



Technical Report No.: 64.181.22.01863.01 Rev.00

Date: 2022-08-10

Client: Report holder's name: Hunan Harnitek Technology Co., Ltd.
Report holder's Address: Room 1504, Bldg 13, No. 1006, Renmin Road, Lusong District, Zhuzhou City, Hunan Province, China
Contact person of report holder: Alisa Wu
Manufacturer's name: Hunan Harnitek Technology Co., Ltd.
Manufacturer's address: Room 1504, Bldg 13, No. 1006, Renmin Road, Lusong District, Zhuzhou City, Hunan Province, China

Factory: Factory's name: Hunan Harnitek Technology Co., Ltd.
Factory's address: Room 1504, Bldg 13, No. 1006, Renmin Road, Lusong District, Zhuzhou City, Hunan Province, China

Test object: Product: DC Inverter Air to Water Heat Pump Unit
Model: Outdoor unit: YHPK-12V1TBA;
Indoor unit: YHPK-12V1TBA
Trade mark (if any): -

Test specification: EN 16147:2017

Purpose of examination: Test according to the test specification(details see page 4, summary of testing)

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

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1. Description of the test object

1.1 Function

Manufacturer's specification for intended use:

The appliance is an air/ water heat pump with electrically driven compressor including a domestic hot water storage tank, for indoor used.

Manufacturer's specification for predictive use:

According to the user manual.

1.2 Consideration of the foreseeable use

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

1.3 Technical Data

Model	:	Outdoor unit: YHPK-12V1TBA; Indoor unit: YHPK-12V1TBA
Rated Voltage (V)	:	220-240V~
Rated Frequency (Hz)	:	50
Rated Power (W)	:	2685(heating mode); 2510(cooling mode)
Rated Current (A)	:	N/A
Auxiliary heater power (kW)	:	3*3kW
Protection Class	:	<input checked="" type="checkbox"/> Class I; <input type="checkbox"/> Class II; <input type="checkbox"/> Class III
Degree of Protection	:	Outdoor unit: IP X4, Indoor unit: IP X0
Construction	:	<input checked="" type="checkbox"/> Stationary <input type="checkbox"/> Portable <input type="checkbox"/> Hand-held <input type="checkbox"/> Open-frame
Supply connection	:	<input type="checkbox"/> Non detachable cord <input checked="" type="checkbox"/> Permanent connection to fixed wiring <input type="checkbox"/> Appliance inlet
Operation mode	:	<input checked="" type="checkbox"/> Continuous operation; <input type="checkbox"/> Intermittent operation; <input type="checkbox"/> Short time operation;
Rated capacity (L), if any	:	250 (for water tank)
Net Weight (kg)	:	85kg for Outdoor unit; 25kg for Indoor unit
Refrigerant	:	R32 / 1800g
Noise (dB(A))	:	N/A
Series No	:	AL0020-OD-9001 for Outdoor unit; AL0138-ID-1001 for Indoor unit

2. Order

2.1 Date of Purchase Order, Customer's Reference

2022-06-07, Hunan Harnitek Technology Co., Ltd.

2.2 Test Sample(s)

- Reception date(s): 2022-05-07
- Location(s) of reception:
For Energy test:
TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
Address: B1F&2F, No.3 Chuangqi Building, No.63 Chuangqi Road, Shilou Town,
Panyu District, Guangzhou 511447, China
- Condition of test sample(s): completed and can be normal operation

2.3 Date(s) of Testing 2022-05-07 to 2022-05-15

2.4 Location(s) of Testing Same as 2.2

3. Test Results

See Appendix No.1: Format of test results.

4. Remark

- 4.1** The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.
- 4.2** When the product is placed on the market, it must be accompanied with safety Instructions written in official language of the country. The instructions shall give information regarding safe operation, installation and maintenance.

