Prüfbericht-Nr.: *Test report no.:*	CN23W4RI 001	**Auftrags-Nr.:** *Order no.:*	170349072	Seite 1 von 14 *Page 1 of 14*
Kunden-Referenz-Nr.: *Client reference no.:*	-	**Auftragsdatum:** *Order date:*	2023.08.02	
Auftraggeber: *Client:*	Energy-Footprint, Apostolova Yanka Leoforos Papanikolaou 16, Pefka, 57010, Thesalloniki, Greece			
Prüfgegenstand: *Test item:*	Heat pump space heater			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	BR32P1V7SC			
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:*	2023.08.02
Prüfmuster-Nr.: *Test sample no:*	170348226-001
Prüfzeitraum: *Testing period:*	2023.08.02 – 2023.08.17
Ort der Prüfung: *Place of testing:*	See page 2
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Guangdong) Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von: *tested by:* Victor He
Signed by: Victor He
Datum: *Date:* 2023.08.17
Stellung / *Position:* Project Engineer

genehmigt von: *authorized by:* Edward Zheng
Signed by: Edward Zheng
Ausstellungsdatum: *Issue date:* 2023.08.17
Stellung / *Position:* Reviewer

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

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:* Prüfmuster vollständig und unbeschädigt / *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*

Absatz *Clause*	**Anforderungen - Prüfungen /** *Requirements - Tests*	**Messergebnisse – Bemerkungen/** *Measuring results - Remarks*	**Ergebnis** *Result*

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. *As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.*
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

Testing results summary

Model designation	BR32P1V7SC	
Function	Heating (Average)	
Outlet temperature	35	55
Design load (kW)	6.67	7.94
Annual energy consumption (kWh)	2718	4329
Seasonal space heating energy efficiency	200	149
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 BR32P1V7SC.
6. The test location is below.
   For heating capacity test and 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 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..... :

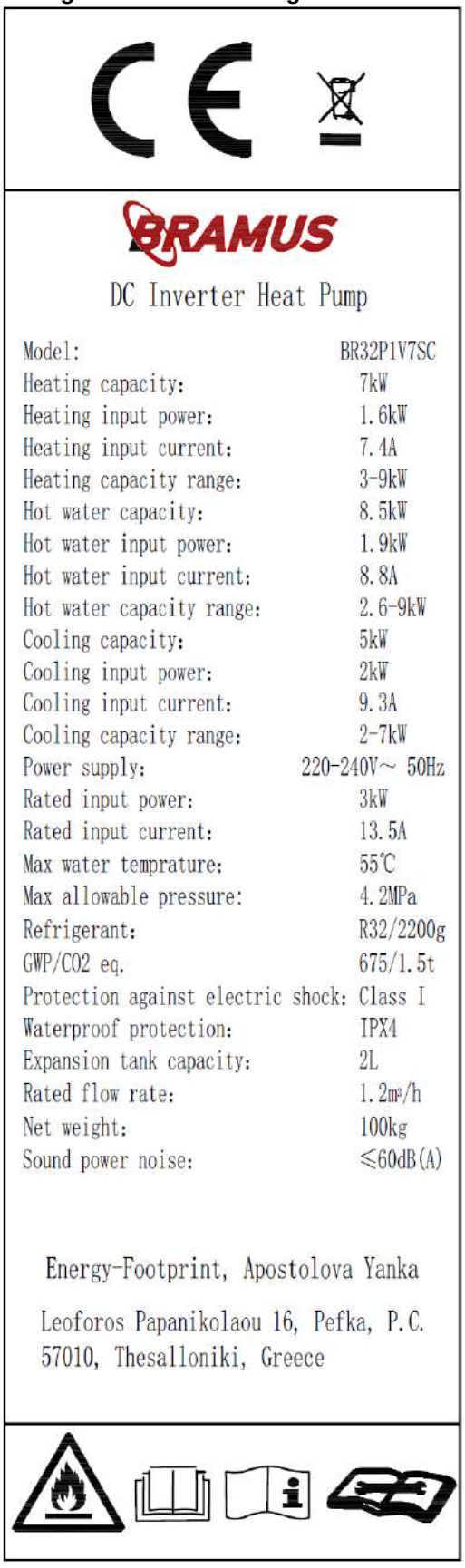
Date of receipt of test item..... : See cover page

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 water pump and crankcase heater for compressor.

Rating labels and marking:



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	-7.02	2.07	7.12	12.08	-10.01	-7.02
Inlet wet bulb temperature for outdoor air °C	-8.08	1.05	6.11	11.02	-11.03	-8.08
Inlet temperatures for indoor °C	29.75	27.08	24.92	21.50	31.95	29.75
Outlet temperatures for indoor °C	34.02	30.04	27.01	24.02	35.33	34.02
Measured capacity W	5926	4072	2900	3485	4725	5926
Measured power input W	1998	877	427	321	1813	1998
Water volume flow rate m^3/h	1.20	1.20	1.20	1.20	1.20	1.20
Static pressure difference kPa	19.5	19.5	19.5	19.5	19.5	19.5
Meausred power input of compressor off state W	13	13	13	13	13	13
Compressor frequency for inverter type (Hz)	68	38	30	30	65	68
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	7	7	7	7	7	7
Efficiency of the pump	0.19	0.19	0.19	0.19	0.19	0.19
Capacity correction W	27	27	27	27	27	27
Power input correction W	34	34	34	34	34	34
Effective capacity W	5899	4045	2873	3458	4698	5899
Effecitve power input W	1964	843	393	287	1779	1964
Calculated COP	3.00	4.80	7.30	12.03	2.64	3.00
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.011					
Thermostat-off mode kW	0.013					
Standby mode kW	0.011					
Crankcase heater mode kW	0.039					
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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	34	88.46%	5.90	5.899	3.00	0.99	1.00	3.00

B	2	30	53.85%	3.59	4.045	4.80	0.98	0.89	4.79
C	7	27	34.62%	2.31	2.873	7.30	0.97	0.80	7.24
D	12	24	15.38%	1.03	3.458	12.03	0.95	0.30	10.87
E	-10	35.3	100.00%	6.67	4.698	2.64	0.99	1.00	2.64
F	-7	34	88.46%	5.90	5.899	3.00	0.99	1.00	3.00
SCOPon	5.09				SCOPnet	5.16			
SCOP	5.07								
η_s	200								

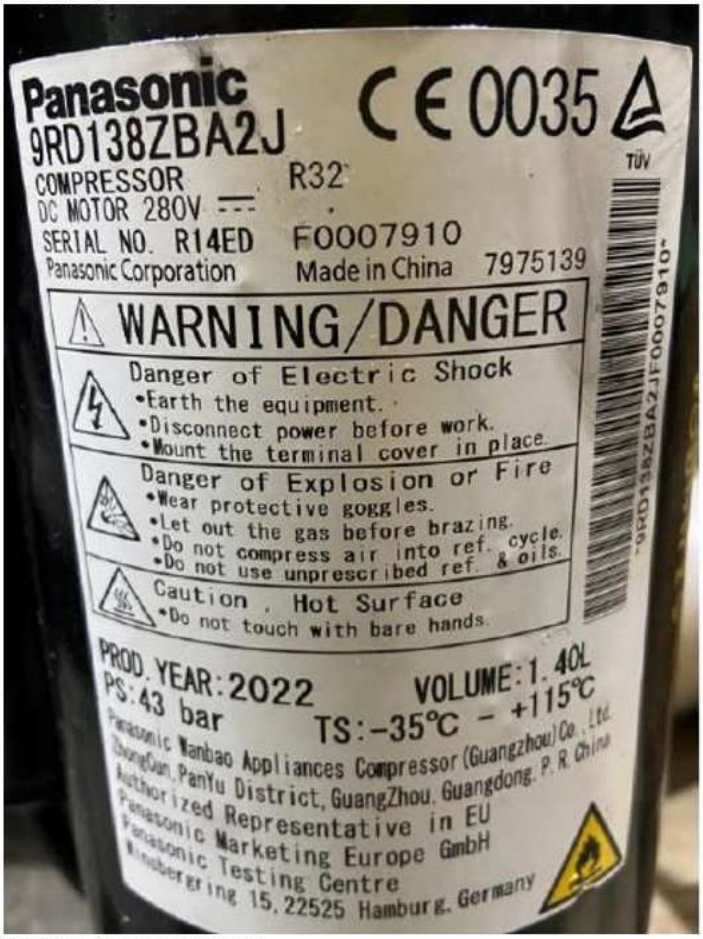
Outlet temperautre °C	55					
Outlet temperautre type	☐ Fixed outlet ☒ Variable outlet					
Test result	Test condition					
	A	B	C	D	E	F
Inlet dry bulb temperature for outdoor air °C	-7.05	2.12	7.05	12.05	-10.05	-7.05
Inlet wet bulb temperature for outdoor air °C	-8.09	1.13	6.15	11.06	-11.09	-8.09
Inlet temperatures for indoor °C	44.96	37.53	31.74	24.25	47.99	44.96
Outlet temperatures for indoor °C	52.07	42.02	36.08	30.06	55.05	52.07
Measured capacity W	7046	4475	4262	5756	7000	7046
Measured power input W	2961	1109	1081	953	4047	2961
Water volume flow rate m^3/h	0.86	0.86	0.86	0.86	0.86	0.86
Static pressure difference kPa	19.5	19.5	19.5	19.5	19.5	19.5
Meausred power input of compressor off state W	13	13	13	13	13	13
Compressor frequency for inverter type (Hz)	68	37	30	30	66	68
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	5	5	5	5	5	5
Efficiency of the pump	0.17	0.17	0.17	0.17	0.17	0.17
Capacity correction W	22	22	22	22	22	22
Power input correction W	27	27	27	27	27	27
Effective capacity W	7024	4453	4240	5734	6978	7024
Effecitve power input W	2934	1082	1054	926	4020	2934
Calculated COP	2.39	4.12	4.02	6.19	1.74	2.39
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.012					
Thermostat-off mode kW	0.013					
Standby mode kW	0.012					

