




Prüfbericht-Nr.: <i>Test report no.:</i>	CN2231V1 001	Auftrags-Nr.: <i>Order no.:</i>	170324390	Seite 1 von 10 Page 1 of 10
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	-	Auftragsdatum: <i>Order date:</i>	2022.12.09	
Auftraggeber: <i>Client:</i>	Foshan Juyang New Energy Co.,Ltd No. 16, North of Road, Mashe Xinxing Industry Park, Lishui Town, Nanhai District Foshan City 528244 Guangdong P.R. China			
Prüfgegenstand: <i>Test item:</i>	Heat pump space heater			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	K-16GWR			
Auftrags-Inhalt: <i>Order content:</i>	EU energy performance test			
Prüfgrundlage: <i>Test specification:</i>	COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2022.12.09			
Prüfmuster-Nr.: <i>Test sample no.:</i>	4102307286005			
Prüfzeitraum: <i>Testing period:</i>	2022.12.09 – 2023.08.09			
Ort der Prüfung: <i>Place of testing:</i>	See page 2			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>		genehmigt von: <i>authorized by:</i>		
Datum: <i>Date:</i> 2023.08.09	Signed by: Victor He	Ausstellungsdatum: <i>Issue date:</i> 2023.08.09	Signed by: Edward Zheng	
Stellung / Position:	Project Engineer	Stellung / Position:	Reviewer	
Sonstiges / <i>Other:</i>	This report is only for heating capacity test.			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* 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
<p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i></p>				

V05

Testing results summary	
Model designation	K-16GWR
Function	Heating (Average)
Outlet temperature	35
Design load (kW)	14.01
Annual energy consumption (kWh)	6314
Seasonal space heating energy efficiency	180
Energy class	A+++

Summary of testing

- The appliance was evaluated capacity test according to EN 14825:2013 and EN 14825:2022.
- The appliance was tested at outlet temperature 35°C.
- The capacity test method is air enthalpy method.
- The sound power level 55dB was declared by the manufacturer according to EN 12102:2013 and EN 12102-1:2017.
- All tests were performed on the model K-16GWR.
- For inverter type control unit, the setting of the compressor frequency (Hz) shall be done for each condition according to the information provided by manufacturer as below table.

Condition	A	B	C	D	E
Outlet temperature 35°C	70	33	30	15	82

- The sample numbers were coded by JUYANG.
- The test location is below.
For heating capacity test
Foshan Juyang New Energy Co.,Ltd
No. 16, North Road, Mashe Xinxing Industry Area, Lishui Town, Nanhai District Foshan 528244
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 or cooling

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 or cooling which installed at outdoor.
2. The appliance incorporates crankcase heater for compressor.
3. No water pump is provided with the appliance.

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data
Compressor	Panasonic Wanbao Appliances Compressor (GuangZhou) Co., Ltd	9KD420ZAA2J	DC280V, R32
Fan motor	GUANGDONG SHUNDE SIGA MOTOR Co.,Ltd	ZSFN-310-8-85F	DC 310V, 85W, 850r/min, Class B

Rating labels and marking:

INVERETR AIR SOURCE HEAT PUMP		CE
MODEL	K-16GWR	
Heating capacity(A7/35°C) ¹	14kW	
Input power/ Operating current	3.11kW/14.42A	
COP	4.50	
Colling capacity(A35/7°C) ²	11.2kW	
Input power	3.75kW	
EER	2.99	
POWER SUPPLY	230V~/50Hz	
Rated power input	6.6kW	
Rated current	29A	
Max outlet temperature	60°C (≥Air temper7°C)	
	55°C (≥Air temper-7°C)	
	50°C (≥Air temper-20°C)	
Needed water flow volume	2.40m ³ /h	
Refrigerant	R32/2300g	
Max workpressure HP	4.2MPa	
Max workpressure LP	2.8MPa	
Test pressure	4.5MPa	
Waterproof level	IPX4	
Type of electric shock protection	Class I	
Water side pressure loss (KPa)	42kPa	
Dimensions	1080×420×1400mm	
Weight	128kg	
Noise level (dB(A))	≤55dB(A)	
Production date	07/20/2023	
Foshan Juyang New Energy Co.,Ltd		
No. 16, North of Road, Mashe Kinxing Industry Park, Lishui Town, Nanhai District Foshan City 528244 Guangdong P.R. China		
		
Serial Number:		

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 output heater ≤ 400 kW including those integrated in packages of space heater, temperature control and solar device or packages of combination heater, temperature 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 equipped 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) heaters 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
	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%		
	(a) From 26 September 2017 the water heating energy efficiency of combination heaters shall not fall below the following values:												N/A

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	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 seasonal 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 seasonal 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 temperature °C	35								
Outlet temperature type	<input type="checkbox"/> Fixed outlet <input checked="" type="checkbox"/> Variable outlet								
Test result	Test condition								
	A	B	C	D	E	F			
Inlet dry bulb temperature for outdoor air °C	-7.08	2.15	7.00	12.01	-10.06	-7.08			
Inlet wet bulb temperature for outdoor air °C	-7.94	1.19	6.04	11.05	-10.90	-7.94			
Inlet temperatures for indoor °C	29.63	27.58	25.08	22.92	30.95	29.63			
Outlet temperatures for indoor °C	34.05	30.16	27.05	24.07	35.35	34.05			
Measured capacity W	12333	7210	5491	3221	12286	12333			
Measured power input W	3630	1494	857	371	3845	3630			
Water volume flow rate m ³ /h	2.40	2.40	2.40	2.40	2.40	2.40			
Static pressure difference kPa	41.6	41.1	41.4	41.5	42.1	41.6			
Measured power input of compressor off state W	3	3	3	3	3	3			
Corrections of the power input of liquid pump if applicable									
P _{hydrau} W	28	27	28	28	28	28			
Efficiency of the pump	0.33	0.33	0.33	0.33	0.33	0.33			
Capacity correction W	56	56	56	56	57	56			
Power input correction W	84	83	84	84	85	84			
Effective capacity W	12389	7266	5547	3277	12343	12389			
Effective power input W	3714	1577	941	455	3930	3714			
Calculated COP	3.34	4.61	5.90	7.21	3.14	3.34			
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode									
Off mode kW	0.003								
Thermostat-off mode kW	0.003								
Standby mode kW	0.003								
Crankcase heater mode kW	0.029								
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	88.46%	12.39	12.389	3.34	1.00	1.00	3.34
B	2	30	53.85%	7.54	7.266	4.61	1.00	1.00	4.61

C	7	27	34.62%	4.85	5.547	5.90	1.00	0.87	5.89
D	12	24	15.38%	2.15	3.277	7.21	0.99	0.66	7.18
E	-10	35.3	100.00%	14.01	12.343	3.14	1.00	1.00	3.14
F	-7	34	88.46%	12.39	12.389	3.34	1.00	1.00	3.34
SCOPon	4.59				SCOPnet	4.80			
SCOP	4.58								
η_s	180								

End of report