5. Documentation

- Appendix No.1: Format of test results
- Appendix No.2: Marking plate
- Appendix No.3: Photo documentations
- Appendix No.4: Construction data form
- Appendix No.5: Test equipment list



6. Summary

1. The appliance is an air/ water heat pump with electrically driven compressor including a domestic hot water storage tank, for indoor used.
2. The appliance is supplied by a 3-pole supply cord without plug connecting to fixed wiring.
3. The test was performed according to test specifications and the standard EN 16147 requirements, the unit were performed on the condition below:

Item	Installation or setting
Air duct	No duct for air outlet and air inlet
Load profile	L
Thermostat set point temperature	45 °C
Inlet cold water temperature	10 °C
Test voltage	230V, 50Hz
Air heat source temperature	Dry bulb/wet bulb: 7°C/6°C (Average climate condition)
Ambient temperature of storage tank	20 °C
Operating setting	Heat pump only

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

Tested by:

William Liang, Project Handler

printed name, function & signature

Approved by:

Plum Li, Designated Reviewer

printed name, function & signature



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Appendix No.1: Format of test results

Dry bulb/wet bulb: 7°C/6°C (Average climate) (Table 1 to Table 5):

Table 1: Filling and heating up period [stage C] (Average climate condition)		
Measured quantity	Unit	Recorded data
Heat source, Ambient DB/WB	°C	6.98/5.97
Ambient temperature of storage tank	°C	20.01
Voltage	V	229.81
Frequency	Hz	50
Heating up electrical energy consumption W_{eh-HP}	kWh	2.113
Heating up time t_h	s	6416

Table 2: Standby power input [stage D] (Average climate condition)		
Measured quantity	Unit	Recorded data
Heat source, Ambient DB/WB	°C	6.98/5.97
Ambient temperature of storage tank	°C	20.01
Voltage	V	229.81
Frequency	Hz	50
Total electrical energy consumption during the last on-off-cycle W_{es-HP}	kWh	0.6315
Duration of the last on-off-cycle of the heat pump t_{es}	s	59344
Standby power input P_{es}	kW	0.038

Table 3: Water draw-offs and COP calculation [stage E] (Average climate condition)			
Items	Unit	Data	Description
Heat source, Ambient DB/WB	°C	6.98/5.97	--
Ambient temperature of storage tank	°C	19.99	--
Voltage	V	230.4	--
Frequency	Hz	50	--
tTTC	H	31.50	Load profile time in hours
Q_{LP}	kWh	11.646	Total useful energy content during the load profile
Q_{HP-tap}	kWh	11.394	Useful energy during one single draw-off
Q_{EL-LP}	kWh	0.251	Calculated heat energy produced by electrical resistance heater during the whole load profile
W_{EL-LP}	kWh	3.850	Total electrical energy consumption during the whole load profile

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$W_{EL-M-LP}$	kWh	3.884	Total measured electrical energy consumption
P_{es}	kW	0.038	Standby power input
COP_{DHW}	--	3.025	Coefficient of performance

Table 4: Reference hot water temperature and volume of mixed water at 40 °C [stage F] (Average climate condition)

Measured quantity	Unit	Recorded data
Heat source, Ambient DB/WB	°C	6.98/5.97
Ambient temperature of storage tank	°C	19.99
Voltage	V	230.4
Frequency	Hz	50
Time from starting the draw-off until θ'_{WH} is less than 40 °C t_{40}	s	1092
Reference hot water temperature θ'_{WH}	°C	44.33
Maximum volume of mixed water at 40 °C V_{40}	l	210

Table 5: Water heating energy efficiency (η_{wh}) (Average climate condition)