Crankcase heater mode kW			0.039						
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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	52	88.46%	7.02	7.024	2.39	1.00	1.00	2.39
B	2	42	53.85%	4.28	4.453	4.12	0.99	1.00	4.12
C	7	36	34.62%	2.75	4.240	4.02	0.99	0.65	4.00
D	12	30	15.38%	1.22	5.734	6.19	0.99	0.21	5.89
E	-10	55.3	100.00%	7.94	6.978	1.74	1.00	1.00	1.74
F	-7	52	88.46%	7.02	7.024	2.39	1.00	1.00	2.39
SCOPon	3.80				SCOPnet	3.81			
SCOP	3.79								
η_s	149								

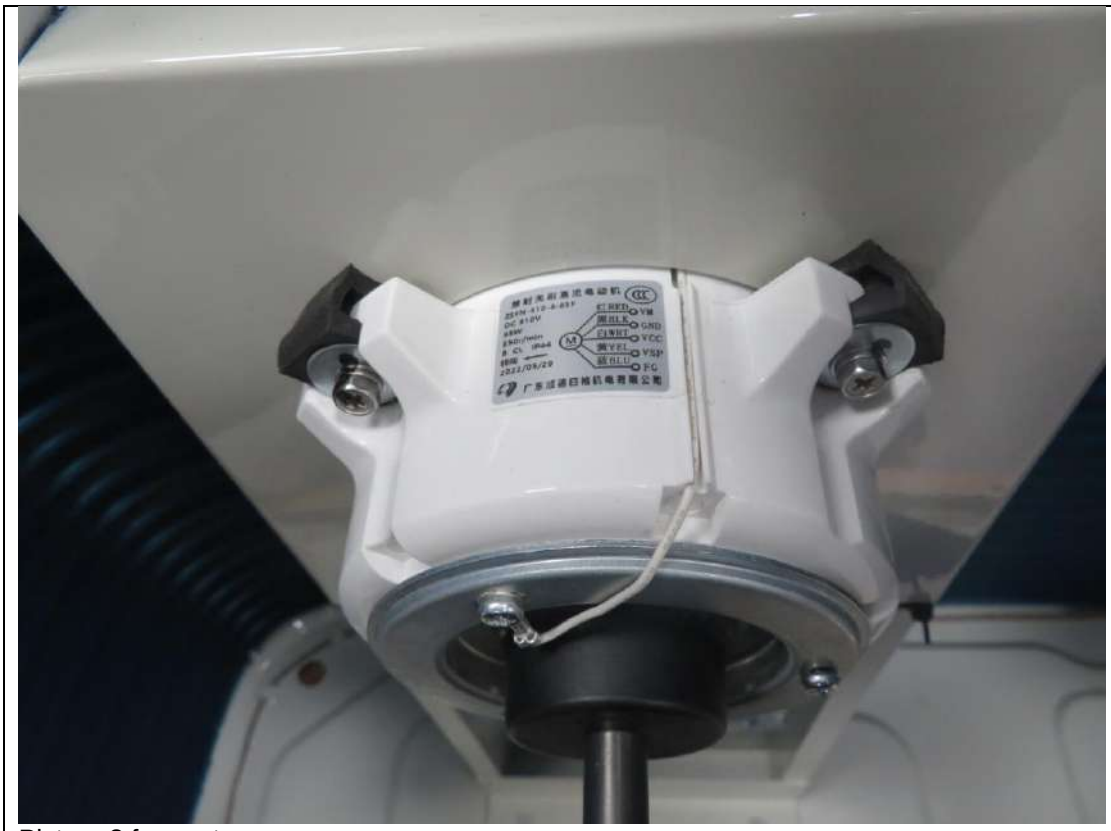
Test result	Indoor unit	Outdoor unit
Sound power level dB(A)	-	59.5

Photo

Picture 1



Picture 2 compressor



Picture 3 fan motor

Picture 4 water pump

End of report

Prüfbericht-Nr.: *Test report no.:*	CN23W4RI 002	**Auftrags-Nr.:** *Order no.:*	170349072	Seite 1 von 14 *Page 1 of 14*
Kunden-Referenz-Nr.: *Client reference no.:*	-	**Auftragsdatum:** *Order date:*	2023.08.02	
Auftraggeber: *Client:*	Energy-Footprint, Apostolova Yanka Leoforos Papanikolaou 16, Pefka, 57010, Thesalloniki, Greece			
Prüfgegenstand: *Test item:*	Heat pump space heater			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	BR32P1V9SC			
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:*	2023.08.02
Prüfmuster-Nr.: *Test sample no:*	TY2022070802
Prüfzeitraum: *Testing period:*	2023.08.02 – 2023.08.17
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:*	Victor He	**genehmigt von:** *authorized by:*	Edward Zheng
Datum: *Date:* 2023.08.17	Signed by: Victor He	**Ausstellungsdatum:** *Issue date:* 2023.08.17	Signed by: Edward Zheng
Stellung / *Position:*	Project Engineer	**Stellung** / *Position:*	Reviewer

Sonstiges / *Other:* This report is only for heating capacity test.

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

Absatz *Clause*	**Anforderungen - Prüfungen /** *Requirements - Tests*	**Messergebnisse – Bemerkungen/** *Measuring results - Remarks*	**Ergebnis** *Result*

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. *As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.*
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

Testing results summary

Model designation	BR32P1V9SC	
Function	Heating (Average)	
Outlet temperature	35	55
Design load (kW)	8.7	8.4
Annual energy consumption (kWh)	3890	5460
Seasonal space heating energy efficiency	182	125
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 sound power level 62dB was declared by the manufacturer according to EN 12102-1:2017.
3. The appliance was tested at outlet temperature 35°C and 55°C.
4. The capacity test method is air enthalpy method.
5. All tests were performed on the model BR32P1V9SC.
6. 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	79	45	30	30	75
Outlet temperature 55°C	79	45	30	30	75

7. Corrections of the power input of liquid pump were not considered.

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..... :

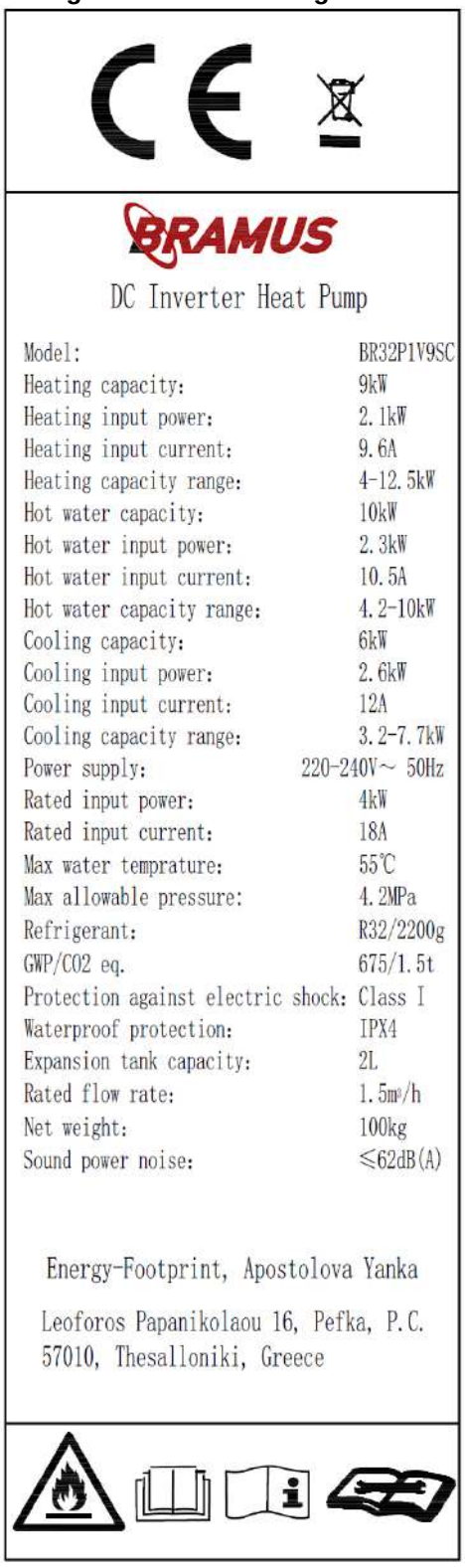
Date of receipt of test item..... : See cover page

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 water pump and crankcase heater for compressor.

