Dorota Szmajda-Kuberczyk
tłumacz przysięgły języka angielskiego
Rybie, ul. Kasztanowa 33, 05-090 Raszyn
tel. 501 123 253

POŚWIADCZONE TŁUMACZENIE Z JĘZYKA ANGIELSKIEGO

[Dokument źródłowy, przedstawiony w formie elektronicznej, składa się z 34 numerowanych arkuszy. Na życzenie Klienta przetłumaczono strony jak niżej. Tekst w nawiasach kwadratowych pochodzi od tłumacza.] ----------

[arkusz 8]: ----------

[nagłówek]: logo · **DUŃSKI INSTYTUT TECHNOLOGICZNY** [ang. Danish Technological Institute] · strona 8 z 34 · 300-KLAB024-004-1 ---------

[stopka (na każdym arkuszu)]: logo ilac-MRA · logo DANAK · Test Reg. nr. 300 ----------

Wyniki badań SCOP w niskiej temperaturze – dla średniej sezonu grzewczego – EN 14825 ----------

Model (jednostka zewnętrzna)	PASRW060-BP-PS-D
Pompa ciepła powietrze-woda monoblok	T
Niskotemperaturowa pompa ciepła	N
Wyposażona w dodatkowy ogrzewacz	N
Wielofunkcyjny ogrzewacz z pompą ciepła	N

Znamionowa moc cieplna[1)]	P_{RATED}		**12,55** [kW]
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	ηs		**197,5** [%]
	SCOP		**5,01** [-]

Zmierzona wydajność grzewcza przy częściowym obciążeniu w temperaturze zewnętrznej T_j	**Klimat umiarkowany - Zastosowanie w niskiej temperaturze**	$T_j = 15°C$	Pdh	- [kW]
		$T_j = -7°C$		11,31 [kW]
		$T_j = 2°C$	Pdh	7,27 [kW]
		$T_j = 7°C$	Pdh	5,27 [kW]
		$T_j = 12°C$	Pdh	6,19 [kW]
		T_j = temperatura dwuwartościowa	Pdh	11,31 [kW]
		T_j = granica działania	Pdh	12,73 [kW]

Zmierzony współczynnik wydajności w temperaturze zewnętrznej T_j	**Klimat umiarkowany - Zastosowanie w niskiej temperaturze**	$T_j = 15°C$	COPd	- [-]
		$T_j = 7°C$	COPd	3,10 [-]
		$T_j = 2°C$	COPd	4,87 [-]
		$T_j = 7°C$	COPd	6,60 [-]
		$T_j = 12°C$	COPd	9,26 [-]
		T_j = temperatura dwuwartościowa	COPd	3,10 [-]
		T_j = granica działania	COPd	2,38 [-]

Temperatura dwuwartościowa	Tbivalent	-7 [°C]
Graniczna temperatura	TOL	-10 [°C]
robocza	WTOL	- [°C]
Współczynnik strat	Cdh	0,96[-]

Pobór mocy w trybach innych niż aktywny	Tryb wyłączenia	P_{OFF}	0,012 [kW]
	Tryb wyłączonego termostatu	P_{TO}	0,028 [kW]
	Tryb gotowości	P_{SB}	0,012 [kW]
	Tryb włączonej grzałki karteru	P_{CK}	0,012 [kW]
Ogrzewacz dodatkowy[1)]	Znamionowa moc cieplna	P_{SUP}	0,00 [kW]
	Rodzaj energii zasilania		elektryczna

Inne pozycje	Regulacja wydajności		zmienna
	Regulacja przepływu wody		stała
	Natężenie przepływu wody		2688 [l/h]
	Roczne zużycie energii	Q_{HE}	5172 [kWh]
W przypadku ogrzewaczy pomieszczeń z pompą ciepła i wielofunkcyjnych ogrzewaczy z pompą ciepła znamionowa moc cieplna (Prated) jest równa obciążeniu obliczeniowemu dla trybu ogrzewania (Pdesignh), a znamionowa moc grzewcza ogrzewacza dodatkowego (Psup), jest równa dodatkowej wydajności grzewczej (sup(Tj)).			

[arkusz 9]: ----------

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Wyniki badań SCOP w średniej temperaturze – dla średniej sezonu grzewczego (A) – EN 14825 ----------

Model (jednostka zewnętrzna)	PASRW060-BP-PS-D
Pompa ciepła powietrze-woda monoblok	T
Niskotemperaturowa pompa ciepła	N
Wyposażona w dodatkową grzałkę	N
Kombinowana grzałka z pompą ciepła	N

Znamionowa moc cieplna[1)]	P_{RATED}		**12,34** [kW]
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	ηs		**142,6** [%]
	SCOP		**3,64** [-]

Zmierzona wydajność grzewcza przy częściowym obciążeniu przy temperaturze zewnętrznej T_j	**Klimat umiarkowany - Zastosowanie w średniej temperaturze**	T_j = 15°C	Pdh	- [kW]
		T_j = -7°C		11,47 [kW]
		T_j = 2°C	Pdh	6,57 [kW]
		T_j = 7°C	Pdh	6,16 [kW]
		T_j = 12°C	Pdh	7,33 [kW]
		T_j = temperatura dwuwartościowa	Pdh	11,47 [kW]
		T_j = granica działania	Pdh	12,39 [kW]

Zmierzony współczynnik wydajności przy	**Klimat umiarkowany -**	T_j = 15°C	COPd	- [-]
		T_j = -7°C	COPd	2,32 [-]
		T_j = 2°C	COPd	3,46 [-]

temperaturze zewnętrznej T_j	**Zastosowanie w średniej temperaturze**	T_j = 7°C	COPd	4,82 [-]
		T_j = 12°C	COPd	6,73 [-]
		T_j = temperatura dwuwartościowa	COPd	2,32 [-]
		T_j = granica działania	COPd	2,04 [-]

Temperatura dwuwartościowa	Tbivalent	-7 [°C]
Graniczna temperatura	TOL	-10 [°C]
robocza	WTOL	- [°C]
Współczynnik strat	Cdh	0,97[-]

Pobór mocy w trybach innych niż aktywny	Tryb wyłączenia	P_{OFF}	0,012 [kW]
	Tryb wyłączonego termostatu	P_{TO}	0,028 [kW]
	Tryb gotowości	P_{SB}	0,012 [kW]
	Tryb włączonej grzałki karteru	P_{CK}	0,012 [kW]
Ogrzewacz dodatkowy[1)]	Znamionowa moc cieplna	P_{SUP}	0,00 [kW]
	Rodzaj energii zasilania		elektryczna

Inne pozycje	Regulacja wydajności		zmienna
	Regulacja przepływu wody		stała
	Natężenie przepływu wody		1700 [l/h]
	Roczne zużycie energii	Q_{HE}	7006 [kWh]
W przypadku ogrzewaczy pomieszczeń z pompą ciepła i wielofunkcyjnych ogrzewaczy z pompą ciepła znamionowa moc cieplna (Prated) jest równa obciążeniu obliczeniowemu dla trybu ogrzewania (Pdesignh), a znamionowa moc grzewcza ogrzewacza dodatkowego (Psup), jest równa dodatkowej wydajności grzewczej (sup(Tj)).			