Measured quantity	Result	Remark
Declared load profile:	L	--
Total electrical energy consumption during the smart period of the smart cycle $Q_{elec}^{smart} ***$	N/A	No smart control function
Total useful energy content during the smart period of the smart cycle $Q_{LP}^{smart} ***$	N/A	No smart control function
Smart control factor SCF *	N/A	No smart control function
Smart control compliance smart	0	No smart control function
Standby heat loss $P_{stby} ***$	0.0950 kW	--
Ambient correction term $Q_{cor} ***$	-0.5244 kWh	--
Reference energy of the load profile $Q_{ref} ***$	11.6550 kWh	--
Daily electrical energy consumption $Q_{elec} ***$	3.8530 kWh	--
Water heating energy efficiency (smart=0) $\eta_{wh} *$	128.0 %	--
Water heating energy efficiency classes:	A+	(According (EU) No 812/2013 ANNEX II Table 1)
Water heating energy efficiency (smart=1) $\eta_{wh} *$	N/A	No smart control function
Annual electrical energy consumption (AEC) ****	800 kWh/a	--
Supplementary information		



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Appendix No.1: Format of test results

Number of brine pump considered: no

Setting of controls: Heating mode, thermostat set point temperature: 45°C

The AEC calculating according to (EU) NO 812/2013:

4. Calculation of the annual electricity consumption AEC and the annual fuel consumption AFC

(a) Conventional water heaters and heat pump water heaters:

The annual electricity consumption AEC in kWh in terms of final energy is calculated as follows:

$$AEC = 0,6 \cdot 366 \cdot \left(Q_{elec} \cdot (1 - SCF \cdot smart) + \frac{Q_{cor}}{CC} \right)$$

Remark: Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer

Appendix No.2: Marking plate


Nameplate

Model: Outdoor unit: YHPK-12V1TBA, Indoor unit: YHPK-12V1TBA

HARNITEK

DC Inverter Air to Water Heat Pump Unit

Model Number:	YHPK-12V1TBA
Input Voltage:	220-240V~,50Hz
Input Power-Cooling:	2510W
Input Power-Heating:	2685W
Min.Circuit Ampacity:	2.65A
Circuit Breaker:	25 A
Cooling Capacity:	6598-8259 W
Heating Capacity:	6784-11650 W
Operation pressure of low side:	1.2 MPa
Operation pressure of high side:	4.2 MPa
Maximum allowable pressure:	4.2 MPa
Refrigerant:	R32/1800g
Max EER Cooling:	3.0W/W
Max COP Heating:	4.81W/W
Net Weight:	85kg

Moisture resistance  **IPX4**

Electrical Shockproof  **CE**

For outdoor use only. Installation&service by licensed mechanic only.
Hunan Harnitek Technology Co., Ltd.
Room 1504, Bldg 13, No. 1006, Renmin Road, Lusong District,
Zhuzhou City, Hunan Province, China

Serial Nr: AL0020-OD-9001



HARNITEK


DC Inverter Air to Water Heat Pump Unit

O:AL0138

Model Number:	YHPK-12V1TBA
Input Voltage:	220-240V~,50Hz
Input Power-Cooling:	2510 W
Input Power-Heating:	2685 W
Min.Circuit Ampacity:	2.65 A
Circuit Breaker:	25 A
Electrical heater :	3000 W
Cooling Capacity:	6598-8259 W
Heating Capacity:	6784-11650 W
Refrigerant:	R32 / 0 g
Max EER Cooling:	3.0 W/W
Max COP Heating:	4.81 W/W
Net Weight:	25 kg

For indoor use only. Installation & service by licensed mechanic only.


Serial Nr: AL0138-ID-1001



Remark:


- The height of CE marking shall be higher than 5mm and the height of WEEE marking shall be higher than 7mm.