Rating labels and marking:



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	-7.00	1.99	7.01	12.01	-10.00	-7.00
Inlet wet bulb temperature for outdoor air °C	-7.99	1.00	6.00	11.04	-10.97	-7.99
Inlet temperatures for indoor °C	29.71	26.88	24.62	21.52	31.84	29.71
Outlet temperatures for indoor °C	34.00	29.88	27.05	24.07	35.42	34.00
Measured capacity W	7688	5374	4337	4555	6412	7688
Measured power input W	2506	1202	697	553	2380	2506
Static pressure difference kPa	-	-	-	-	-	-
Water volume flow rate m^3/h	1.54	1.54	1.54	1.54	1.54	1.54
Meausred power input of compressor off state W	33	33	33	33	33	33
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	-	-	-	-	-	-
Efficiency of the pump	-	-	-	-	-	-
Capacity correction W	-	-	-	-	-	-
Power input correction W	-	-	-	-	-	-
Effective capacity W	-	-	-	-	-	-
Effecitve power input W	-	-	-	-	-	-
Calculated COP	-	-	-	-	-	-
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.033					
Thermostat-off mode kW	0.033					
Standby mode kW	0.033					
Crankcase heater mode kW	0.044					

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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	34	88%	7.7	7.688	3.07	0.99	1.00	3.07
B	2	30	54%	4.7	5.374	4.47	0.97	0.87	4.45

C	7	27	35%	3.0	4.337	6.22	0.95	0.69	6.09
D	12	24	15%	1.3	4.555	8.24	0.94	0.29	7.20
E	-10	35.3	100%	8.7	6.412	2.69	0.99	1.00	2.69
F	-7	34	88%	7.7	7.688	3.07	0.99	1.00	3.07
SCOPon	4.63				SCOPnet	4.68			
SCOP	4.62								
η_s	182								

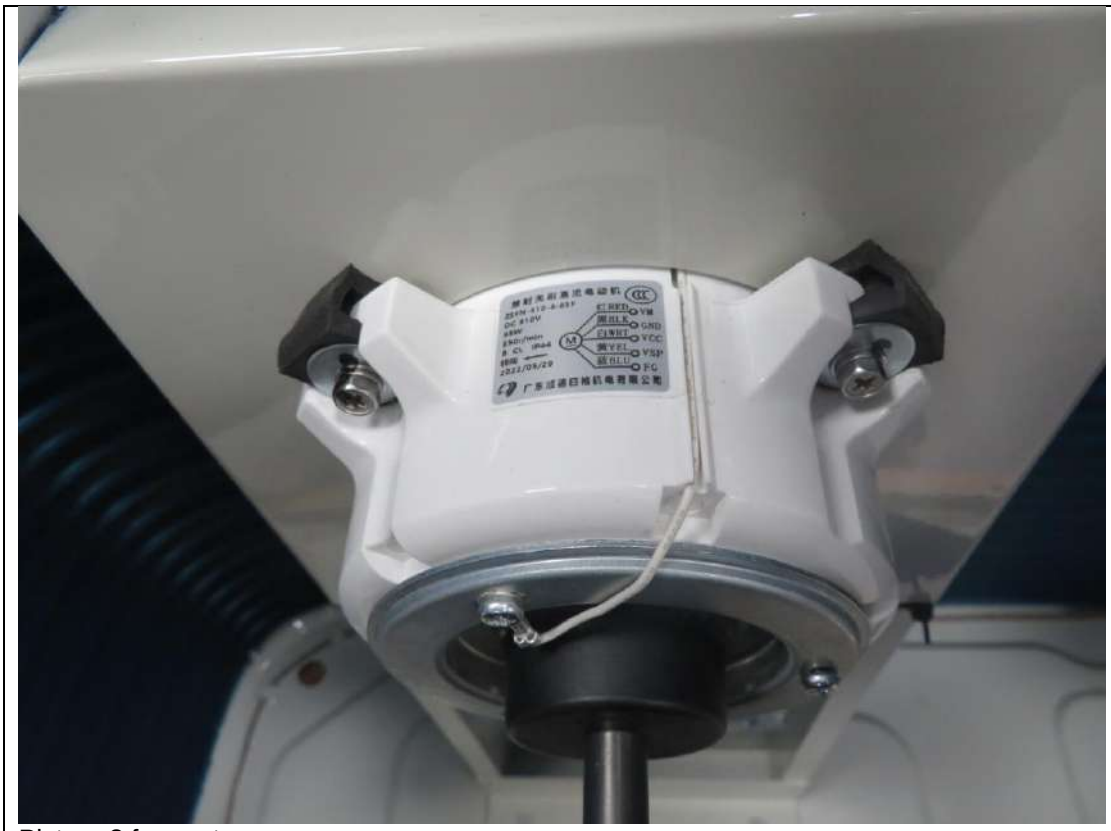
Outlet temperautre °C	55					
Outlet temperautre type	☐ Fixed outlet ☒ Variable outlet					
Test result	Test condition					
	A	B	C	D	E	F
Inlet dry bulb temperature for outdoor air °C	-6.98	2.01	7.00	12.00	-10.00	-6.98
Inlet wet bulb temperature for outdoor air °C	-7.91	1.02	6.00	11.01	-10.99	-7.91
Inlet temperatures for indoor °C	45.32	36.54	32.22	24.93	48.53	45.32
Outlet temperatures for indoor °C	52.01	42.08	36.04	30.09	55.03	52.01
Measured capacity W	7466	6187	4262	5756	7261	7466
Measured power input W	3631	1956	1081	953	3631	3631
Static pressure difference kPa	-	-	-	-	-	-
Water volume flow rate m^3/h	0.96	0.96	0.96	0.96	0.96	0.96
Meausred power input of compressor off state W	33	33	33	33	33	33
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	-	-	-	-	-	-
Efficiency of the pump	-	-	-	-	-	-
Capacity correction W	-	-	-	-	-	-
Power input correction W	-	-	-	-	-	-
Effective capacity W	-	-	-	-	-	-
Effecitve power input W	-	-	-	-	-	-
Calculated COP	-	-	-	-	-	-
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.033					
Thermostat-off mode kW	0.033					
Standby mode kW	0.033					
Crankcase heater mode kW	0.044					
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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	52	88%	7.5	7.466	2.06	0.99	1.00	2.06
B	2	42	54%	4.5	6.187	3.16	0.98	0.73	3.14
C	7	36	35%	2.9	4.262	3.94	0.97	0.69	3.89
D	12	30	15%	1.3	5.756	6.04	0.97	0.23	5.40
E	-10	55.3	100%	8.4	7.261	2.00	0.99	1.00	2.00
F	-7	52	88%	7.5	7.466	2.06	0.99	1.00	2.06
SCOPon	3.20				SCOPnet	3.21			
SCOP	3.19								
η_s	125								

Photo

Picture 1

Picture 2 compressor



Picture 3 fan motor

Picture 4 water pump

End of report

Prüfbericht-Nr.: *Test report no.:*	CN23W4RI 003	**Auftrags-Nr.:** *Order no.:*	170349072	Seite 1 von 14 *Page 1 of 14*
Kunden-Referenz-Nr.: *Client reference no.:*	-	**Auftragsdatum:** *Order date:*	2023.08.02	
Auftraggeber: *Client:*	Energy-Footprint, Apostolova Yanka Leoforos Papanikolaou 16, Pefka, 57010, Thesalloniki, Greece			
Prüfgegenstand: *Test item:*	Heat pump space heater			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	BR32P3V12SC			
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:*	2023.08.02
Prüfmuster-Nr.: *Test sample no:*	170348226-002
Prüfzeitraum: *Testing period:*	2023.08.02– 2023.08.17
Ort der Prüfung: *Place of testing:*	See page 2
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Guangdong) Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von: *tested by:*	Victor He	**genehmigt von:** *authorized by:*	Edward Zheng
Datum: *Date:* 2023.08.17	Signed by: Victor He	**Ausstellungsdatum:** *Issue date:* 2023.08.17	Signed by: Edward Zheng
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: *Condition of the test item at delivery:* Prüfmuster vollständig und unbeschädigt *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*