[arkusz 11]: ----------

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Wyniki testu dla całkowitej awarii zasilania – EN 14511-4 ----------

Nr	Poświadczenie testu
1	zaliczony

Wyniki pomiaru mocy akustycznej – EN 12102-1 ----------

Nr	Warunki badania	Poziom mocy akustycznej LW(A) [dB re 1pW]	Niepewność σ_{tot} [dB]
1^E	A7/W55	57,6	1,6

E) Oznaczenie ErP ----------

Poziom mocy akustycznej odniesionej do A jest oznaczony dla mierzonego zakresu częstotliwości od 100 Hz do 10 kHz. W celu obliczenia niepewności zob. Załącznik 1. ----------

Pomiary mocy akustycznej wykonuje Kamalathasan Arumugam (KAMA) we współpracy z Patrickiem Gilbertem (PGL), Duński Instytut Technologiczny. ---

[arkusz 34]: ----------

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Załącznik 2 – Nazwa marki ----------

Upoważnienie ----------

[ang. Authorization Letter] ----------

Niniejsza Deklaracja zgodności zostaje wydana na wyłączną odpowiedzialność: ----------

Nazwa producenta: Guangdong PHNIX ECO-Energy Solution LTD ----------

Adres producenta: No. 3 Tianyuan Road, Dagang Town, Nansha District Guangzhou Guangdong, 511470 Chiny ----------

Oświadczamy, iż poniższy produkty, pompy ciepła, który wyprodukowaliśmy dla firmy COOPER AND HUNTER OVERSEAS LP, są identyczne jak nasze poniższe modele: ----------

Model Cooper&Hunter	CH-HP15UIMPZM
Model PHNIX	PASRW060S-BP-PS-D

Nazwa [firma] Cooper&Hunter: COOPER AND HUNTER OVERSEAS LP ---

Nazwa marki Cooper&Hunter: Cooper&Hunter ----------

Adres Cooper&Hunter: SUITE 201, 45B WEST WILMOT STREET, RICHMOND HILL, ON L4B2P3 KANADA ----------

Uwaga: Niniejsza deklaracja traci ważność w przypadku wprowadzenia zmian technologicznych lub funkcjonalnych bez zgody producenta. ----------

Data: 24 maja 2024 r. ----------

Podmiot upoważniony: Guangdong PHNIX ECO-Energy Solution LTD ---------

[-], nieczytelny podpis ----------

[Odcisk pieczęci o treści]: W imieniu Guangdong PHNIX ECO-Energy Solution LTD · *[-], nieczytelny podpis* · Podpis osoby upoważnionej ----------

[koniec tłumaczenia]

Ja, Dorota Szmajda-Kuberczyk, tłumacz przysięgły języka angielskiego wpisana na listę tłumaczy przysięgłych Ministra Sprawiedliwości pod numerem TP/2161/05, stwierdzam zgodność powyższego tłumaczenia z dokumentem w języku angielskim (dokument elektroniczny pdf, którego wydruk, opatrzony pieczęcią i podpisem tłumacza, załączono do niniejszego).
Rybie, 26.07.2024 r.
Nr Repertorium: 508/24

Test results of SCOP test at low temperature - heating season average – EN 14825

Model (Outdoor)	PASRW060S-BP-PS-D
Air-to-water heat pump mono bloc	Y
Low-temperature heat pump	N
Equipped with supplementary heater	N
Heat pump combination heater	N

Rated heat output[1)]	P_{rated}		**12.55** [kW]
Seasonal space heating energy efficiency	η_s		**197.5** [%]
	SCOP		**5.01** [-]

Measured capacity for heating for part load at outdoor temperature Tj	Average Climate - Low temperature application	Tj=-15 °C	Pdh	- [kW]
		Tj=-7 °C	Pdh	11.31 [kW]
		Tj=2 °C	Pdh	7.27 [kW]
		Tj=7 °C	Pdh	5.27 [kW]
		Tj=12 °C	Pdh	6.19 [kW]
		Tj=bivalent temperature	Pdh	11.31 [kW]
		Tj=operation limit	Pdh	12.73 [kW]

Measured coefficient of performance at outdoor temperature Tj	Average Climate - Low temperature application	Tj=-15 °C	COPd	- [-]
		Tj=-7 °C	COPd	3.10 [-]
		Tj=2 °C	COPd	4.87 [-]
		Tj=7 °C	COPd	6.60 [-]
		Tj=12 °C	COPd	9.26 [-]
		Tj=bivalent temperature	COPd	3.10 [-]
		Tj=operation limit	COPd	2.38 [-]

Bivalent temperature	Tbivalent	-7 [°C]
Operation limit	TOL	-10 [°C]
temperatures	WTOL	- [°C]
Degradation coefficient	Cdh	0.96 [-]

Power consumption in modes other than active mode	Off mode	P_{OFF}	0.012 [kW]
	Thermostat-off mode	P_{TO}	0.028 [kW]
	Standby mode	P_{SB}	0.012 [kW]
	Crankcase heater mode	P_{CK}	0.012 [kW]
Supplementary heater[1)]	Rated heat output	P_{SUP}	0.00 [kW]
	Type of energy input		Electrical

Other items	Capacity control		Variable
	Water flow control		Fixed
	Water flow rate		2688 [l/h]
	Annual energy consumption	Q_{HE}	5172 [kWh]

[1)]For heat pump space heaters and heat pump combination heaters, the rated heat output, Prated, is equal to the design load for heating, Pdesignh, and the rated heat output of a supplementary heater, Psup, is equal to the supplementary capacity for heating, sup(Tj).

Test results of SCOP test at medium temperature - heating season average – EN 14825

Model (Outdoor)	PASRW060S-BP-PS-D
Air-to-water heat pump mono bloc	Y
Low-temperature heat pump	N
Equipped with supplementary heater	N
Heat pump combination heater	N

Rated heat output[1)]	P_{rated}	**12.34** [kW]
Seasonal space heating energy efficiency	η_s	**142.6** [%]
	SCOP	**3.64** [-]

Measured capacity for heating for part load at outdoor temperature Tj	Average Climate - Medium temperature application	Tj=-15 °C	Pdh	- [kW]
		Tj=-7 °C	Pdh	11.47 [kW]
		Tj=2 °C	Pdh	6.57 [kW]
		Tj=7 °C	Pdh	6.16 [kW]
		Tj=12 °C	Pdh	7.33 [kW]
		Tj=bivalent temperature	Pdh	11.47 [kW]
		Tj=operation limit	Pdh	12.39 [kW]

Measured coefficient of performance at outdoor temperature Tj	Average Climate - Medium temperature application	Tj=-15 °C	COPd	- [-]
		Tj=-7 °C	COPd	2.32 [-]
		Tj=2 °C	COPd	3.46 [-]
		Tj=7 °C	COPd	4.82 [-]
		Tj=12 °C	COPd	6.73 [-]
		Tj=bivalent temperature	COPd	2.32 [-]
		Tj=operation limit	COPd	2.04 [-]

Bivalent temperature	Tbivalent	-7 [°C]
Operation limit temperatures	TOL	-10 [°C]
	WTOL	- [°C]
Degradation coefficient	Cdh	0.97 [-]

Power consumption in modes other than active mode	Off mode	P_{OFF}	0.012 [kW]
	Thermostat-off mode	P_{TO}	0.028 [kW]
	Standby mode	P_{SB}	0.012 [kW]
	Crankcase heater mode	P_{CK}	0.012 [kW]
Supplementary heater[1)]	Rated heat output	P_{SUP}	0.00 [kW]
	Type of energy input		Electrical

Other items	Capacity control		Variable
	Water flow control		Fixed
	Water flow rate		1700 [l/h]
	Annual energy consumption	Q_{HE}	7006 [kWh]

[1)]For heat pump space heaters and heat pump combination heaters, the rated heat output, Prated, is equal to the design load for heating, Pdesignh, and the rated heat output of a supplementary heater, Psup, is equal to the supplementary capacity for heating, sup(Tj).

Test results for complete power supply failure – EN 14511-4

N#	Test validation
1	Passed

Test results of sound power measurements – EN 12102-1

N#	Test conditions	Sound power level LW(A) [dB re 1pW]	Uncertainty σ_{tot} [dB]
1[E]	A7/W55	57.6	1.6

E) ErP labelling

The A-weighted total sound power level is determined for the measured frequency range from 100 Hz to 10 kHz. For the calculation of uncertainty, see appendix 1.

The sound power measurements are carried out by Kamalathasan Arumugam (KAMA) and co-read by Patrick Glibert (PGL), Danish Technological Institute.

Appendix 2 Brand name

Authorization Letter

This declaration of conformity is issued under the sole responsibility of

Manufacturer's Name: Guangdong PHNIX ECO-Energy Solution LTD

Manufacturer's Address: No. 3 Tianyuan Road, Dagang Town, Nansha District Guangzhou Guangdong, 511470 China

We declare that the following Heat pump product we produced for COOPER AND HUNTER OVERSEAS LP are identical to our following models

Cooper&Hunter model	CH-HP22UIMPZM
PHNIX model	PASRW060S-BP-PS-D

Cooper&Hunter company name:COOPER AND HUNTER OVERSEAS LP

Cooper&Hunter brand /-mark:Cooper&Hunter

Cooper&Hunter address: SUITE 201, 45B WEST WILMOT STREET, RICHMOND HILL, ON L4B2P3 CANADA

Note: This declaration becomes invalid if technical or operational modifications are introduced without the manufacturer's consent.