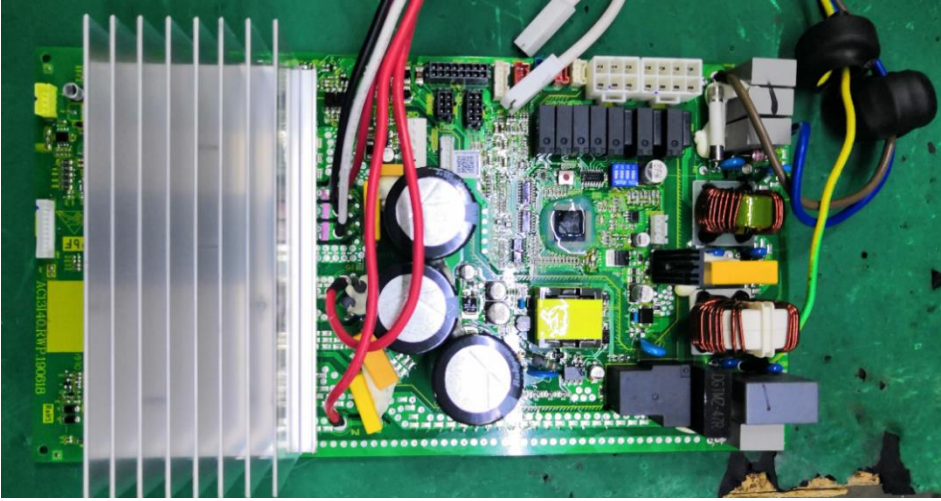
Appendix No.3: Photo documentations

Details of:	General view of Outdoor unit
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	 <p>A photograph of a grey outdoor unit with a black fan grille. The fan is visible through the grille. The unit has a red 'HARNTEK' logo on the right side. It is sitting on a wooden pallet on a green floor.</p>

Details of:	Compressor of Outdoor unit
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	 <p>A close-up photograph of a Mitsubishi Electric compressor label. The label is white with black text and a QR code. It includes the following information: 'MITSUBISHI ELECTRIC', 'SVB220FLGMC-L', 'RoHS', '43-200V INVERTER 30-360Hz', '7100W 2230W 7.8A', 'REFRIGERANT R32', '2019-05-25', and '9000316662'. There is also a yellow warning label at the bottom with a triangle icon and the word 'WARNING'.</p>


Appendix No.3: Photo documentations

Details of:	Fan motor of Outdoor unit
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	


Details of:	Main controller of Outdoor unit
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	


Appendix No.3: Photo documentations

Details of:	Water pump
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	

Details of:	General view of Indoor unit
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	

Appendix No.3: Photo documentations

Details of:	Main controller of Indoor unit
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	

Details of:	General view of Water tank
<p>View:</p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	

Appendix No.4: Construction data form

Part		Technical data
1. Compressor		
	Manufacture	Mitsubishi Electric (Guangzhou) Compressor Co., Ltd.
	Type	SVB220FLGMC-L
	Rated capacity	2230W
	Serial-number	9000316662
	Rated input	43-200V; 30-390Hz
2. Condenser		
	Manufacture	SWEP
	Type	B26Hx34/1P-SC-M
	Water tank	Plate heat exchanger
	Pipe specification	376*119*60mm
3. Evaporator		
	Manufacture	Foshan huize heat exchange equipment Co., LTD
	Type	PAVH-12V1FBA
	Bauart Construction	Finned-coil heat exchanger
	Dimension	860x800xΦ7x2,5 x1,8
4. Fan motor of evaporator		
	Manufacture	NIDEC SHIBAURA (ZHEJIANG) CORP.
	Type	SIC-65FV-F162-1
	Specification	DC310V; 50Hz
	Serial-number	-
5. Controller		
	Manufacture	Ruking Emerson Climate Technologies (Shanghai) Co., Ltd
	Type	AC13I40
6. Water pump		
	Manufacture	GRUNDFOS
	Type	UPM3LK 25-75 130
	Specification	230V; 50/60Hz; 2-75W
7. Water tank		
	Manufacture	Guangzhou SST Heating Energy Co., Ltd.
	Type	PAVH-12V1FS-250L/IA
	Volume	250L
8. Heater		
	Manufacture	Nanjing Bokesi Electric Appliance Factory.
	Type	BKR E341
	Specification	230V; 9000W(3*3000W)



Appendix No.5: Test equipment list

Equipment	Brand/Manufacturer	Model	ID No.	Calibration due date
R&A performance measuring system	GEI	5HP	64-1-90-11-004	2022-12-24

--- End of Report ---