Absatz *Clause*	**Anforderungen - Prüfungen /** *Requirements - Tests*	**Messergebnisse – Bemerkungen/** *Measuring results - Remarks*	**Ergebnis** *Result*

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. *As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.*
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

Testing results summary

Model designation	BR32P3V12SC	
Function	Heating (Average)	
Outlet temperature	35	55
Design load (kW)	11.31	11.66
Annual energy consumption (kWh)	4713	6138
Seasonal space heating energy efficiency	195	154
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 BR32P3V12SC
6. The test location is below.
   For heating capacity test and 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 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..... :

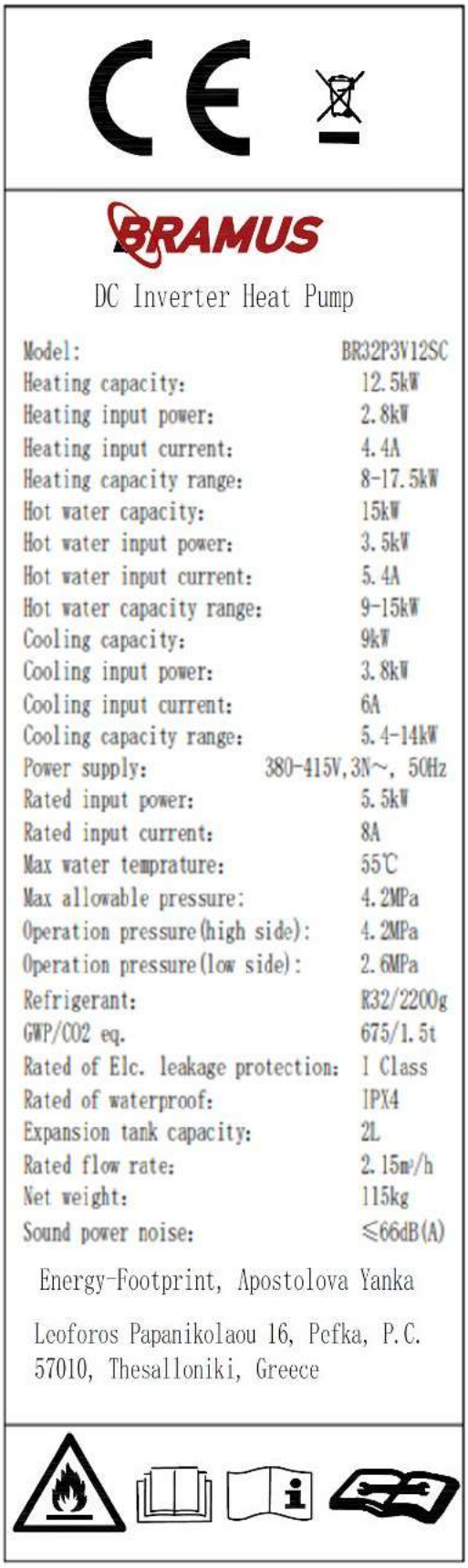
Date of receipt of test item..... : See cover page

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 water pump and crankcase heater for compressor.

Rating labels and marking:



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	-7.02	2.02	7.02	12.03	-10.05	-7.02
Inlet wet bulb temperature for outdoor air °C	-8.11	1.12	6.08	11.11	-11.05	-8.11
Inlet temperatures for indoor °C	29.81	27.30	25.23	22.41	31.30	29.81
Outlet temperatures for indoor °C	34.05	30.07	27.05	24.08	35.30	34.05
Measured capacity W	10040	6466	4245	3800	9654	10040
Measured power input W	3369	1393	690	431	3372	3369
Water volume flow rate m^3/h	2.06	2.06	2.06	2.06	2.06	2.06
Static pressure difference kPa	19.9	19.9	19.9	19.9	19.9	19.9
Meausred power input of compressor off state W	13	13	13	13	13	13
Compressor frequency for inverter type (Hz)	83	50	30	30	85	83
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	11	11	11	11	11	11
Efficiency of the pump	0.24	0.24	0.24	0.24	0.24	0.24
Capacity correction W	35	35	35	35	35	35
Power input correction W	47	47	47	47	47	47
Effective capacity W	10005	6431	4210	3765	9619	10005
Effecitve power input W	3322	1346	643	384	3325	3322
Calculated COP	3.01	4.78	6.55	9.80	2.89	3.01
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.012					
Thermostat-off mode kW	0.013					
Standby mode kW	0.012					
Crankcase heater mode kW	0.039					

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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	34	88.46%	10.00	10.005	3.01	1.00	1.00	3.01

B	2	30	53.85%	6.09	6.431	4.78	0.99	1.00	4.78
C	7	27	34.62%	3.91	4.210	6.55	0.98	1.00	6.55
D	12	24	15.38%	1.74	3.765	9.80	0.97	0.46	9.43
E	-10	35.3	100.00%	11.31	9.619	2.89	1.00	1.00	2.89
F	-7	34	88.46%	10.00	10.005	3.01	1.00	1.00	3.01
SCOPon	4.97				SCOPnet	5.00			
SCOP	4.96								
η_s	195								

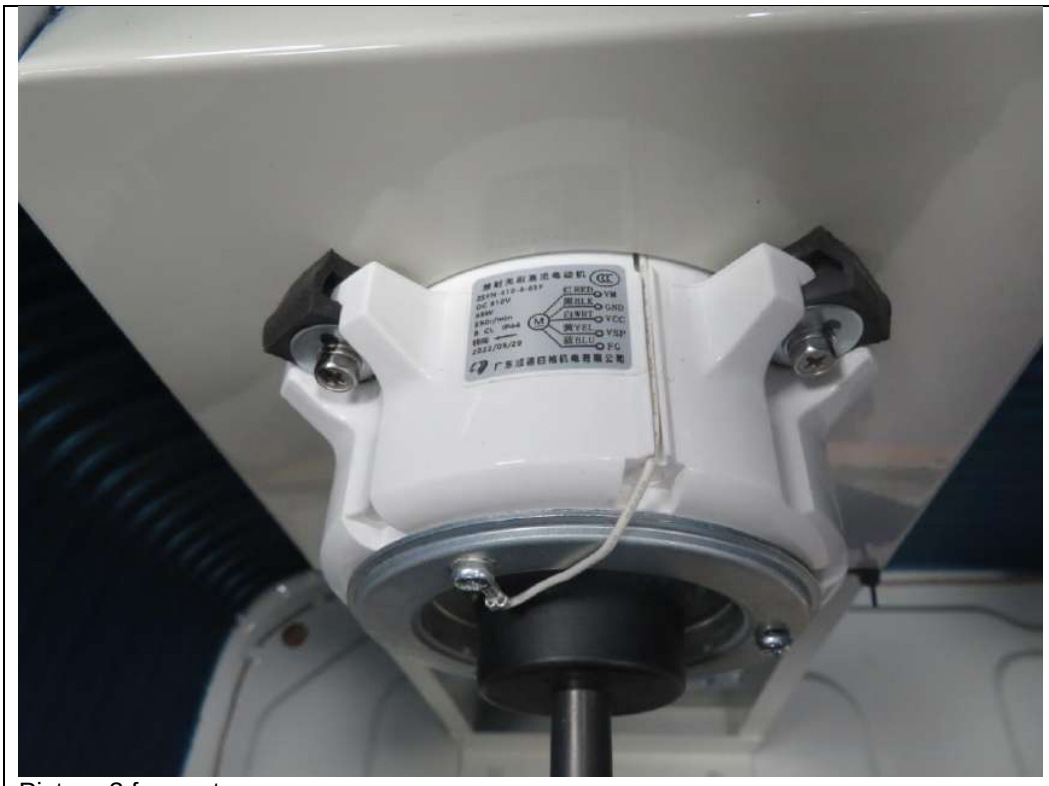
Outlet temperautre °C	55					
Outlet temperautre type	☐ Fixed outlet ☒ Variable outlet					
Test result	Test condition					
	A	B	C	D	E	F
Inlet dry bulb temperature for outdoor air °C	-7.04	2.01	7.05	12.03	-10.01	-7.04
Inlet wet bulb temperature for outdoor air °C	-8.13	1.04	6.04	11.05	-11.08	-8.13
Inlet temperatures for indoor °C	45.65	37.67	33.20	26.34	49.50	45.65
Outlet temperatures for indoor °C	52.12	42.02	36.05	30.10	55.09	52.12
Measured capacity W	10346	7047	4562	5956	8951	10346
Measured power input W	4255	1840	919	990	4495	4255
Water volume flow rate m^3/h	1.40	1.40	1.40	1.40	1.40	1.40
Static pressure difference kPa	19.9	19.9	19.9	19.9	19.9	19.9
Meausred power input of compressor off state W	14	14	14	14	14	14
Compressor frequency for inverter type (Hz)	82	49	30	30	84	82
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	8	8	8	8	8	8
Efficiency of the pump	0.21	0.21	0.21	0.21	0.21	0.21
Capacity correction W	30	30	30	30	30	30
Power input correction W	37	37	37	37	37	37
Effective capacity W	10316	7017	4532	5926	8921	10316
Effecitve power input W	4218	1803	882	953	4458	4218
Calculated COP	2.45	3.89	5.14	6.22	2.00	2.45
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.013					
Thermostat-off mode kW	0.014					
Standby mode kW	0.013					