Date: 24 May 2024

Authorised party: Guangdong PHNIX ECO-Energy Solution LTD

For and on behalf of
GUANGDONG PHNIX ECO-ENERGY SOLUTION LTD.
广东芬尼克兹节能设备有限公司
Evan Chan
Authorized Signature(s)

TEST REPORT

Report no.:
300-KLAB-24-014-1

DANISH TECHNOLOGICAL INSTITUTE

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Init: RTHI/PRES/AAS
File no.: 265639
Enclosures: 2

Customer:
Company: GUANGDONG PHNIX ECO-ENERGY SOLUTION LTD.
Address: No. 3 Tianyuan Road, Dagang Town, Nansha District,
City: Guangzhou, Guangdong, 511470, China
Tel.: +86 020-39067523

Component:
Brand: Phinx
Type: Air to water heat pump
Model: PASRW060S-BP-PS-D
Series no.: 13130251
Prod. Year: FEB 2023
Outdoor unit: N/A

Dates:
Component tested: March-May 2024

Brand name:
Brand: Cooper&Hunter
Type: Air to water heat pump
Model: CH-HP22UIMPZM

Procedure:
See objective (page 2) for list of standards.

Remarks:
The unit was delivered by the customer. The installation and test settings were done according to the manufacturer's instructions. The report for the tested unit is named 300-KLAB-24-014 issued 2024.06.19 - Also see appendix 2.

Terms:
This test was conducted under accreditation in accordance with international requirements (ISO/IEC 17025:2017) and in accordance with the General Terms and Conditions of Danish Technological Institute. The test results solely apply to the tested item. This test report may be quoted in extract only if Danish Technological Institute has granted its written consent.

The customer may not mention or refer to Danish Technological Institute or Danish Technological Institute's employees for advertising or marketing purposes unless Danish Technological Institute has granted its written consent in each case.

Division/Centre:
Danish Technological Institute
Energy and Climate
Heat Pump Laboratory, Aarhus

Date: 2024.07.09

Signature:
Preben Eskerod
B.TecMan & MarEng

Co-reader:
Rasmus Thisgaard
B.TecMan & MarEng

ilac-MRA DANAK
Test Reg. nr. 300

Objective

The objective of this report is to document the following:

The Seasonal Coefficient of Performance (SCOP) at low and medium temperature application for average climate according to EN 14825:2022.

In order to calculate the SCOP, tests were carried out at the part load conditions stated in the tables on page 4 and 5.

COP test standard rating conditions A7/W35 and A7/W55 according to EN 14511:2022.

Operating requirements according to EN 14511-4:2022
- 4.2.1 Starting and operating tests
- 4.5 Shutting of the heat transfer medium flows
- 4.6 Complete power supply failure

Sound power measurements according to EN 12102-1:2022.

Contents:

Test conditions

SCOP test conditions for low temperature – EN 14825

Part load conditions for reference SCOP and reference SCOPon calculation of air to water units for low temperature application for the reference heating season;
"A" = average, "W" = warmer, and "C" = colder.

	Part load ratio in %				Outdoor heat exchanger		Indoor heat exchanger			
					Dry (wet) bulb temperature °C		Fixed outlet °C	Variable outlet[d] °C		
	Formula	Average	Warmer	Colder	Outdoor air	Exhaust air	All climates	Average	Warmer	Colder
A	$(-7 - 16) / (T_{designh} - 16)$	88,46	n.a.	60,53	−7(−8)	20(12)	[a] / 35	[a] / 34	n.a.	[a] / 30
B	$(+2 - 16) / (T_{designh} - 16)$	53,85	100,00	36,84	2(1)	20(12)	[a] / 35	[a] / 30	[a] / 35	[a] / 27
C	$(+7 - 16) / (T_{designh} - 16)$	34,62	64,29	23,68	7(6)	20(12)	[a] / 35	[a] / 27	[a] / 31	[a] / 25
D	$(+12 - 16) / (T_{designh} - 16)$	15,38	28,57	10,53	12(11)	20(12)	[a] / 35	[a] / 24	[a] / 26	[a] / 24
E	$(TOL^{e} - 16) / (T_{designh} - 16)$				TOL^{e}	20(12)	[a] / 35	[a] / [b]	[a] / [b]	[a] / [b]
F	$(T_{biv} - 16) / (T_{designh} - 16)$				T_{biv}	20(12)	[a] / 35	[a] / [c]	[a] / [c]	[a] / [c]
G	$(-15 - 16) / (T_{designh} - 16)$	n.a.	n.a.	81,58	−15	20(12)	[a] / 35	n.a.	n.a.	[a] / 32

Additional information

Climate	$T_{designh}$ [°C]	$T_{bivalent}$ [°C]	TOL [°C]	Outlet temperature	Flow rate
Average	-10	-7	-10	Variable	Fixed

SCOP test conditions for medium temperature – EN 14825

Part load conditions for reference SCOP and reference SCOPon calculation of air to water units for medium temperature application for the reference heating season;
"A" = average, "W" = warmer, and "C" = colder.

	Part load ratio in %				Outdoor heat exchanger		Indoor heat exchanger			
					Dry (wet) bulb temperature °C		Fixed outlet °C	Variable outlet[d] °C		
	Formula	Average	Warmer	Colder	Outdoor air	Exhaust air	All climates	Average	Warmer	Colder
A	$(-7 - 16) / (T_{designh} - 16)$	88,46	n.a.	60,53	−7(−8)	20(12)	[a] / 55	[a] / 52	n.a.	[a] / 44
B	$(+2 - 16) / (T_{designh} - 16)$	53,85	100	36,84	2(1)	20(12)	[a] / 55	[a] / 42	[a] / 55	[a] / 37
C	$(+7 - 16) / (T_{designh} - 16)$	34,62	64,29	23,68	7(6)	20(12)	[a] / 55	[a] / 36	[a] / 46	[a] / 32
D	$(+12 - 16) / (T_{designh} - 16)$	15,38	28,57	10,53	12(11)	20(12)	[a] / 55	[a] / 30	[a] / 34	[a] / 28
E	$(TOL^{e} - 16) / (T_{designh} - 16)$				TOL^{e}	20(12)	[a] / 55	[a] / [b]	[a] / [b]	[a] / [b]
F	$(T_{biv} - 16) / (T_{designh} - 16)$				T_{biv}	20(12)	[a] / 55	[a] / [c]	[a] / [c]	[a] / [c]
G	$(-15 - 16) / (T_{designh} - 16)$	n.a.	n.a.	81,58	−15	20(12)	[a] / 55	n.a.	n.a.	[a] / 49

Additional information

Climate	$T_{designh}$ [°C]	$T_{bivalent}$ [°C]	TOL [°C]	Outlet temperature	Flow rate
Average	-10	-7	-10	Variable	Fixed

COP test conditions - low temperature – EN 14511

N#	Heat source		Heat sink		Heat pump settings
	Inlet dry bulb temperature (°C)	Inlet wet bulb temperature (°C)	Inlet temperature (°C)	Outlet temperature (°C)	
1S	7	6	30	35	

S: Standard rating condition

COP test conditions - medium temperature – EN 14511

N#	Heat source		Heat sink		Heat pump settings
	Inlet dry bulb temperature (°C)	Inlet wet bulb temperature (°C)	Inlet temperature (°C)	Outlet temperature (°C)	
1S	7	6	47	55	

S: Standard rating condition

Test conditions for operating requirements – EN 14511-4

N#	Heat source		Heat sink	Water flow rate at indoor heat exchanger	Test
	Inlet dry bulb temperature (°C)	Inlet wet bulb temperature (°C)	Inlet temperature (°C)		
1	-25	-	9	1500 L/h	Starting
2	-25	-	60	1500 L/h	Operating

