Prüfbericht-Nr.: *Test report no.:*	CN233ACC 001	**Auftrags-Nr.:** *Order no.*:	170343344	
Kunden-Referenz-Nr.: *Client reference no.:*	-	**Auftragsdatum:** *Order date:*	2023.06.21	
Auftraggeber: *Client:*	FOSHAN SHUNDE ZEALUX ELECTRICAL APPLIANCES CO., LTD. No.2-8, No.9 Road, Science and Technology zone, Xingtan Industrial Park, Xingtan Town, Shunde District, 528325 Foshan City, Guangdong P.R. China			
Prüfgegenstand: *Test item:*	Heat pump space heater			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	XAH12Csi32, ALSAVO HEAT 12i			
Auftrags-Inhalt: *Order content*:	EU energy performance test			
Prüfgrundlage: *Test specification:*	COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			

Wareneingangsdatum: *Date of sample receipt:*	2023.06.21
Prüfmuster-Nr.: *Test sample no:*	0120SZ230203B1B3C0007 A
Prüfzeitraum: *Testing period:*	2023.06.21 – 2023.06.28
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Guangdong) Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Guangdong) Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von: *tested by:*	Felix Tong	**genehmigt von:** *authorized by:*	
Datum: *Date:* 2023.06.28	Signed by: Felix Tong	**Ausstellungsdatum:** *Issue date:* 2023.06.28	Signed by: Stone Shi
Stellung / *Position:*	Project Engineer	**Stellung** / *Position:*	Reviewer

Sonstiges / *Other:* This report is only for heating capacity test and sound power level test.

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* *Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Testing results summary

Model designation	XAH12Csi32	
Function	Heating (Average)	
Outlet temperature	35	55
Design load (kW)	8.67	8.55
Annual energy consumption (kWh)	3909	5188
Seasonal space heating energy efficiency	180	133
Energy class	A+++	A++

Summary of testing

1. The appliance was evaluated capacity test according to EN 14825:2013 and EN 14825:2022.
2. The appliance was tested at outlet temperature 35°C and 55°C.
3. The capacity test method is air enthalpy method.
4. The appliance was evaluated sound power level test according to EN 12102:2013 and EN 12102-1:2022.
5. All tests were performed on the model XAH12Csi32.
6. The test location is below.

   For heating capacity test

   TÜV Rheinland (Guangdong) Ltd.

   No.199 Kezhu Road, Guangzhou Science City Guangzhou 510663 China

   For sound power level test

   CVC Testing Technology Co., Ltd.

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

Test sample particulars .....:

Classification of installation and use .....: Fixed appliance

Type of the appliance .....: Air to water heat pump

Function of the appliance .....: Space heating

Heating season (heating function applicable).....: Average

Possible test case verdicts:

- test case does not apply to the test object ..... : N/A

- test object does meet the requirement ..... : P(Pass)

- test object does not meet the requirement ..... : F(Fail)

Testing..... :

Date of receipt of test item..... : See cover page

Date (s) of performance of tests..... : See cover page

General product information

1. The appliance is air to water heat pump for space heating which installed at outdoor.
2. The appliance incorporates water pump.

Model description:

All models are identical to each other except for model name.

The information of compressor, fan motor and water pump are listed as below.

Object / part No.	Manufacturer/ trademark	Type / model	Technical data
Compressor	Guangzhou Meizhi Compressor Ltd.	KTM240D57UMT	Rated Voltage: DC156V; 180Hz ;R32
Fan motor	Wolong Electric Group Co., Ltd.	ZWB378D02B	DC310V,8P, 120W,880r/min
Water pump	HEFEI XINHU CANNED MOTOR PUMP CO.,LTD	GPD25-8S	AC230V/50Hz 245W class H

Rating labels and marking:

AIR SOURCE HEAT PUMP	
Model	XAH12Csi32
Rated heating capacity	12kW
Rated current	23A
Power supply	220-240V~ 50Hz
Advised water flux	2.1m³/h
Max. water pressure	0.3MPa
Water connection	G1"
Electric shock prevention	Class I
Waterpoof protection	IPX4
Max. allowable pressure(discharge)	4.5MPa
Max. allowable pressure(suction)	1.5MPa
Refrigerant (R32)	2.2kg
CO2 equivalent	1.49tonnes
Net weight	98kg
FOSHAN SHUNDE ZEALUX ELECTRICAL APPLIANCES CO., LTD. No.2-8, No.9 Road, Science and Technology Zone, Xingtan Industrial Park, Xingtan Town, Shunde District, 528325 Foshan City, Guangdong P.R. China	
Contains fluorinated greenhouse gases. Hermetically sealed system. 	

AIR SOURCE HEAT PUMP	
Model	ALSAVO HEAT 12i
Rated heating capacity	12kW
Rated current	23A
Power supply	220-240V~ 50Hz
Advised water flux	2.1m³/h
Max. water pressure	0.3MPa
Water connection	G1"
Electric shock prevention	Class I
Waterpoof protection	IPX4
Max. allowable pressure(discharge)	4.5MPa
Max. allowable pressure(suction)	1.5MPa
Refrigerant (R32)	2.2kg
CO2 equivalent	1.49tonnes
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FOSHAN SHUNDE ZEALUX ELECTRICAL APPLIANCES CO., LTD. No.2-8, No.9 Road, Science and Technology Zone, Xingtan Industrial Park, Xingtan Town, Shunde District, 528325 Foshan City, Guangdong P.R. China	
Contains fluorinated greenhouse gases. Hermetically sealed system. 	

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict

COMMISSION REGULATION (EU) No 813/2013			
Article 1	Subject matter and scope		P
1	This Regulation establishes ecodesign requirements for the placing on the market and/or putting into service of space heaters and combination heaters with a rated heat ouput heater ≤ 400 kW including those integrated in packages of space heater, temperature contorl and solar device or packages of combination heater, temperautre control and solar device as defined in article 2 of Commission Delegated Regulation (EU) No 811/2013.		P
2	This Regulation shall not apply to: (a) heaters specifically designed for using gaseous or liquid fuels predominantly produced from biomass; (b) heaters using solid fuels; (c) heaters within the scope of Directive 2010/75/EU of the European Parliament and of the Council; (d) heaters generating heat only for the purpose of providing hot drinking or sanitary water; (e) heaters for heating and distributing gaseous heat transfer media such as vapour or air; (f) cogeneration space heaters with a maximum electrical capacity of 50 kW or above. (g) heat generators designed for heaters and heater housings to be equiped with such heat generators placed on the market before 1 January 2018 to replace identical heat generators and identical heater housings. The replacement product or its packaging shall clearly indicate the heater for which it is intended.		N/A
Article 3	Ecodesign requirements and timetable		P
1	The ecodesign requirements for heaters are set out in Annex II.		P
2	Each ecodesign requirement shall apply in accordance with the following timetable:		P
	(a) from 26 September 2015: (i) heates shall meet the requirements set out in Annex II, points 1(a), 3 and 5; (ii) combination heaters shall meet the requirements set out in Annex II, point 2(a);		N/A

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict

	(a) from 26 September 2017: (i) electric space heaters, electric combination heaters, cogeneration space heaters, heat pump space heaters and heat pump combination heaters shall meet the requirements set out in Annex II, point 1(b); (ii) combination heaters shall meet the requirements set out in Annex II, point 2(b);		P
	(a) from 26 September 2018 heaters shall meet the requirements set out in Annex II, point 4(a).		N/A
3	Compliance with ecodesign requirements shall be measured and calculated in accordance with the requirements set out in Annex III.		P
Annex II	Ecodesign requirements		P
1	Requirements for seasonal space heating energy efficiency		P
	(a) From 26 September 2015 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values:		N/A
	- Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: 100%		N/A
	- Low-temperature heat pumps: 115%		N/A
	(b) From 26 September 2017 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values:		P
	- Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: 110%		P
	- Low-temperature heat pumps: 125%		P
2	Requirements for water heating energy efficiency		N/A
	(a) From 26 September 2015 the water heating energy efficiency of combination heaters shall not fall below the following values:		N/A
			-
	(a) From 26 September 2017 the water heating energy efficiency of combination heaters shall not fall below the following values:		N/A

Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	22%	23%	26%	26%	30%	30%	30%	32%	32%	32%

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict

	Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL	-
	Water heating energy efficiency	32%	32%	32%	32%	36%	37%	38%	60%	64%	64%	
3	Requirements for sound power level											P
	From 26 September 2015 the sound power level of heat pump space heaters and heat pump combination heaters shall not exceed the following values:											P

Rated heat output ≤ 6 kW		6 kW < Rated heat output ≤ 12 kW		12 kW < Rated heat output ≤ 30 kW		30 kW < Rated heat output ≤ 70 kW		-
indoor	outdoor	indoor	outdoor	indoor	outdoor	indoor	outdoor	
60 dB	65 dB	65 dB	70 dB	70 dB	78 dB	80 dB	88 dB	

4	Requirements for emissions nitrogen oxides		N/A
5	Requirements for product information		N/A
	From 26 September 2015 the following product information on heaters shall be provided:		N/A
	(a) the instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements:		N/A
	- For heat pump heaters and heat pump combination heaters, the technical parameters set out in Table 2, measured and calculated in accordance with Annex III;		N/A
	- Any specific precautions that shall be taken when the heater is assembled, installed or maintained;		N/A
	- Information relevant for disassembly, recycling and/or disposal at end-of-life;		N/A
Annex III	Measurements and calculations		P

COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Annex II	Energy efficiency classes		P
1	Seasonal space heating energy efficiency classes		P

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict
	The seasonal space heating energy efficiency class of a heater, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application, shall be determined on the basis of its sensonal space heating energy efficiency as set out in Table 1.		P
	The seasonal space heating energy efficiency class of a low-temperature heat pumps and a heat pump space heaters for low-temperature application shall be determined on the basis of its sensonal space heating energy efficiency as set out in Table 2.		P
	The seasonal space heating energy efficiency of a heater shall be calculated in accordance with point 3 and 4 of Annex VII, for heat pump space heaters, heat pump combination heaters and low-temperature heat pumps under average climate conditions.		P
2	Water heating energy efficiency classes		N/A
	The water heating energy efficiency class of a combination heater shall be determined on the basis of its water heating energy efficiency as set out in Table 3.		N/A
	The water heating energy efficiency of a combination heater shall be calculated in accordance with point 5 of Annex VII.		N/A

Measurements and calculations

Outlet temperautre °C	35					
Outlet temperautre type	☐ Fixed outlet ☒ Variable outlet					
Test result	Test condition					
	A	B	C	D	E	F
Inlet dry bulb temperature for outdoor air °C	-6.97	2.03	7.02	12.02	-10.01	-6.97
Inlet wet bulb temperature for outdoor air °C	-7.98	1.03	6.02	11.01	-11.04	-7.98
Inlet temperatures for indoor °C	30.91	28.08	25.70	22.97	32.23	30.91
Outlet temperatures for indoor °C	34.16	30.06	27.13	24.10	34.95	34.16
Measured capacity W	7740	4732	3409	2706	6549	7740
Measured power input W	2445	1057	647	438	2378	2445
Static pressure difference kPa	19.5	19.8	21.6	21.3	19.8	19.5
Water volume flow rate m^3/h	2.06	2.06	2.06	2.06	2.06	2.06
Meausred power input of compressor off state W	-6.97	2.03	7.02	12.02	-10.01	-6.97
Compressor frequency for inverter type (Hz)	76	35	21	15	73	76
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	11	11	12	12	11	11
Efficiency of the pump	0.16	0.16	0.16	0.16	0.16	0.16
Fraction power for calculation W	72	73	77	76	73	72
Effective capacity W	7668	4659	3332	2630	6476	7668
Effecitve power input W	2373	984	570	362	2305	2373
Calculated COP	3.23	4.73	5.85	7.27	2.81	3.23
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.005					
Thermostat-off mode kW	0.004					
Standby mode kW	0.005					
Crankcase heater mode kW	0.033					