Crankcase heater mode kW			0.040						
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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	52	88.46%	10.32	10.316	2.45	1.00	1.00	2.45
B	2	42	53.85%	6.28	7.017	3.89	0.99	0.89	3.89
C	7	36	34.62%	4.04	4.532	5.14	0.98	0.89	5.13
D	12	30	15.38%	1.79	5.926	6.22	0.99	0.30	6.02
E	-10	55.3	100.00%	11.66	8.921	2.00	1.00	1.00	2.00
F	-7	52	88.46%	10.32	10.316	2.45	1.00	1.00	2.45
SCOPon	3.93				SCOPnet	3.96			
SCOP	3.93								
η_s	154								

Test result	Indoor unit	Outdoor unit
Sound power level dB(A)	-	64.8

Photo

Picture 2 compressor



Picture 3 fan motor

Picture 4 water pump

End of report

Prüfbericht-Nr.: *Test report no.:*	CN23W4RI 003	**Auftrags-Nr.:** *Order no.:*	170349072	Seite 1 von 14 *Page 1 of 14*
Kunden-Referenz-Nr.: *Client reference no.:*	-	**Auftragsdatum:** *Order date:*	2023.08.02	
Auftraggeber: *Client:*	Energy-Footprint, Apostolova Yanka Leoforos Papanikolaou 16, Pefka, 57010, Thesalloniki, Greece			
Prüfgegenstand: *Test item:*	Heat pump space heater			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	BR32P1V12SC			
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:*	2023.08.02
Prüfmuster-Nr.: *Test sample no:*	170348226-002
Prüfzeitraum: *Testing period:*	2023.08.02– 2023.08.17
Ort der Prüfung: *Place of testing:*	See page 2
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Guangdong) Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von: *tested by:*	Victor He	**genehmigt von:** *authorized by:*	Edward Zheng
Datum: *Date:* 2023.08.17	Signed by: Victor He	**Ausstellungsdatum:** *Issue date:* 2023.08.17	Signed by: Edward Zheng
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: *Condition of the test item at delivery:* Prüfmuster vollständig und unbeschädigt *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*

Absatz *Clause*	**Anforderungen - Prüfungen /** *Requirements - Tests*	**Messergebnisse – Bemerkungen/** *Measuring results - Remarks*	**Ergebnis** *Result*

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. *As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.*
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

Testing results summary

Model designation	BR32P1V12SC	
Function	Heating (Average)	
Outlet temperature	35	55
Design load (kW)	11.31	11.66
Annual energy consumption (kWh)	4713	6138
Seasonal space heating energy efficiency	195	154
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 BR32P1V12SC.
6. The test location is below.

   For heating capacity test and 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 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..... :

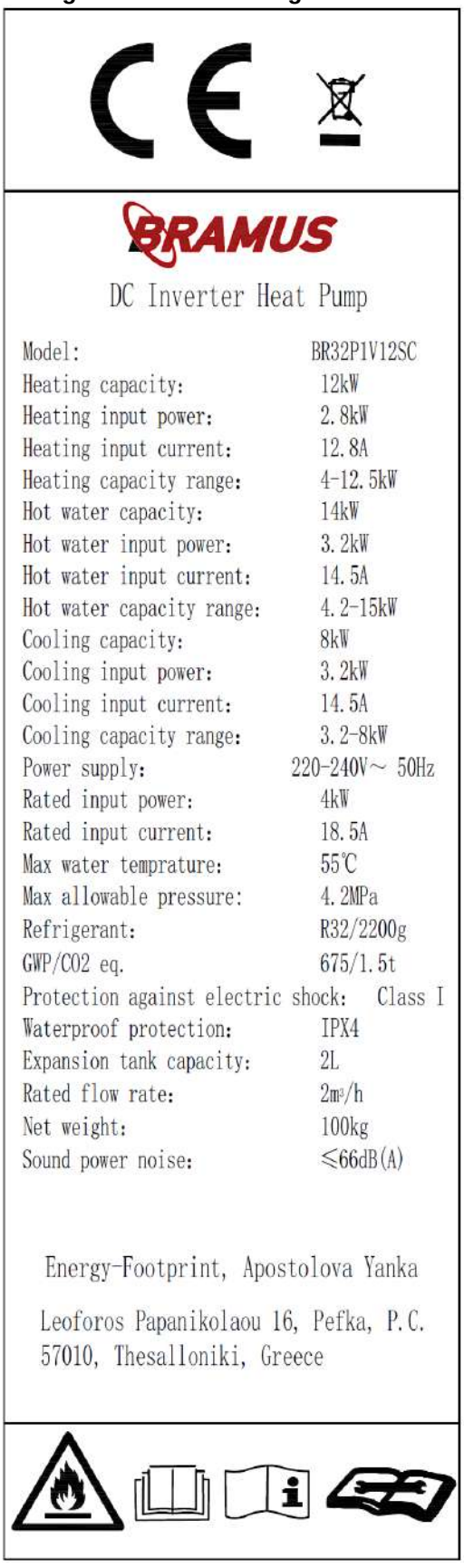
Date of receipt of test item..... : See cover page

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 water pump and crankcase heater for compressor.

Rating labels and marking:



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	-7.02	2.02	7.02	12.03	-10.05	-7.02
Inlet wet bulb temperature for outdoor air °C	-8.11	1.12	6.08	11.11	-11.05	-8.11
Inlet temperatures for indoor °C	29.81	27.30	25.23	22.41	31.30	29.81
Outlet temperatures for indoor °C	34.05	30.07	27.05	24.08	35.30	34.05
Measured capacity W	10040	6466	4245	3800	9654	10040
Measured power input W	3369	1393	690	431	3372	3369
Water volume flow rate m^3/h	2.06	2.06	2.06	2.06	2.06	2.06
Static pressure difference kPa	19.9	19.9	19.9	19.9	19.9	19.9
Meausred power input of compressor off state W	13	13	13	13	13	13
Compressor frequency for inverter type (Hz)	83	50	30	30	85	83
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	11	11	11	11	11	11
Efficiency of the pump	0.24	0.24	0.24	0.24	0.24	0.24
Capacity correction W	35	35	35	35	35	35
Power input correction W	47	47	47	47	47	47
Effective capacity W	10005	6431	4210	3765	9619	10005
Effecitve power input W	3322	1346	643	384	3325	3322
Calculated COP	3.01	4.78	6.55	9.80	2.89	3.01
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.012					
Thermostat-off mode kW	0.013					
Standby mode kW	0.012					
Crankcase heater mode kW	0.039					

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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	34	88.46%	10.00	10.005	3.01	1.00	1.00	3.01

B	2	30	53.85%	6.09	6.431	4.78	0.99	1.00	4.78
C	7	27	34.62%	3.91	4.210	6.55	0.98	1.00	6.55
D	12	24	15.38%	1.74	3.765	9.80	0.97	0.46	9.43
E	-10	35.3	100.00%	11.31	9.619	2.89	1.00	1.00	2.89
F	-7	34	88.46%	10.00	10.005	3.01	1.00	1.00	3.01
SCOPon	4.97				SCOPnet	5.00			
SCOP	4.96								
η_s	195								