Test conditions for shutting off the heat transfer medium – EN 14511-4

N#	Heat source		Heat sink		Heat exchanger
	Inlet dry bulb temperature (°C)	Inlet wet bulb temperature (°C)	Inlet temperature (°C)	Outlet temperature (°C)	
1	7	6	35	55	Indoor
2	7	6	35	55	Outdoor

Test conditions for complete power supply failure – EN 14511-4

N#	Heat source		Heat sink	
	Inlet dry bulb temperature (°C)	Inlet wet bulb temperature (°C)	Inlet temperature (°C)	Outlet temperature (°C)
1	7	6	30	35

Test conditions for sound power measurements – EN 12102-1

N#	Test condition		Heat pump setting			
	Outdoor heat exchanger (dry bulb/ wet bulb) (°C)	Indoor heat exchanger (inlet/ outlet) (°C)	Compressor speed (Hz)	Fan speed outdoor (rpm)	Heating capacity (kW)	Power input (kW)
1[E]	7/6	47/55	30	485	6.31	2.41

E) ErP labelling

Test results of SCOP test at low temperature - heating season average – EN 14825

Model (Outdoor)	PASRW060S-BP-PS-D
Air-to-water heat pump mono bloc	Y
Low-temperature heat pump	N
Equipped with supplementary heater	N
Heat pump combination heater	N

Rated heat output[1)]	P_{rated}	**12.55** [kW]
Seasonal space heating energy efficiency	η_s	**197.5** [%]
	SCOP	**5.01** [-]

Measured capacity for heating for part load at outdoor temperature Tj	Average Climate - Low temperature application	Tj=-15 °C	Pdh	- [kW]
		Tj=-7 °C	Pdh	11.31 [kW]
		Tj=2 °C	Pdh	7.27 [kW]
		Tj=7 °C	Pdh	5.27 [kW]
		Tj=12 °C	Pdh	6.19 [kW]
		Tj=bivalent temperature	Pdh	11.31 [kW]
		Tj=operation limit	Pdh	12.73 [kW]

Measured coefficient of performance at outdoor temperature Tj	Average Climate - Low temperature application	Tj=-15 °C	COPd	- [-]
		Tj=-7 °C	COPd	3.10 [-]
		Tj=2 °C	COPd	4.87 [-]
		Tj=7 °C	COPd	6.60 [-]
		Tj=12 °C	COPd	9.26 [-]
		Tj=bivalent temperature	COPd	3.10 [-]
		Tj=operation limit	COPd	2.38 [-]

Bivalent temperature	Tbivalent	-7 [°C]
Operation limit	TOL	-10 [°C]
temperatures	WTOL	- [°C]
Degradation coefficient	Cdh	0.96 [-]

Power consumption in modes other than active mode	Off mode	P_{OFF}	0.012 [kW]
	Thermostat-off mode	P_{TO}	0.028 [kW]
	Standby mode	P_{SB}	0.012 [kW]
	Crankcase heater mode	P_{CK}	0.012 [kW]
Supplementary heater[1)]	Rated heat output	P_{SUP}	0.00 [kW]
	Type of energy input		Electrical

Other items	Capacity control		Variable
	Water flow control		Fixed
	Water flow rate		2688 [l/h]
	Annual energy consumption	Q_{HE}	5172 [kWh]

[1)] For heat pump space heaters and heat pump combination heaters, the rated heat output, Prated, is equal to the design load for heating, Pdesignh, and the rated heat output of a supplementary heater, Psup, is equal to the supplementary capacity for heating, sup(Tj).

Test results of SCOP test at medium temperature - heating season average – EN 14825

Model (Outdoor)	PASRW060S-BP-PS-D
Air-to-water heat pump mono bloc	Y
Low-temperature heat pump	N
Equipped with supplementary heater	N
Heat pump combination heater	N

Rated heat output[1)]	P_{rated}	**12.34** [kW]
Seasonal space heating energy efficiency	η_s	**142.6** [%]
	SCOP	**3.64** [-]

Measured capacity for heating for part load at outdoor temperature Tj	Average Climate - Medium temperature application	Tj=-15 °C	Pdh	- [kW]
		Tj=-7 °C	Pdh	11.47 [kW]
		Tj=2 °C	Pdh	6.57 [kW]
		Tj=7 °C	Pdh	6.16 [kW]
		Tj=12 °C	Pdh	7.33 [kW]
		Tj=bivalent temperature	Pdh	11.47 [kW]
		Tj=operation limit	Pdh	12.39 [kW]

Measured coefficient of performance at outdoor temperature Tj	Average Climate - Medium temperature application	Tj=-15 °C	COPd	- [-]
		Tj=-7 °C	COPd	2.32 [-]
		Tj=2 °C	COPd	3.46 [-]
		Tj=7 °C	COPd	4.82 [-]
		Tj=12 °C	COPd	6.73 [-]
		Tj=bivalent temperature	COPd	2.32 [-]
		Tj=operation limit	COPd	2.04 [-]

Bivalent temperature	Tbivalent	-7 [°C]
Operation limit temperatures	TOL	-10 [°C]
	WTOL	- [°C]
Degradation coefficient	Cdh	0.97 [-]

Power consumption in modes other than active mode	Off mode	P_{OFF}	0.012 [kW]
	Thermostat-off mode	P_{TO}	0.028 [kW]
	Standby mode	P_{SB}	0.012 [kW]
	Crankcase heater mode	P_{CK}	0.012 [kW]
Supplementary heater[1)]	Rated heat output	P_{SUP}	0.00 [kW]
	Type of energy input		Electrical

Other items	Capacity control		Variable
	Water flow control		Fixed
	Water flow rate		1700 [l/h]
	Annual energy consumption	Q_{HE}	7006 [kWh]

[1)] For heat pump space heaters and heat pump combination heaters, the rated heat output, Prated, is equal to the design load for heating, Pdesignh, and the rated heat output of a supplementary heater, Psup, is equal to the supplementary capacity for heating, sup(Tj).

COP test results - low temperature – EN 14511

N#	Test conditions	Heating capacity [kW]	COP
1	A7/W35	15.424	4.448

COP test results - medium temperature – EN 14511

N#	Test conditions	Heating capacity [kW]	COP
1	A7/W55	15.086	2.866

Test results for starting and operating test - EN 14511-4

N#	Test conditions air/water inlet [°C]	Test validation
Starting	A-25/W9	Passed
Operating	A-25/W60	Passed

Test results for shutting off the heat transfer medium – EN 14511-4

N#	Heat exchanger	Test validation
1	Indoor	Passed
2	Outdoor	Passed

Test results for complete power supply failure – EN 14511-4

N#	Test validation
1	Passed

Test results of sound power measurements – EN 12102-1

N#	Test conditions	Sound power level LW(A) [dB re 1pW]	Uncertainty σ_{tot} [dB]
1[E]	A7/W55	57.6	1.6

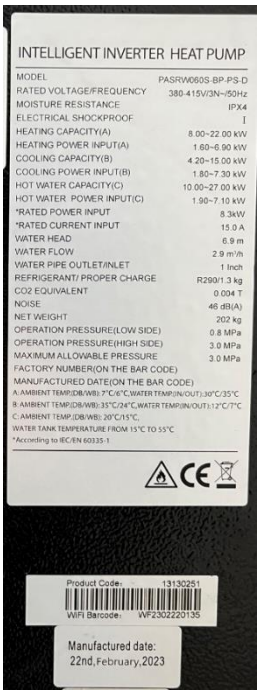
E) ErP labelling

The A-weighted total sound power level is determined for the measured frequency range from 100 Hz to 10 kHz. For the calculation of uncertainty, see appendix 1.

The sound power measurements are carried out by Kamalathasan Arumugam (KAMA) and co-read by Patrick Glibert (PGL), Danish Technological Institute.

