2 kW
***Heating input Range(DWH)	1. 41∼3. 73 kW
Rated Current	3.72 A
Rated Power Input	2.08 kW
Refrigerant	R290/1150 g
Max operating pressure (High side)	3.2 MPa
Max operating pressure (Low side)	0.8 MPa
Maximum allowable pressure	3.2 MPa
Climate type	Low Temperature
Operating range	– 25~43°C
Water Flow	2.55m³/h
Diameter of pipe	DN25
IP Grade	IPX4
Electric shock rating	
Body size($W \times D \times H$)	1080×480×1060 mm
Net weight/Gross weight	138/150 kg
Production date and code	See unit barcode
Guangzhou Poolworld Environmental Technolog Room 703, Building 11, No. 684, Shibei Industri Guangzhou City, CHINA	
Remark: *Heating working condition: Inlet water temperat Dry bulb temperature 7°C, Wet bulb temperature	
**Cooling working condition: Inlet water tempera	ature 12°C, Outlet water temperature 7°C
Dry bulb temperature 35°C, Wet bulb temperatu	
***DHW working condition: Inlet water temperate	ure 15°C, Outlet water temperature 55°C
Dry bulb temperature 7°C, Wet bulb temperature	
POOLWORLD	

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Appendix II Marking plate

Nameplate

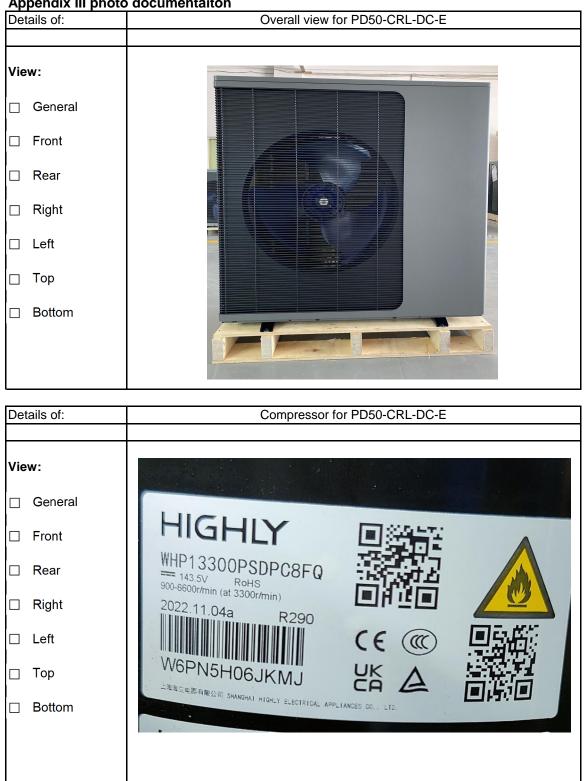
DC Inverter	Heat Pump
Model	PD60-CRL-
Power supply	380-415V/3N~/5
*Heating Capacity Range	8.8~22.
*Heating input Range	1.68~5.7
**Cooling capacity Range	6. 2~15.
**Cooling input power	1.99~5.6
***Heating capacity Range(DWH)	7.8~17.
***Heating input Range(DWH)	1.67~5.0
Rated Current	5.
Rated Power Input	2.8
Refrigerant	R290/14
Max operating pressure (High side)	3.2
Max operating pressure (Low side)	0.8
Maximum allowable pressure	3.2
Climate type	Low Temperat
Operating range	- 25~
Water Flow	3. 78
Diameter of pipe	
IP Grade	
Electric shock rating	
Body size(W×D×H)	1080×480×13
Net weight/Gross weight	170/18
Production date and code	See unit bar
Guangzhou Poolworld Environmental Technolog Room 703, Building 11, No. 684, Shibei Industri Guangzhou City, CHINA	
Remark: *Heating working condition: Inlet water temperature Dry bulb temperature 7°C, Wet bulb temperature **Cooling working condition: Inlet water temperature Dry bulb temperature 35°C, Wet bulb temperature ***DHW working condition: Inlet water temperature Dry bulb temperature 7°C, Wet bulb temperature POOLWORLD	e 6°C. Iture 12°C, Outlet water temperature 7°C re 24°C. ure 15°C, Outlet water temperature 55°C

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Appendix III photo documentaiton