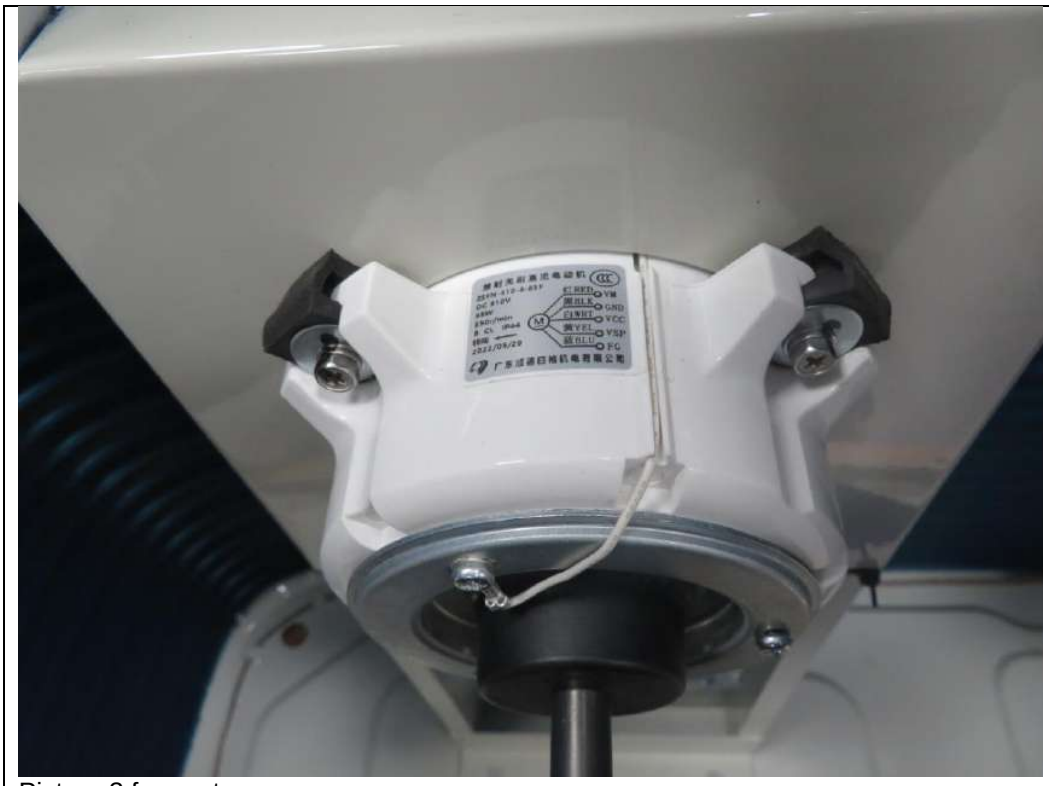
Outlet temperautre °C	55					
Outlet temperautre type	☐ Fixed outlet ☒ Variable outlet					
Test result	Test condition					
	A	B	C	D	E	F
Inlet dry bulb temperature for outdoor air °C	-7.04	2.01	7.05	12.03	-10.01	-7.04
Inlet wet bulb temperature for outdoor air °C	-8.13	1.04	6.04	11.05	-11.08	-8.13
Inlet temperatures for indoor °C	45.65	37.67	33.20	26.34	49.50	45.65
Outlet temperatures for indoor °C	52.12	42.02	36.05	30.10	55.09	52.12
Measured capacity W	10346	7047	4562	5956	8951	10346
Measured power input W	4255	1840	919	990	4495	4255
Water volume flow rate m^3/h	1.40	1.40	1.40	1.40	1.40	1.40
Static pressure difference kPa	19.9	19.9	19.9	19.9	19.9	19.9
Meausred power input of compressor off state W	14	14	14	14	14	14
Compressor frequency for inverter type (Hz)	82	49	30	30	84	82
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	8	8	8	8	8	8
Efficiency of the pump	0.21	0.21	0.21	0.21	0.21	0.21
Capacity correction W	30	30	30	30	30	30
Power input correction W	37	37	37	37	37	37
Effective capacity W	10316	7017	4532	5926	8921	10316
Effecitve power input W	4218	1803	882	953	4458	4218
Calculated COP	2.45	3.89	5.14	6.22	2.00	2.45
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.013					
Thermostat-off mode kW	0.014					
Standby mode kW	0.013					

Crankcase heater mode kW			0.040						
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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	52	88.46%	10.32	10.316	2.45	1.00	1.00	2.45
B	2	42	53.85%	6.28	7.017	3.89	0.99	0.89	3.89
C	7	36	34.62%	4.04	4.532	5.14	0.98	0.89	5.13
D	12	30	15.38%	1.79	5.926	6.22	0.99	0.30	6.02
E	-10	55.3	100.00%	11.66	8.921	2.00	1.00	1.00	2.00
F	-7	52	88.46%	10.32	10.316	2.45	1.00	1.00	2.45
SCOPon	3.93				SCOPnet	3.96			
SCOP	3.93								
η_s	154								

Test result	Indoor unit	Outdoor unit
Sound power level dB(A)	-	64.8

Photo

Picture 2 compressor



Picture 3 fan motor

Picture 4 water pump

End of report

Prüfbericht-Nr.: *Test report no.:*	CN23W4RI 004	**Auftrags-Nr.:** *Order no.:*	170349072	Seite 1 von 14 *Page 1 of 14*
Kunden-Referenz-Nr.: *Client reference no.:*	-	**Auftragsdatum:** *Order date:*	2023.08.02	
Auftraggeber: *Client:*	Energy-Footprint, Apostolova Yanka Leoforos Papanikolaou 16, Pefka, 57010, Thesalloniki, Greece			
Prüfgegenstand: *Test item:*	Heat pump space heater			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	BR32P3V16SC			
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:*	2023.08.02
Prüfmuster-Nr.: *Test sample no:*	170348226-003
Prüfzeitraum: *Testing period:*	2023.08.02– 2023.08.17
Ort der Prüfung: *Place of testing:*	See page 2
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Guangdong) Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von: *tested by:*	Victor He	**genehmigt von:** *authorized by:*	Edward Zheng
Datum: *Date:* 2023.08.17	Signed by: Victor He	**Ausstellungsdatum:** *Issue date:* 2023.08.17	Signed by: Edward Zheng
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

Absatz *Clause*	**Anforderungen - Prüfungen /** *Requirements - Tests*	**Messergebnisse – Bemerkungen/** *Measuring results - Remarks*	**Ergebnis** *Result*

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. *As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.*
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

Testing results summary

Model designation	BR32P3V16SC	
Function	Heating (Average)	
Outlet temperature	35	55
Design load (kW)	15.68	15.97
Annual energy consumption (kWh)	6626	8887
Seasonal space heating energy efficiency	193	146
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 BR32P3V16SC.
6. The test location is below.

   For heating capacity test and 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 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..... :

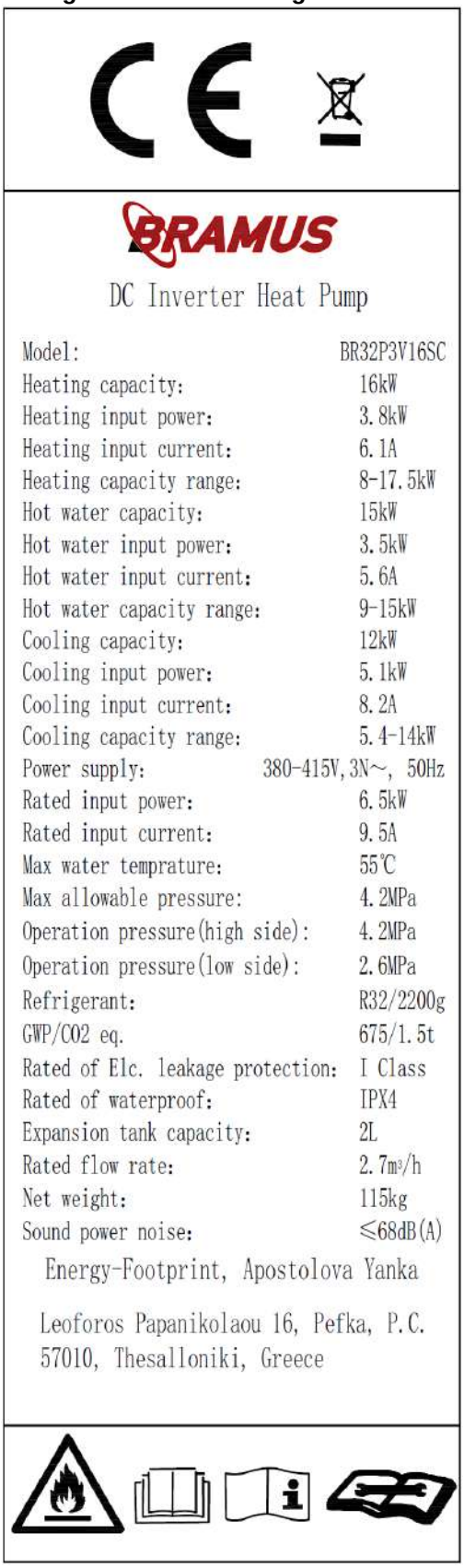
Date of receipt of test item..... : See cover page

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 water pump and crankcase heater for compressor.