Photos

Rating plate



Outdoor unit

SCOP - detailed calculation

Detailed SCOP calculation of low temperature and average climate conditions – EN 14825

Calculation of reference SCOP

$$SCOP = \frac{P_{designh} \times H_{he}}{\frac{P_{designh} \times H_{he}}{SCOP_{on}} + H_{TO} \times P_{TO} + H_{SB} \times P_{SB} + H_{CK} \times P_{CK} + H_{OFF} \times P_{OFF}}$$

Where

P_{design} = Heating load of the building at design temperature, kW

H_{he} = Number of equivalent heating hours, 2066 h

H_{TO}, H_{SB}, H_{CK}, H_{OFF} = Number of hours for which the unit is considered to work in thermostat off mode, standby mode, crankcase heater mode and off mode, h, respectively

P_{TO}, P_{SB}, P_{CK}, P_{OFF} = Electricity consumption during thermostat off mode, standby mode, crankcase heater mode and off mode, kW, respectively

Data for SCOP

	Outdoor temperature [°C]	Part load ratio [%]	Part load [kW]	Declared capacity [kW]	Declared COP [-]	cdh [-]	CR [-]	COPbin [-]
A	-7	88	11.10	11.31	3.10	0.99	1.00	3.10
B	2	54	6.76	7.27	4.87	0.98	1.00	4.87
C	7	35	4.34	5.27	6.60	0.97	0.82	6.55
D	12	15	1.93	6.19	9.26	0.96	0.31	8.48
E	-10	100	12.55	12.73	2.38	0.99	1.00	2.38
F - BIV	-7	88	11.10	11.31	3.10	0.99	1.00	3.10

Energy consumption for thermostat off, standby, off mode, crankcase heater mode

	Hours [h]	Power input [kW]	Applied to SCOP calculation [kW]	Energy consumption [kWh]
Off mode	0	0.01216	0.01216	0
Thermostat off	178	0.02772	0.02772	4.93416
Standby	0	0.01216	0.01216	0
Crankcase heater	178	0.01209	0	0

Calculation Bin for SCOPon

	Bin [-]	Outdoor temperature [°C]	Hours [h]	Heat load [kW]	Heat load covered by heat pump [kW]	Electrical back up heater [kW]	Annual backup heater energy input [kWh]	COPbin [-]	Annual heating demand [kWh]	Annual energy input [kWh]	Net annual heating capacity [kWh]	Net annual power input [kWh]
E	21	-10	1	12.55	12.55	0.00	0.00	2.38	12.55	5.26	12.55	5.26
	22	-9	25	12.07	12.07	0.00	0.00	2.62	301.68	115.06	301.68	115.06
	23	-8	23	11.58	11.58	0.00	0.00	2.86	266.45	93.16	266.45	93.16
A / F - BIV	24	-7	24	11.10	11.10	0.00	0.00	3.10	266.45	86.01	266.45	86.01
	25	-6	27	10.62	10.62	0.00	0.00	3.29	286.72	87.03	286.72	87.03
	26	-5	68	10.14	10.14	0.00	0.00	3.49	689.28	197.46	689.28	197.46
	27	-4	91	9.65	9.65	0.00	0.00	3.69	878.50	238.26	878.50	238.26
	28	-3	89	9.17	9.17	0.00	0.00	3.88	816.23	210.17	816.23	210.17
	29	-2	165	8.69	8.69	0.00	0.00	4.08	1433.60	351.37	1433.60	351.37
	30	-1	173	8.21	8.21	0.00	0.00	4.28	1419.60	331.96	1419.60	331.96
	31	0	240	7.72	7.72	0.00	0.00	4.47	1853.54	414.40	1853.54	414.40
	32	1	280	7.24	7.24	0.00	0.00	4.67	2027.31	434.18	2027.31	434.18
B	33	2	320	6.76	6.76	0.00	0.00	4.87	2162.46	444.43	2162.46	444.43
	34	3	357	6.28	6.28	0.00	0.00	5.20	2240.18	430.58	2240.18	430.58
	35	4	356	5.79	5.79	0.00	0.00	5.54	2062.06	372.23	2062.06	372.23
	36	5	303	5.31	5.31	0.00	0.00	5.88	1608.81	273.76	1608.81	273.76
	37	6	330	4.83	4.83	0.00	0.00	6.21	1592.88	256.35	1592.88	256.35
C	38	7	326	4.34	4.34	0.00	0.00	6.55	1416.22	216.19	1416.22	216.19
	39	8	348	3.86	3.86	0.00	0.00	6.94	1343.82	193.73	1343.82	193.73
	40	9	335	3.38	3.38	0.00	0.00	7.32	1131.91	154.58	1131.91	154.58
	41	10	315	2.90	2.90	0.00	0.00	7.71	912.29	118.35	912.29	118.35
	42	11	215	2.41	2.41	0.00	0.00	8.09	518.89	64.11	518.89	64.11
D	43	12	169	1.93	1.93	0.00	0.00	8.48	326.30	38.48	326.30	38.48
	44	13	151	1.45	1.45	0.00	0.00	8.87	218.66	24.66	218.66	24.66
	45	14	105	0.97	0.97	0.00	0.00	9.25	101.37	10.96	101.37	10.96
	46	15	74	0.48	0.48	0.00	0.00	9.64	35.72	3.71	35.72	3.71

SUM	25923.47	5166.44	25923.47	5166.44
SCOPon		5.02	**SCOPnet**	5.02

Detailed SCOP calculation of medium temperature and average climate conditions – EN 14825

Calculation of reference SCOP

$$SCOP = \frac{P_{designh} \times H_{he}}{\frac{P_{designh} \times H_{he}}{SCOP_{on}} + H_{TO} \times P_{TO} + H_{SB} \times P_{SB} + H_{CK} \times P_{CK} + H_{OFF} \times P_{OFF}}$$

Where

P_{design} = Heating load of the building at design temperature, kW

H_{he} = Number of equivalent heating hours, 2066 h

H_{TO}, H_{SB}, H_{CK}, H_{OFF} = Number of hours for which the unit is considered to work in thermostat off mode, standby mode, crankcase heater mode and off mode, h, respectively

P_{TO}, P_{SB}, P_{CK}, P_{OFF} = Electricity consumption during thermostat off mode, standby mode, crankcase heater mode and off mode, kW, respectively

Data for SCOP

	Outdoor temperature [°C]	Part load ratio [%]	Part load [kW]	Declared capacity [kW]	Declared COP [-]	cdh [-]	CR [-]	COPbin [-]
A	-7	88	10.92	11.47	2.32	0.99	1.00	2.32
B	2	54	6.64	6.57	3.46	0.99	1.00	3.46
C	7	35	4.27	6.16	4.82	0.98	0.69	4.78
D	12	15	1.90	7.33	6.73	0.97	0.26	6.27
E	-10	100	12.34	12.39	2.04	1.00	1.00	2.04
F - BIV	-7	88	10.92	11.47	2.32	0.99	1.00	2.32

Energy consumption for thermostat off, standby, off mode, crankcase heater mode

	Hours [h]	Power input [kW]	Applied to SCOP calculation [kW]	Energy consumption [kWh]
Off mode	0	0.01216	0.01216	0
Thermostat off	178	0.02772	0.02772	4.93416
Standby	0	0.01216	0.01216	0
Crankcase heater	178	0.01209	0	0