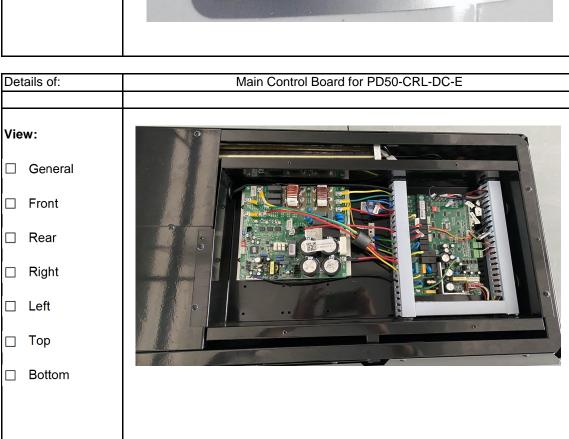
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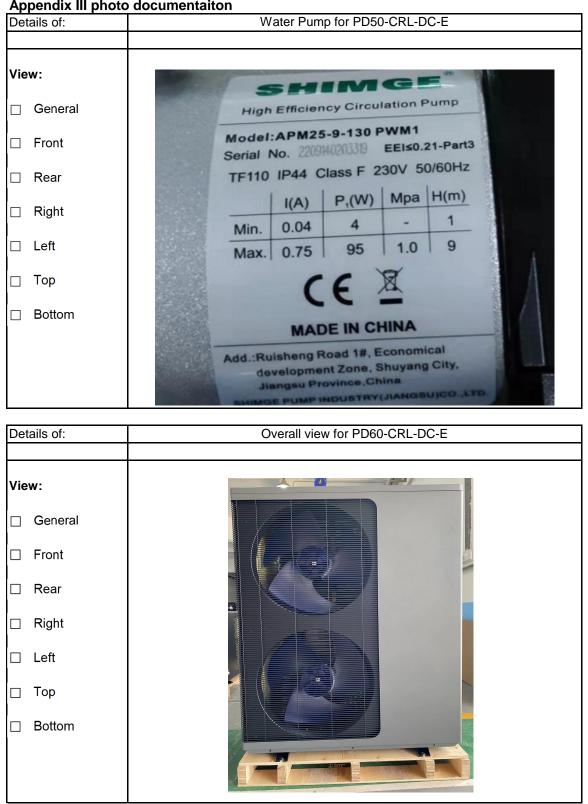
Details of:	Fan Motor for PD50-CRL-DC-E	
View:	ロロ200日 空气调节器用塑封无刷直流电动机	
General	RD200HC 空气调节器用型封大刷直流电动机 (FAN MOTOR FOR AIR CONDITIONER) DC310V 200W の広 BU FG	
□ Front	0.90A E级(CL) 《红 RD Vm 《红	
□ Rear	8极(P) 850r/min (M Vice HD200HC1) 转向(ROT) ————————————————————————————————————	
□ Right	江门市力丰电机有限公司 (Jiangmen LT Motor Co.,Ltd.)	
□ Left	Q.C.Pass	
🗌 Тор	RoHS	
□ Bottom	000287 20230331	



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Appendix III photo documentaiton

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Details of: Compressor for PD60-CRL-DC-E View: HIGHLY General WHP32900VSKTQ9JK 221V ---- RoHS 900-6600r/min(at 3600 r/min) □ Front /R454B/R454C/R134a a Rear W82N1E02QNL8 □ Right 上海海立电器有限公司_SHANGHAI_HIGHLY_ELECTRICAL_APPLIANCES_CO., LTD Left 🗌 Тор □ Bottom Fan Motor for PD60-CRL-DC-E Details of: View: 82 空气调节器用塑封无刷直流电动机 General RD150HA (FAN MOTOR FOR AIR CONDITIONER) □ Front DC310V 150W ●蓝BUFG o红RDVm 0.60A E级(CL) Rear o白WHVcc M 8极(P) 850r/min →黄YE Vsp Right 转向 (ROT.) -→ 黑 BK GND (Jiangmen LT Molor Co., Lld) 江门市力丰电机有限公司 Left Q.C.Pass 🗌 Тор RoHS Bottom 000332 20220808

