

# OŚWIADCZENIE

Producent BAXI oświadcza, iż pompy ciepła

- 1) AURIGA 4 M-A  
Oznaczenie/typ/identyfikator modelu
- 2) AURIGA 6 M-A  
Oznaczenie/typ/identyfikator modelu
- 3) \_\_\_\_\_  
Oznaczenie/typ/identyfikator modelu
- 4) \_\_\_\_\_  
Oznaczenie/typ/identyfikator modelu
- 5) \_\_\_\_\_  
Oznaczenie/typ/identyfikator modelu

Należą do jednego podtypu w danym typoszeregu i spełniają łącznie następujące warunki:

- identyczna konstrukcja obiegu chłodniczego, ten sam czynnik chłodniczy/roboczy;
- ten sam producent, typ i liczba sprężarek;
- ten sam typ elementu rozprężnego;
- ten sam typ skraplacza;
- ten sam typ parownika;
- ten sam typ procesu odszraniania;
- ten sam sterownik i zasada sterowania wydajnością;
- ten sam producent, typ i liczba wentylatorów parownika (w przypadku powietrznych pomp ciepła) i zasada sterowania wydajnością (stała, zmienna lub stopniowana regulacja prędkości obrotowej);
- urządzenia z i bez zaworu czterodrogowego nie mogą być zaliczone do tego samego typoszeregu.

Wrocław, 12.06.2024

Miejscowość, data



Podpis osoby upoważnionej

BDR Thermea Poland Sp. z o.o.  
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54-105 Wrocław  
NIP:895-16-25-689

--- Tłumaczenie z języka angielskiego ---

[do tłumaczenia przedłożono dokument w formacie pdf, składający się z 5 stron o treści jak niżej]

## RAPORT Z BADAŃ

Raport nr:  
300-KLAB-23-040-20

[logo] **DUŃSKI  
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TECHNOLOGICZNY**

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Strona 1 z 42  
Init: KAMA/RTHI  
Nr pliku: 225959  
Załączniki: 2

Klient: Firma: GD MIDEA HEATING & VENTILATING EQUIPMENT CO., LTD.  
Adres: Penglai Industry Road, Beijiao  
Miasto: Shunde, Foshan, Guangdong, 528311, Chiny  
Tel.: +86 13902810522

Komponent: Marka: Midea  
Typ: Pompa ciepła powietrze-woda (monoblok)  
Model: MIIC-V6W/D2N8-B  
Nr serii: 341H09732012A250100012  
Rok produkcji: Jednostka zewnętrzna: Nie dotyczy  
Daty: Okres badania: styczeń 2024

Nazwa marki: Marka: BAXI  
Typ: Pompa ciepła powietrze-woda (monoblok)  
Model: AURIGA 6 M-A

Procedury Patrz cel (strona 2), aby zapoznać się z wykazem norm.

Uwagi: Urządzenie zostało dostarczone przez klienta. Ustawienia instalacyjne i testowe zostały wykonane zgodnie z instrukcją producenta. Pomiędzy każdym warunkiem testowym Midea zmieniała różne parametry, takie jak prędkość sprężarki, zawór rozprężny, prędkość wentylatora, prędkość pompy, czas odszraniania i czas nagrzewania. Raport dla badanej jednostki nosi nazwę 300-KLAB-23-040, wydany 2024.03.12. Patrz również załącznik 2.

Warunki: Badanie to zostało przeprowadzone w ramach akredytacji zgodnie z wymogami międzynarodowymi (ISO/IEC 17025:2017) oraz zgodnie z Ogólnymi Warunkami Duńskiego Instytutu Technologicznego. Wyniki badań dotyczą wyłącznie badanego urządzenia. Można powielać w części niniejszego raportu z badań wyłącznie za pisemną zgodą Duńskiego Instytutu Technologicznego.

Klientowi nie wolno wspominać ani powoływać się na Duński Instytut Technologiczny lub pracowników Duńskiego Instytutu Technologicznego w celach reklamowych lub marketingowych, o ile Duński Instytut Technologiczny nie wyrazi każdorazowo pisemnej zgody.

Oddział/Centrum: Duński Instytut Technologiczny  
Energia i Klimat  
Laboratorium Pomp Ciepła, Aarhus

Data: 2024.05.16

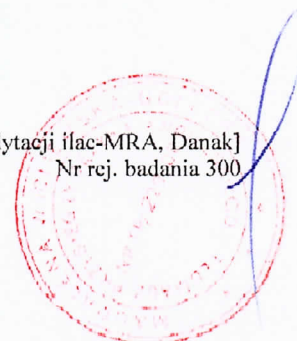
Podpis:  
Kamalathasan Arumugam  
Inżynier

Weryfikator:  
Rasmus Thisgaard  
B.TecMan & MarEng

DOKUMENT PODPISANY CYFROWO  
17 maja 2024  
DUŃSKI INSTYTUT TECHNOLOGICZNY

[znak akredytacji ilac-MRA, Danak]  
Nr rej. badania 300

[koniec strony]