Calculation Bin for SCOPon

	Bin [-]	Outdoor temperature [°C]	Hours [h]	Heat load [kW]	Heat load covered by heat pump [kW]	Electrical back up heater [kW]	Annual backup heater energy input [kWh]	COPbin [-]	Annual heating demand [kWh]	Annual energy input [kWh]	Net annual heating capacity [kWh]	Net annual power input [kWh]
E	21	-10	1	12.34	12.34	0.00	0.00	2.04	12.34	6.05	12.34	6.05
	22	-9	25	11.87	11.87	0.00	0.00	2.13	296.63	139.08	296.63	139.08
	23	-8	23	11.39	11.39	0.00	0.00	2.23	261.99	117.69	261.99	117.69
A / F - BIV	24	-7	24	10.92	10.92	0.00	0.00	2.32	261.99	112.96	261.99	112.96
	25	-6	27	10.44	10.43	0.00	0.00	2.45	281.92	115.28	281.92	115.28
	26	-5	68	9.97	9.95	0.00	0.00	2.57	677.75	263.53	677.75	263.53
	27	-4	91	9.49	9.47	0.00	0.00	2.70	863.80	320.15	863.80	320.15
	28	-3	89	9.02	8.99	0.00	0.00	2.82	802.57	284.16	802.57	284.16
	29	-2	165	8.54	8.50	0.00	0.00	2.95	1409.61	477.73	1409.61	477.73
	30	-1	173	8.07	8.02	0.00	0.00	3.08	1395.84	453.65	1395.84	453.65
	31	0	240	7.59	7.54	0.00	0.00	3.20	1822.52	568.97	1822.52	568.97
	32	1	280	7.12	7.05	0.00	0.00	3.33	1993.38	598.71	1993.38	598.71
B	33	2	320	6.64	6.57	0.00	0.00	3.46	2126.28	615.29	2126.28	615.29
	34	3	357	6.17	6.11	0.00	0.00	3.72	2202.69	592.17	2202.69	592.17
	35	4	356	5.70	5.65	0.00	0.00	3.98	2027.56	508.98	2027.56	508.98
	36	5	303	5.22	5.19	0.00	0.00	4.25	1581.89	372.43	1581.89	372.43
	37	6	330	4.75	4.73	0.00	0.00	4.51	1566.23	347.17	1566.23	347.17
C	38	7	326	4.27	4.27	0.00	0.00	4.78	1392.52	291.60	1392.52	291.60
	39	8	348	3.80	3.80	0.00	0.00	5.07	1321.33	260.37	1321.33	260.37
	40	9	335	3.32	3.32	0.00	0.00	5.37	1112.97	207.09	1112.97	207.09
	41	10	315	2.85	2.85	0.00	0.00	5.67	897.02	158.10	897.02	158.10
	42	11	215	2.37	2.37	0.00	0.00	5.97	510.21	85.42	510.21	85.42
D	43	12	169	1.90	1.90	0.00	0.00	6.27	320.84	51.15	320.84	51.15
	44	13	151	1.42	1.42	0.00	0.00	6.57	215.00	32.72	215.00	32.72
	45	14	105	0.95	0.95	0.00	0.00	6.87	99.67	14.51	99.67	14.51
	46	15	74	0.47	0.47	0.00	0.00	7.17	35.12	4.90	35.12	4.90

SUM	25489.69	6999.84	25489.69	6999.84
SCOPon		3.64	**SCOPnet**	3.64

Detailed test results

Detailed SCOP part load test results - low temperature application
- average climate – EN 14825

Detailed result for 'EN14825:2022' Average Low (A and F) A -7 /W34		
Tested according to:		EN14511:2022 and EN14825:2022
Climate zone:		Average
Temperature application:		Low
Condition name:		A and F
Condition temperature:	°C	-7
Part load:	%	88%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.55
Heating demand:	kW	11.10
CR:	-	1.0
Minimum flow reached:	-	Yes
Measurement type:		Steady State
Integrated liquid pump:		Yes
Integrated liquid pump able to generate a positve ext. static pressure difference:		Yes
Included corrections (Final result)		
Heating capacity	kW	**11.307**
COP	-	**3.098**
Power consumption	kW	**3.650**
Measured		
Heating capacity	kW	11.407
COP	-	2.992
Power consumption	kW	3.812
During heating		
Air_inlet temperature dry bulb	°C	-6.97
Air temperature wet bulb	°C	-8.18
Water_inlet temperature	°C	30.49
water_outlet temperature	°C	34.17
Water_outlet temperature (Time averaged)	°C	**34.17**
Circulation pump		
Measured external static pressure difference, liquid pump	Pa	84131
Calculated Hydraulic power	W	63
Calculated global efficiency	η	0.39
Calculated Capacity correction	W	99
Calculated Power correction	W	162
Water Flow	m^3/s	0.000747

Detailed result for 'EN14825:2022' Average Low (B) A 2 /W30		
Tested according to:	EN14511:2022 and	EN14825:2022
Climate zone:		Average
Temperature application:		Low
Condition name:		B
Condition temperature:	°C	2
Part load:	%	54%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.55
Heating demand:	kW	6.76
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**7.273**
COP	-	**4.866**
Power consumption	kW	**1.495**
Measured		
Heating capacity	kW	7.371
COP	-	4.456
Power consumption	kW	1.654
During heating		
Air temperature dry bulb	°C	2.12
Air temperature wet bulb	°C	0.93
Inlet temperature	°C	27.79
Outlet temperature	°C	30.16
Outlet temperature (Time averaged)	°C	**30.16**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	82473
Calculated Hydraulic power	W	62
Calculated global efficiency	η	0.39
Calculated Capacity correction	W	98
Calculated Power correction	W	160
Water Flow	m^3/s	0.000747

Detailed result for 'EN14825:2022' Average Low (C) A 7 /W27		
Tested according to:	EN14511:2022 and	EN14825:2022
Climate zone:		Average
Temperature application:		Low
Condition name:		C
Condition temperature:	°C	7
Part load:	%	35%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.55
Heating demand:	kW	4.34
CR:	-	0.8
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**5.269**
COP	-	**6.599**
Power consumption	kW	**0.798**
Measured		
Heating capacity	kW	5.367
COP	-	5.603
Power consumption	kW	0.958
During heating		
Air temperature dry bulb	°C	6.99
Air temperature wet bulb	°C	6.01
Inlet temperature	°C	25.60
Outlet temperature	°C	27.33
Outlet temperature (Time averaged)	°C	**27.03**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	82451
Calculated Hydraulic power	W	62
Calculated global efficiency	η	0.39
Calculated Capacity correction	W	98
Calculated Power correction	W	160
Water Flow	m^3/s	0.000747

Detailed result for 'EN14825:2022' Average Low (D) A 12 /W24		
Tested according to:	EN14511:2022 and	EN14825:2022
Climate zone:		Average
Temperature application:		Low
Condition name:		D
Condition temperature:	°C	12
Part load:	%	15%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.55
Heating demand:	kW	1.93
CR:	-	0.3
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**6.194**
COP	-	**9.255**
Power consumption	kW	**0.669**
Measured		
Heating capacity	kW	6.291
COP	-	7.599
Power consumption	kW	0.828
During heating		
Air temperature dry bulb	°C	12.00
Air temperature wet bulb	°C	11.01
Inlet temperature	°C	23.37
Outlet temperature	°C	25.39
Outlet temperature (Time averaged)	°C	**24.00**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	81950
Calculated Hydraulic power	W	61
Calculated global efficiency	η	0.39
Calculated Capacity correction	W	98
Calculated Power correction	W	159
Water Flow	m^3/s	0.000747

Detailed result for 'EN14825:2022' Average Low (E) A -10 /W35		
Tested according to:		EN14511:2022 and EN14825:2022
Climate zone:		Average
Temperature application:		Low
Condition name:		E
Condition temperature:	°C	-10
Part load:	%	100%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.55
Heating demand:	kW	12.55
CR:	-	1.0
Minimum flow reached:	-	Yes
Measurement type:		Transient
Integrated liquid pump:		Yes
Integrated liquid pump able to generate a positve ext. static pressure difference:		Yes
Included corrections (Final result)		
Heating capacity	kW	**12.728**
COP	-	**2.384**
Power consumption	kW	**5.339**
Measured		
Heating capacity	kW	12.828
COP	-	2.331
Power consumption	kW	5.503
During heating		
Air_inlet temperature dry bulb	°C	-10.09
Air temperature wet bulb	°C	-11.03
Water_inlet temperature	°C	30.57
water_outlet temperature	°C	35.12
Water_outlet temperature (Time averaged)	°C	**35.12**
Circulation pump		
Measured external static pressure difference, liquid pump	Pa	84578
Calculated Hydraulic power	W	63
Calculated global efficiency	η	0.39
Calculated Capacity correction	W	100
Calculated Power correction	W	163
Water Flow	m^3/s	0.000747

Detailed SCOP part load test results - medium temperature application - average climate – EN 14825

Detailed result for 'EN14825:2022' Average Medium (A and F) A -7 /W52		
Tested according to:	EN14511:2022 and	EN14825:2022
Climate zone:		Average
Temperature application:		Medium
Condition name:		A and F
Condition temperature:	°C	-7
Part load:	%	88%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.34
Heating demand:	kW	10.92
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**11.466**
COP	-	**2.319**
Power consumption	kW	**4.944**
Measured		
Heating capacity	kW	11.555
COP	-	2.272
Power consumption	kW	5.086
During heating		
Air temperature dry bulb	°C	-6.91
Air temperature wet bulb	°C	-8.15
Inlet temperature	°C	46.11
Outlet temperature	°C	52.04
Outlet temperature (Time averaged)	°C	**52.04**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	114296
Calculated Hydraulic power	W	54
Calculated global efficiency	η	0.38
Calculated Capacity correction	W	89
Calculated Power correction	W	143
Water Flow	m^3/s	0.000472