Calculations for seasonal space heating energy efficiency

Test condition	Outdoor heat exchanger	Indoor heat exchanger	Part Load Ratio %	Part Load kW	Tested Capacity kW	Tested COP	Cc	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	34	88%	7.67	7.668	3.23	1.00	1.00	3.23

B	2	30	54%	4.67	4.659	4.73	1.00	1.00	4.73
C	7	27	35%	3.00	3.332	5.85	0.99	0.90	5.84
D	12	24	15%	1.33	2.630	7.27	0.99	0.51	7.19
E	-10	35.3	100%	8.67	6.476	2.81	1.00	1.00	2.81
F	-7	34	88%	7.67	7.668	3.23	1.00	1.00	3.23
SCOPon	4.76				SCOPnet	4.82			
SCOP	4.58								
η_s	180								

Outlet temperautre °C	55					
Outlet temperautre type	☐ Fixed outlet ☒ Variable outlet					
Test result	Test condition					
	A	B	C	D	E	F
Inlet dry bulb temperature for outdoor air °C	-6.98	2.02	7.02	12.02	-9.98	-6.98
Inlet wet bulb temperature for outdoor air °C	-7.92	1.01	6.02	11.00	-11.22	-7.92
Inlet temperatures for indoor °C	46.65	38.54	33.72	27.71	50.52	46.65
Outlet temperatures for indoor °C	52.14	42.06	36.12	29.74	55.01	52.14
Measured capacity W	7596	4886	3342	2823	6204	7596
Measured power input W	3406	1390	812	545	3637	3406
Static pressure difference kPa	8.6	8.9	8.3	7.7	8.1	8.6
Water volume flow rate m^3/h	1.2	1.2	1.2	1.2	1.20	1.20
Meausred power input of compressor off state W	4	4	4	4	4	4
Compressor frequency for inverter type (Hz)	82	38	23	17	85	82
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	3	3	3	3	3	3
Efficiency of the pump	0.10	0.10	0.10	0.10	0.10	0.10
Fraction power for calculation W	28	29	28	26	27	28
Effective capacity W	7568	4857	3314	2797	6177	7568
Effecitve power input W	3378	1361	784	519	3610	3378
Calculated COP	2.24	3.57	4.23	5.39	1.71	2.24
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.005					
Thermostat-off mode kW	0.004					
Standby mode kW	0.005					

Crankcase heater mode kW			0.033						
Calculations for seasonal space heating energy efficiency									
Test condition	Outdoor heat exchanger	Indoor heat exchanger	Part Load Ratio %	Part Load kW	Tested Capacity kW	Tested COP	Cc	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	52	88%	7.57	7.568	2.24	1.00	1.00	2.24
B	2	42	54%	4.61	4.857	3.57	1.00	1.00	3.57
C	7	36	35%	2.96	3.314	4.23	0.99	0.89	4.22
D	12	30	15%	1.32	2.797	5.39	0.99	0.47	5.35
E	-10	55.3	100%	8.55	6.177	1.71	1.00	1.00	1.71
F	-7	52	88%	7.57	7.568	2.24	1.00	1.00	2.24
SCOPon	3.51				SCOPnet	3.54			
SCOP	3.41								
η_s	133								

Test result	Indoor unit	Outdoor unit
Sound power level dB(A)	-	67.3

Photo

Picture 1 alternative appearance

End of report