Rating labels and marking:



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
			-
	(b) 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	-7.08	2.05	7.02	12.03	-10.01	-10.01
Inlet wet bulb temperature for outdoor air °C	-8.12	1.02	6.07	11.08	-11.09	-11.09
Inlet temperatures for indoor °C	29.61	27.30	24.33	20.86	31.42	31.42
Outlet temperatures for indoor °C	34.01	30.06	27.02	24.05	35.40	35.40
Measured capacity W	14044	8638	8524	10037	15719	15719
Measured power input W	4530	1878	1399	1167	5654	5654
Water volume flow rate m^3/h	2.75	2.75	2.75	2.75	2.75	2.75
Static pressure difference kPa	22.3	22.3	22.3	22.3	22.3	22.3
Meausred power input of compressor off state W	40	40	40	40	40	40
Compressor frequency for inverter type (Hz)	73	42	30	30	80	80
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	17	17	17	17	17	17
Efficiency of the pump	0.28	0.28	0.28	0.28	0.28	0.28
Capacity correction W	43	43	43	43	43	43
Power input correction W	60	60	60	60	60	60
Effective capacity W	14001	8595	8481	9994	15676	15676
Effecitve power input W	4470	1818	1339	1107	5594	5594
Calculated COP	3.13	4.73	6.33	9.03	2.80	2.80
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.040					
Thermostat-off mode kW	0.040					
Standby mode kW	0.040					
Crankcase heater mode kW	0.040					
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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	34	88.46%	13.87	14.001	3.13	0.99	1.00	3.13

B	2	30	53.85%	8.44	8.595	4.73	0.98	1.00	4.73
C	7	27	34.62%	5.43	8.481	6.33	0.97	0.64	6.23
D	12	24	15.38%	2.41	9.994	9.03	0.96	0.24	8.11
E	-10	35.3	100.00%	15.68	15.676	2.80	0.99	1.00	2.80
F	-10	35.3	100.00%	15.68	15.676	2.80	0.99	1.00	2.80
SCOPon	4.90				SCOPnet	4.90			
SCOP	4.89								
η_s	193								

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	-7.05	2.06	7.01	12.05	-10.02	-10.02
Inlet wet bulb temperature for outdoor air °C	-8.08	1.02	6.08	11.02	-11.13	-11.13
Inlet temperatures for indoor °C	45.14	37.79	31.69	25.36	49.17	49.17
Outlet temperatures for indoor °C	52.12	42.08	36.06	30.12	55.10	55.10
Measured capacity W	14045	8633	8792	9575	16007	16007
Measured power input W	5852	2452	1831	1409	9643	9643
Water volume flow rate m^3/h	1.75	1.75	1.75	1.75	1.75	1.75
Static pressure difference kPa	22.3	22.3	22.3	22.3	22.3	22.3
Meausred power input of compressor off state W	40	40	40	40	40	40
Compressor frequency for inverter type (Hz)	72	43	30	30	80	80
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	11	11	11	11	11	11
Efficiency of the pump	0.24	0.24	0.24	0.24	0.24	0.24
Capacity correction W	35	35	35	35	35	35
Power input correction W	46	46	46	46	46	46
Effective capacity W	14010	8598	8757	9540	15972	15972
Effecitve power input W	5806	2406	1785	1363	9597	9597
Calculated COP	2.41	3.57	4.90	7.00	1.66	1.66
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.040					
Thermostat-off mode kW	0.040					
Standby mode kW	0.040					

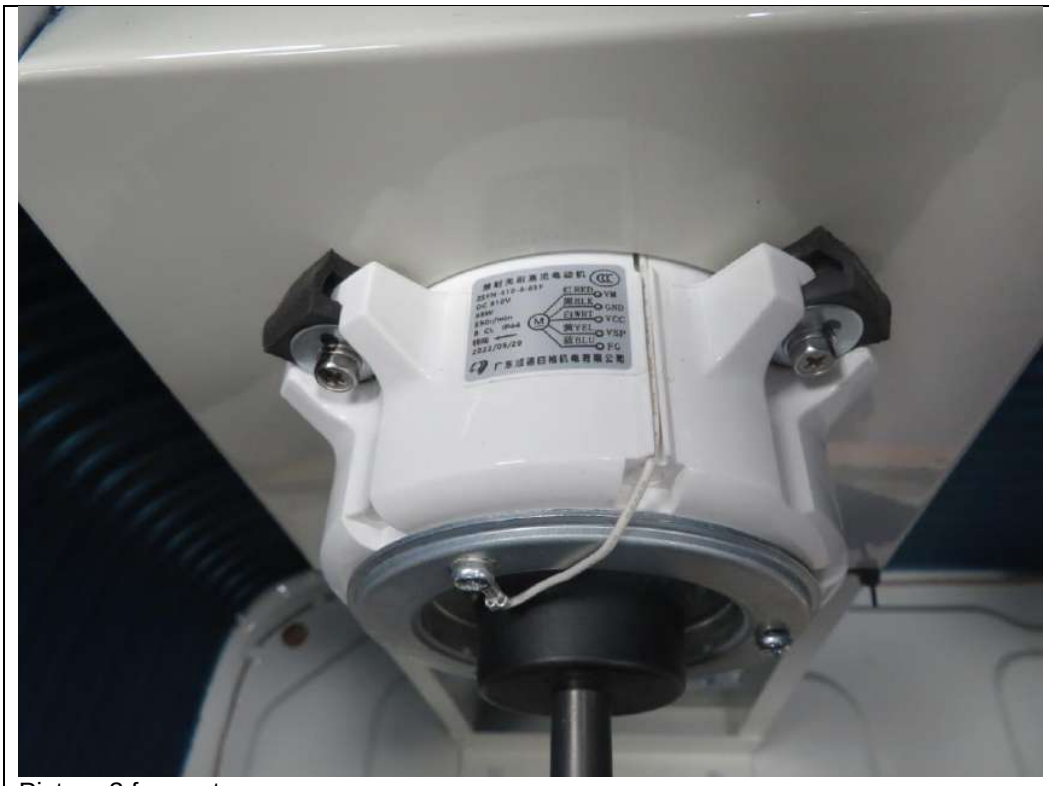
Crankcase heater mode kW			0.040						
Calculations for seasonal space heating energy efficiency									
Test condition	Outdoor heat exchanger	Indoor heat exchanger	Part Load Ratio %	Part Load kW	Tested Capacity kW	Tested COP	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	52	88.46%	14.13	14.010	2.41	0.99	1.00	2.41
B	2	42	53.85%	8.60	8.598	3.57	0.98	1.00	3.57
C	7	36	34.62%	5.53	8.757	4.90	0.98	0.63	4.84
D	12	30	15.38%	2.46	9.540	7.00	0.97	0.26	6.45
E	-10	55.3	100.00%	15.97	15.972	1.66	1.00	1.00	1.66
F	-10	55.3	100.00%	15.97	15.972	1.66	1.00	1.00	1.66
SCOPon	3.72				SCOPnet	3.74			
SCOP	3.71								
η_s	146								

Test result	Indoor unit	Outdoor unit
Sound power level dB(A)	-	67.6

Photo

Picture 1

Picture 2 compressor



Picture 3 fan motor

Picture 4 water pump

End of report

Prüfbericht-Nr.: *Test report no.:*	CN23W4RI 005	**Auftrags-Nr.:** *Order no.:*	170349072	Seite 1 von 12 *Page 1 of 12*
Kunden-Referenz-Nr.: *Client reference no.:*	-	**Auftragsdatum:** *Order date:*	2023.08.02	
Auftraggeber: *Client:*	Energy-Footprint, Apostolova Yanka Leoforos Papanikolaou 16, Pefka, 57010, Thesalloniki, Greece			
Prüfgegenstand: *Test item:*	Heat pump space heater			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	BR32P3V22SC			
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:*	2023.08.02
Prüfmuster-Nr.: *Test sample no:*	A003407631-002
Prüfzeitraum: *Testing period:*	2023.08.02– 2023.08.17
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:*
Victor He
Signed by: Victor He

Datum: *Date:* 2023.08.17

Stellung / *Position:* Project Engineer

genehmigt von: *authorized by:*
Edward Zheng
Signed by: Edward Zheng

Ausstellungsdatum: *Issue date:* 2023.08.17

Stellung / *Position:* Reviewer

Sonstiges / *Other:* This report is only for heating capacity test.