Detailed result for 'EN14825:2022' Average Medium (B) A 2 /W42		
Tested according to:	EN14511:2022 and	EN14825:2022
Climate zone:		Average
Temperature application:		Medium
Condition name:		B
Condition temperature:	°C	2
Part load:	%	54%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.34
Heating demand:	kW	6.64
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**6.572**
COP	-	**3.456**
Power consumption	kW	**1.902**
Measured		
Heating capacity	kW	6.660
COP	-	3.258
Power consumption	kW	2.044
During heating		
Air temperature dry bulb	°C	2.13
Air temperature wet bulb	°C	0.94
Inlet temperature	°C	38.60
Outlet temperature	°C	42.01
Outlet temperature (Time averaged)	°C	**42.01**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	114476
Calculated Hydraulic power	W	54
Calculated global efficiency	η	0.38
Calculated Capacity correction	W	89
Calculated Power correction	W	143
Water Flow	m^3/s	0.000472

Detailed result for 'EN14825:2022' Average Medium (C) A 7 /W36		
Tested according to:		EN14511:2022 and EN14825:2022
Climate zone:		Average
Temperature application:		Medium
Condition name:		C
Condition temperature:	°C	7
Part load:	%	35%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.34
Heating demand:	kW	4.27
CR:	-	0.7
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**6.158**
COP	-	**4.821**
Power consumption	kW	**1.277**
Measured		
Heating capacity	kW	6.246
COP	-	4.399
Power consumption	kW	1.420
During heating		
Air temperature dry bulb	°C	7.00
Air temperature wet bulb	°C	6.00
Inlet temperature	°C	33.79
Outlet temperature	°C	36.98
Outlet temperature (Time averaged)	°C	**36.00**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	114472
Calculated Hydraulic power	W	54
Calculated global efficiency	η	0.38
Calculated Capacity correction	W	89
Calculated Power correction	W	143
Water Flow	m^3/s	0.000472

Detailed result for 'EN14825:2022' Average Medium (D) A 12 /W30		
Tested according to:	EN14511:2022 and	EN14825:2022
Climate zone:		Average
Temperature application:		Medium
Condition name:		D
Condition temperature:	°C	12
Part load:	%	15%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.34
Heating demand:	kW	1.90
CR:	-	0.3
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**7.334**
COP	-	**6.729**
Power consumption	kW	**1.090**
Measured		
Heating capacity	kW	7.422
COP	-	6.021
Power consumption	kW	1.233
During heating		
Air temperature dry bulb	°C	12.01
Air temperature wet bulb	°C	10.99
Inlet temperature	°C	28.96
Outlet temperature	°C	32.74
Outlet temperature (Time averaged)	°C	**29.94**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	114519
Calculated Hydraulic power	W	54
Calculated global efficiency	η	0.38
Calculated Capacity correction	W	89
Calculated Power correction	W	143
Water Flow	m^3/s	0.000472

Detailed result for 'EN14825:2022' Average Medium (E) A -10 /W55		
Tested according to:	EN14511:2022 and	EN14825:2022
Climate zone:		Average
Temperature application:		Medium
Condition name:		E
Condition temperature:	°C	-10
Part load:	%	100%
Chosen Tbivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	12.34
Heating demand:	kW	12.34
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**12.391**
COP	-	**2.040**
Power consumption	kW	**6.075**
Measured		
Heating capacity	kW	12.479
COP	-	2.007
Power consumption	kW	6.218
During heating		
Air temperature dry bulb	°C	-10.00
Air temperature wet bulb	°C	-11.02
Inlet temperature	°C	48.62
Outlet temperature	°C	55.03
Outlet temperature (Time averaged)	°C	**55.03**
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	114239
Calculated Hydraulic power	W	54
Calculated global efficiency	η	0.38
Calculated Capacity correction	W	89
Calculated Power correction	W	143
Water Flow	m^3/s	0.000472

Detailed COP test results - low temperature – EN 14511

Detailed result for 'EN14511:2022' A7/W35		
Tested according to:		EN14511:2022
Minimum flow reached:		No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**15.424**
COP	-	**4.448**
Power consumption	kW	**3.468**
Measured		
Heating capacity	kW	15.523
COP	-	4.277
Power consumption	kW	3.630
During heating		
Air temperature dry bulb	°C	6.91
Air temperature wet bulb	°C	6.03
Inlet temperature	°C	30.01
Outlet temperature	°C	35.01
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	83915
Calculated Hydraulic power	W	63
Calculated global efficiency	η	0.39
Calculated Capacity correction	W	99
Calculated Power correction	W	162
Water Flow	m^3/s	0.000747

Detailed COP test results - medium temperature – EN 14511

Detailed result for 'EN14511:2022' A7/W55		
Tested according to:		EN14511:2022
Minimum flow reached:		No
Measurement type:		Steady State
Integrated circulation pump:		Yes
Included corrections (Final result)		
Heating capacity	kW	**15.086**
COP	-	**2.866**
Power consumption	kW	**5.264**
Measured		
Heating capacity	kW	15.175
COP	-	2.807
Power consumption	kW	5.406
During heating		
Air temperature dry bulb	°C	7.00
Air temperature wet bulb	°C	6.03
Inlet temperature	°C	46.99
Outlet temperature	°C	54.79
Circulation pump		
Measured: Static differential pressure, liquid pump	Pa	114336
Calculated Hydraulic power	W	54
Calculated global efficiency	η	0.38
Calculated Capacity correction	W	89
Calculated Power correction	W	143
Water Flow	m^3/s	0.000472

Detailed test results of sound power measurement – Test N#1

Sound power levels according to ISO 3743-1:2010

TEKNOLOGISK INSTITUT

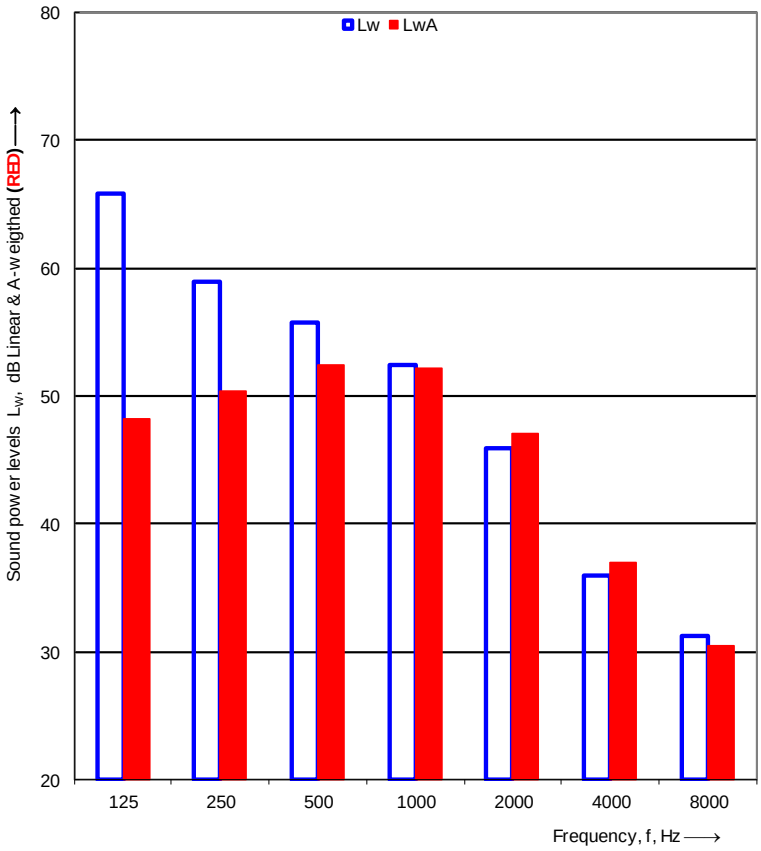
Engineering method for small, movable sources in reverberant fields - Comparison method for hard-walled test rooms