Appendix III photo documentaiton

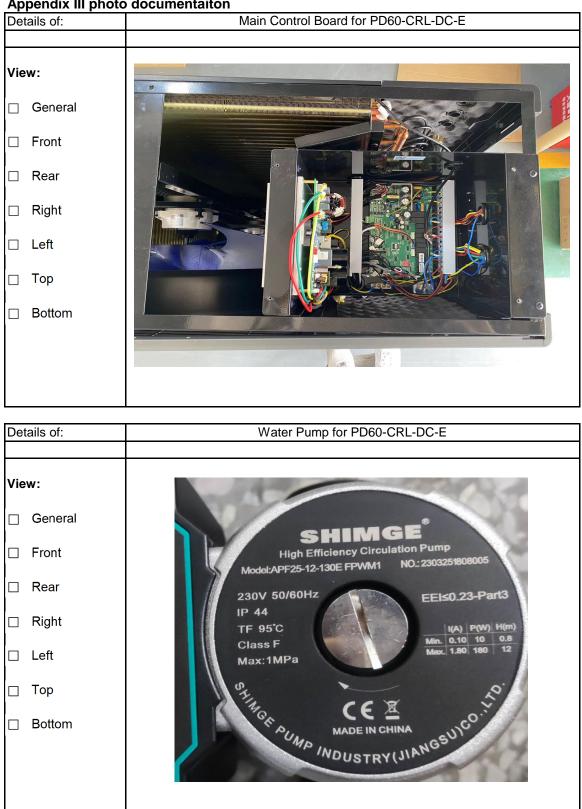
Doc No: ITC-TTW0902.02E - Rev.12

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Appendix III photo documentaiton

Doc No: ITC-TTW0902.02E - Rev.12



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Appendix IV Construction data form

Model: <u>PD50-CRL-DC-E</u>					
Part		Technical data			
1. Compressor					
	Manufacture:	Shanghai Highly Electrical Appliance Co., Ltd.			
	Туре:	WHP13300PSDPC8FQ			
	Rated capacity:	2860W			
	Serial-number:	W6PN5H06JKMJ			
	Specification:	DC143.5V; 900-6600r/min; R290			
2. Condenser					
	Manufacture:	Ningbo Hrale Plate Heat Exchanger Co., Ltd.			
	Туре:	B3-68-34-4.5			
	Heat exchanger:	Plate heat exchanger			
	-				
	Dimension(mm):	119(L)mmX526(H)mmX89.5(D)mm			
3. Evaporator					
	Manufacture:	Guangzhou AOTAI Refrigeration Equipment			
	T	Co.,LTD			
	Туре:	801002-1154			
	Heat exchanger:	Finned heat exchanger			
	Dimension(mm):	764*345*990*Ф7.94*3			
4. Fan motor					
4. Fan 110101					
	Manufacture:	Jiangmen LT Motor Co., Ltd			
	Туре:	RD200HC			
	Fan type:	3 blade			
	Specification:	DC310V; 200W			
	Specification.	DC310V, 200W			
5. Main control board					
	Manufacture:	Guangdong Chico Electronic Inc.			
	Туре:	PW58341			
	Specification:	380V; 50Hz			
6. Water pump					
	Manufacture:	SHIMGE PUMP INDUSTRY(JIANGSU)CO.,LTD			
	Туре:	APM25-9-130 PWM1			
	Specification:	230V; 50/60Hz; 4-95W			
	opeenication.				

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Appendix IV Construction data form

Model: PD60-CRL-DC-E					
Part		Technical data			
1. Compressor					
	Manufacture:	Shanghai Highly Electrical Appliance Co., Ltd.			
	Turnet				
	Туре:	WHP32900VSKTQ9JK			
	Rated capacity:	4330W			
	Serial-number:	W82N1E02QNL8			
	Specification:	DC221V; 900-6600r/min; R290			
2. Condenser					
	Manufacture:	Danfoss (Jiaxing) Plate Heat Exchanger Co.,			
	Typo:	LTD C39L-EZ-54			
	Туре:				
	Heat exchanger:	Plate heat exchanger			
	Dimension(mm):	118(L)mmX332(H)mmX74(D)mm			
3. Evaporator					
	Manufacture:	Guangzhou AOTAI Refrigeration Equipment			
		Co.,LTD			
	Туре:	801002-1439			
	Heat exchanger:	Finned heat exchanger			
	Dimension(mm):	760*265*1300*Ф7.94*2			
4. Fan motor					
	Manufacture:	Jiangmen LT Motor Co., Ltd			
	Туре:	RD150HA			
	Fan type:	3 blade			
	Specification:	DC310V; 150W			
5. Main control board					
	Manufacture:	Guangdong Chico Electronic Inc.			
	Туре:	PW58339			
	Specification:	380V; 50Hz			
6. Water pump					
	Manufacture:	SHIMGE PUMP INDUSTRY(JIANGSU)CO.,LTD			
	Туре:	APF25-12-130E FPWM1			
	Specification:	230V; 50/60Hz; 10-180W			

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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	2024-05-20
6	PULSE system	B & K	3660C	VGDY-0184	2024-04-12
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	2024-06-07
10	Atmospheric pressure meter	—	—	HJ-000165	2023-11-22
11	Constant temperature water system	B & K	—	VGDS-0448	2024-04-18
12	Windscreen	B & K	WS002-5		—

-- End of Report --



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