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

Absatz *Clause*	**Anforderungen - Prüfungen /** *Requirements - Tests*	**Messergebnisse – Bemerkungen/** *Measuring results - Remarks*	**Ergebnis** *Result*

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system.* *Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. *As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.*
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

Testing results summary

Model designation	BR32P3V22SC	
Function	Heating (Average)	
Outlet temperature	35	55
Design load (kW)	17.49	17.94
Annual energy consumption (kWh)	7939	10582
Seasonal space heating energy efficiency	179	137
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 sound power level 71dB(A) was declared by the manufacturer according to EN 12102-1:2017.
3. The appliance was tested at outlet temperature 35°C and 55°C.
4. The capacity test method is air enthalpy method.
5. All tests were performed on the model BR32P3V22SC.

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

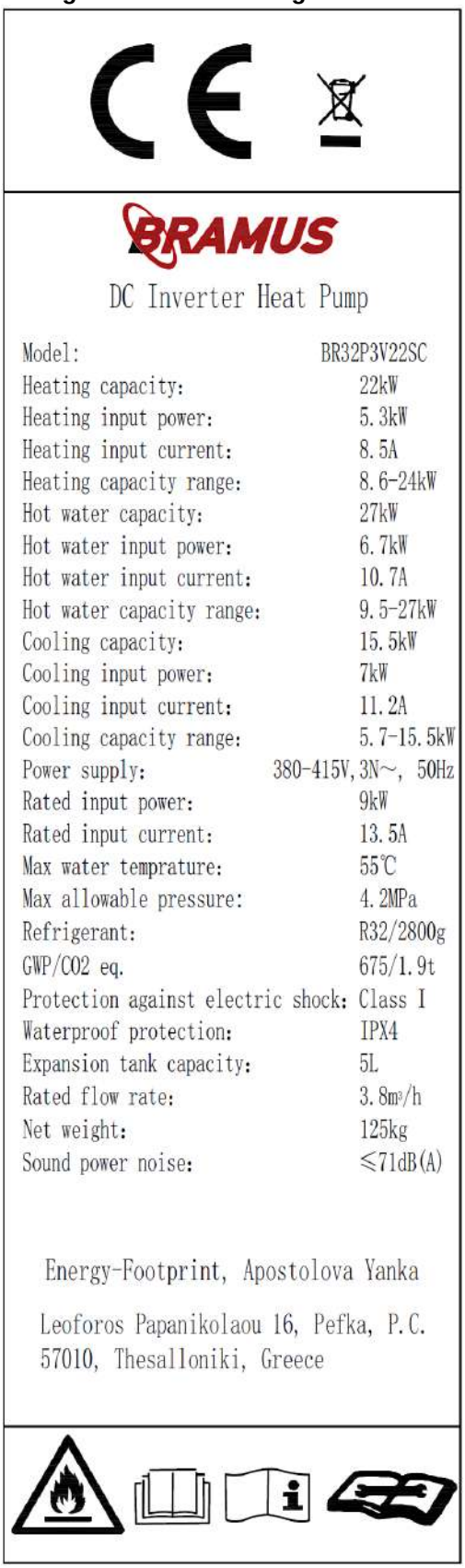
General product information

1. The appliance is air to water heat pump for space heating or cooling which installed at outdoor.
2. The appliance incorporates water pump and crankcase heater for compressor.

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 MOROR Co.,Ltd	ZSFN-310-8-85F	DC310V, 85W, 8P, 850r/min, Class E
Water pump	SHIMGE PUMP(JIANGSU) CO., Ltd	APM25-9-130 PWM1	230V, 50/60Hz, 4-95W, Class H
Alternative	WILO China Ltd.	Para 25/9-87/IPWM1	1~230V, 3-87W, 50/60Hz, Class F

Rating labels and marking:



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	-6.98	2.04	7.04	12.02	-9.96	-6.98
Inlet wet bulb temperature for outdoor air °C	-7.97	1.01	6.01	11.02	-10.95	-7.97
Inlet temperatures for indoor °C	29.92	27.5	25.23	21.8	31.7	29.92
Outlet temperatures for indoor °C	33.37	29.64	27.12	24.06	34.97	33.37
Measured capacity W	15526	9640	8534	10153	14692	15526
Measured power input W	5107	2391	1328	1173	5334	5107
Water volume flow rate m^3/h	3.86	3.87	3.87	3.86	3.86	3.86
Static pressure difference kPa	25.7	25.7	22.2	22.5	23.5	25.7
Meausred power input of compressor off state W	106	106	106	106	106	106
Compressor frequency for inverter type (Hz)	89.9	48.0	30.0	30.0	89.9	89.9
Is the heat pump conducting defrost cycle?	☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☒ No	☒ Yes ☐ No	☒ Yes ☐ No
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	28	28	24	24	25	28
Efficiency of the pump	0.33	0.33	0.32	0.32	0.32	0.33
Capacity correction W	56	56	51	52	53	56
Power input correction W	84	84	75	76	78	84
Effective capacity W	15470	9584	8483	10101	14639	15470
Effecitve power input W	5023	2307	1253	1097	5256	5023
Calculated COP	3.08	4.15	6.77	9.21	2.79	3.08
Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode						
Off mode kW	0.011					
Thermostat-off mode kW	0.106					
Standby mode kW	0.011					
Crankcase heater mode kW	0.042					
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	Cd	CR	COP at A, B, C, D, E, F

	Outdoor air °C	Outlet water temperature °C							condition
A	-7	34	88.46%	15.47	15.470	3.08	0.98	1.00	3.08
B	2	30	53.85%	9.42	9.584	4.15	0.95	1.00	4.15
C	7	27	34.62%	6.05	8.483	6.77	0.92	0.71	6.55
D	12	24	15.38%	2.69	10.101	9.21	0.90	0.27	7.27
E	-10	35.3	100.00%	17.49	14.639	2.79	0.98	1.00	2.79
F	-10	35.3	100.00%	15.47	15.470	3.08	0.98	1.00	3.08
SCOPon	4.57				SCOPnet	4.60			
SCOP	4.55								
η_s	179								

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	2.01	7.01	12.01	-10.00	-6.98
Inlet wet bulb temperature for outdoor air °C	-7.98	1.00	6.01	11.01	-11.00	-7.98
Inlet temperatures for indoor °C	45.47	37.98	32.88	26.59	49.83	45.47
Outlet temperatures for indoor °C	51.25	41.66	36.00	29.99	55.30	51.25
Measured capacity W	15905	10148	8610	9358	15055	15905
Measured power input W	6745	3211	1760	1410	6670	6745
Water volume flow rate m^3/h	2.37	2.37	2.37	2.37	2.37	2.37
Static pressure difference kPa	19.8	19.8	19.8	19.8	19.8	19.8
Meausred power input of compressor off state W	106	106	106	106	106	106
Compressor frequency for inverter type (Hz)	89.9	52.0	30.0	30.0	79.9	89.9
Is the heat pump conducting defrost cycle?	☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No	☒ Yes ☐ No
Corrections of the power input of liquid pump if applicable						
P_{hydrau} W	13	13	13	13	13	13
Efficiency of the pump	0.26	0.26	0.26	0.26	0.26	0.26
Capacity correction W	38	38	38	38	38	38
Power input correction W	51	51	51	51	51	51
Effective capacity W	15867	10110	8572	9320	15017	15867
Effecitve power input W	6694	3160	1709	1359	6619	6694
Calculated COP	2.37	3.20	5.02	6.86	2.27	2.37

Electric power consumption during thermostat-off mode, standby mode, crankcase heater mode and off mode	
Off mode kW	0.011
Thermostat-off mode kW	0.106
Standby mode kW	0.011
Crankcase heater mode kW	0.042

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	Cd	CR	COP at A, B, C, D, E, F condition
	Outdoor air °C	Outlet water temperature °C							
A	-7	52	88.46%	15.87	15.867	2.37	0.98	1.00	2.37
B	2	42	53.85%	9.66	10.110	3.20	0.97	1.00	3.20
C	7	36	34.62%	6.21	8.572	5.02	0.94	0.72	4.90
D	12	30	15.38%	2.76	9.320	6.86	0.92	0.30	5.78
E	-10	55.3	100.00%	17.94	15.017	2.27	0.98	1.00	2.27
F	-10	55.3	100.00%	15.87	15.867	2.37	0.98	1.00	2.37
SCOPon	3.51				SCOPnet	3.53			
SCOP	3.50								
η_s	137								

End of report