Client:	GUANGDONG PHNIX ECO-ENERGY SOLUTION LTD.	Date of test:	26-04-2024
Object:	Type: Mono air to water heat pump, Model: PASRW060S-BP-PS-D		
Mounting conditions:	The outdoor unit is mounted on the supporting metal support frame using four pieces of spring mounts vibration isolators and placed on four pieces of concrete tiles (20x20x2.5 cm). All of these are placed in a water drop dray on two pieces of heavy concrete tiles (90x90x10cm) laying on a vibration damping mat on the floor. The noise radiated by the outdoor unit has been measured in Test room 2.		
Operating conditions:	A7/W55, Compressor speed: 30[Hz], Fan speed: 485[rpm], Heating capacity: 6.31 [kW], Power_input: 2 41 [kW], Water flow rate: 1700 [l/h] and dP_water: 1139 [mbar]		

Static pressure:	1014	hPa		Reference box:	
Air temperature:	7.0	°C		L1:	1.2 m
Relative air humidity:	84.0	%		L2:	0.5 m
Test room volume:	102.8	m³	Room: Room 2	L3:	1.3 m
Area, S, of test room:	138.9	m²		Volume:	0.8 m³

Frequency f [Hz]	L_w 1/3 octave [dB]	1/1 oct [dB]
100	64.4	
125	59.1	65.9
160	54.5	
200	54.6	
250	54.2	58.9
315	53.4	
400	51.7	
500	51.1	55.8
630	50.0	
800	49.0	
1000	47.2	52.3
1250	46.0	
1600	44.2	
2000	39.4	45.9
2500	36.3	
3150	33.1	
4000	31.0	35.9
5000	27.6	
6300	28.2	
8000	25.8	31.2 [2]
10000	24.4	

[2] Correction



Sound power level $L_w(A)$: **57.6 dB [re 1pW]** **Uncertainty σ_{tot}: 1.6 dB**

Name of test institute: DTI Date: 26-04-2024

No. of test report: 300-KLAB-24-014

Measurements are in full conformity with ISO 3743-1

Appendix 1 Acoustic test chamber
Unit specification

Type of unit: Mono air to water heat pump
Manufacturer: Phnix
Size of the heat pump: 0.5 x 1.2 x 1.3m (W x L x H)
Year of production: February 2023

Operating conditions and environment

The operating conditions of the unit under test fulfill the requirements for Class A.

The acoustic test chamber is a hard wall reverberant room (103 m^3) and equipped with relevant sound diffusing reflector panels. The acoustical test chamber fulfils the requirements of ISO3743-1 accuracy grade 2 (engineering grade).

The measurements of the average sound pressure levels in 1/3 octave frequency bands are carried out using three microphones in the test chamber. During the measurements, the microphones are traversed up and down for one meter in the arc of a quarter circle.

The picture below shows the installation of the unit during test, position of microphones, sound diffusing reflector panels, and the reference sound source.

Measurement instruments

Id nr.	Manufacturer	Description	Calibration company
100864	GRAS	Gras 40AE_26CA, ½" free field microphone, Room 1	Norsonic A/S, Norway
100865	GRAS	Gras 40AE_26CA, ½" free field microphone, Room 1	Norsonic A/S, Norway
100866	GRAS	Gras 40AE_26CA, ½" free field microphone, Room 1	Norsonic A/S, Norway
100867*	GRAS	Gras 40AE_26CA, ½" free field microphone, Room 2	Norsonic A/S, Norway
100868*	GRAS	Gras 40AE_26CA, ½" free field microphone, Room 2	Norsonic A/S, Norway
100869*	GRAS	Gras 40AE_26CA, ½" free field microphone, Room 2	Norsonic A/S, Norway
100870	GRAS	Gras 40AE_26CA, ½" free field microphone, Roof monitor	Norsonic A/S, Norway
100873*	Brüel & Kjær	Acoustical calibrator, Brüel & Kjær 4231	Element Metech, Denmark
100859	Norsonic	Reference sound source, Norsonic Nor278 Room 1	RISE, Sweden
100872*	Norsonic	Reference sound source, Norsonic Nor278 Room 2	RISE, Sweden
100620*	Norsonic	Multi-channel measurement system Nor850	Norsonic A/S, Norway

*Instruments are used for the actual measurements for the calculation of the test results.

The other instruments are used for control measurements.
All microphones are equipped with windshields.

Test Procedure

The measurements of the emitted sound power level from the heat pump are carried out according to the following standard:

- DS/EN 14511:2022
- EN 12102-1:2022
- ISO/EN 3743-1:2010

The basic acoustic measurement standard DS/EN 3743-1 is a comparison method using a calibrated reference sound source. Two series of sound pressure measurements are made under exactly the same acoustic conditions, e.g., the same microphone positions, temperature and air humidity. The calibrated sound power levels are known for the reference sound source at each frequency band, and they are used in the estimation of the acoustical correction factor for the calculation of the sound power emitted from the unit under test. The background noise levels are measured and used for relevant corrections.

The final total A-weighted sound power level is based on measurements and calculations in 1/3-octave levels, which then are summed into 1/1-octave levels. The A-weighted total sound power level is determined for the measured frequency range from 100 Hz to 10 kHz.

The actual microphone positions and correction values are saved in data files linked to the complete project documentation according to the DANAK-accreditation.

The complete measurement system is documented and regularly calibrated according to DANAK.

The detailed description of the measurement method is given in Danish in the quality database system "QA Web" at Danish Technological Institute, which is accessible by DANAK.

Measurement uncertainty

The uncertainty of sound power level in decibel is determined in accordance with ISO 3743-1, equation 22 $\sigma_{tot} = \sqrt{\sigma_{RO}{}^2 + \sigma_{omc}{}^2}$ where:

- σ_{RO} is the standard deviation of the reproducibility of the method
- σ_{omc} is the standard deviation describing the uncertainty associated with the instability of the operating and mounting conditions for the particular noise source during test.

σ_{RO} expresses the uncertainty in test results delivered by the different accredited test laboratories due to different instrumentation and implementation of measurement procedure as well different radiation characteristics of the noise source during test.

σ_{omc} expresses the uncertainty associated with the instability of the operating and mounting conditions for the particular noise source during test. The mounting and installation conditions in two DTI acoustical test chambers are well defined in the test procedure. The possible instability of the operating conditions is monitored and assessed prior to each noise test.

The test uncertainty σ_{omc} is calculated according to ISO3743-1 Annex C formula C.1 and is typically below 1.0dB. However, the uncertainty is rounded up to the nearest 0.5 or 1.0dB increment in the report. As pr. Table C.1 (accuracy grade 2), the uncertainty σ_{RO} is set to 1.5.

The expanded uncertainty U is calculated according to ISO 3743-1 equation 23:
$U = k\,\sigma_{tot}$ where k = 2 for 95% confidence.

EXAMPLE: σ_{tot}: $\sqrt{1.5^2 + 0.5^2} = 1.6\,dB$ and $U(95\%) = 3.2\,dB$

Note: The expanded uncertainty does not include the standard deviation of production which is used in ISO4871 for the purpose of making noise declaration for batches of machines.

Appendix 2 Brand name

Authorization Letter

This declaration of conformity is issued under the sole responsibility of

Manufacturer's Name: Guangdong PHNIX ECO-Energy Solution LTD

Manufacturer's Address: No. 3 Tianyuan Road, Dagang Town, Nansha District Guangzhou Guangdong, 511470 China

We declare that the following Heat pump product we produced for COOPER AND HUNTER OVERSEAS LP are identical to our following models

Cooper&Hunter model	CH-HP22UIMPZM
PHNIX model	PASRW060S-BP-PS-D

Cooper&Hunter company name:COOPER AND HUNTER OVERSEAS LP

Cooper&Hunter brand /-mark:Cooper&Hunter

Cooper&Hunter address: SUITE 201, 45B WEST WILMOT STREET, RICHMOND HILL, ON L4B2P3 CANADA

Note: This declaration becomes invalid if technical or operational modifications are introduced without the manufacturer's consent.

Date: 24 May 2024

Authorised party: Guangdong PHNIX ECO-Energy Solution LTD