**Wyniki badań**

**Wyniki badań testu SCOP w niskiej temperaturze – sezon grzewczy umiarkowany – EN 14825**

Model (zewnątrzny)	MHC-V6W/D2N8-B
Pompa ciepła powietrze-woda monoblok	T
Niskotemperaturowa pompa ciepła	N
Wyposażony w dodatkową grzałkę	T
Wielofunkcyjne ogrzewacze z pompą ciepła	N
Odwracalna	T

Znamionowa moc cieplna <sup>1)</sup>	Prated	6.8 [kW]
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	$\eta_s$	192.8 [%]
	SCOP	4.89 [-]

Zmierzona wydajność grzewcza przy częściowym obciążeniu przy temperaturze zewnętrznej Tj	Klimat umiarkowany-zastosowania niskotemperaturowe	Tj = -15 °C	Pdh	- [kW]
		Tj = -7 °C	Pdh	5.74 [kW]
		Tj = 2 °C	Pdh	3.72 [kW]
		Tj = 7 °C	Pdh	3.21 [kW]
		Tj = 12 °C	Pdh	3.76 [kW]
		Tj= temperatura biwalentna	Pdh	5.74 [kW]
	Tj= graniczna temperatura robocza	Pdh	5.39 [kW]	

Zmierzony współczynnik wydajności przy temperaturze zewnętrznej Tj	Klimat umiarkowany-zastosowania niskotemperaturowe	Tj = -15 °C	COPd	- [-]
		Tj = -7 °C	COPd	3.02 [-]
		Tj = 2 °C	COPd	4.76 [-]
		Tj = 7 °C	COPd	6.79 [-]
		Tj = 12 °C	COPd	8.85 [-]
		Tj= temperatura biwalentna	COPd	3.02 [-]
	Tj= graniczna temperatura robocza	COPd	2.68 [-]	

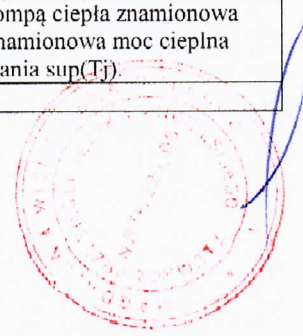
temperatura biwalentna	Tbivalent	-7 °C]
graniczna temperatura robocza	TOL	-10 °C]
temperatury	WTOL	- °C]
Współczynnik degradacji	Cdh	0.95 [-]

Pobór mocy w trybach innych niż tryb aktywny	Tryb wyłączony	P <sub>OFF</sub>	0.015 [kW]
	Tryb wyłączenia termostatu	P <sub>TO</sub>	0.020 [kW]
	Tryb gotowości	P <sub>SB</sub>	0.015 [kW]
	Tryb grzałki karteru <sup>2)</sup>	P <sub>CK</sub>	0.015 [kW]
Dodatkowa grzałka <sup>1)</sup>	Znamionowa moc cieplna	P <sub>SUP</sub>	1.41 [kW]
	Rodzaj poboru energii		Elektryczna

Pozostałe parametry	Regulacja wydajności	Zmienna
	Regulacja przepływu wody	Zmienna
	Natężenie przepływu wody	-
	Roczne zużycie energii	Q <sub>HE</sub>

1) 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 cieplna ogrzewacza dodatkowego Psup jest równa dodatkowej wydajności grzewczej dla trybu ogrzewania sup(Tj).

2) Do obliczenia SCOP używana jest wartość PCK - PSB. Patrz strona 15



**Wyniki badań testu SCOP w średniej temperaturze – sezon grzewczy umiarkowany – EN 14825**

Model (zewnątrzny)	MHC-V6W/D2N8-B
Pompa ciepła powietrze-woda monoblok	T
Niskotemperaturowa pompa ciepła	N
Wyposażony w dodatkową grzałkę	T
Wielofunkcyjne ogrzewacze z pompą ciepła	N
Odwracalna	T

Znamionowa moc cieplna <sup>1)</sup>	Prated	5.7 [kW]
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	$\eta_s$	140.4 [%]
	SCOP	3.58 [-]

Zmierzona wydajność grzewcza przy częściowym obciążeniu przy temperaturze zewnętrznej Tj	Klimat umiarkowany-zastosowania średniotemperaturowe	Tj = -15 °C	Pdh	- [kW]
		Tj = -7 °C	Pdh	5.18 [kW]
		Tj = 2 °C	Pdh	3.13 [kW]
		Tj = 7 °C	Pdh	2.94 [kW]
		Tj = 12 °C	Pdh	3.59 [kW]
		Tj= temperatura biwalentna	Pdh	5.18 [kW]
		Tj= graniczna temperatura robocza	Pdh	4.49 [kW]

Zmierzony współczynnik wydajności przy temperaturze zewnętrznej Tj	Klimat umiarkowany-zastosowania średniotemperaturowe	Tj = -15 °C	COPd	- [-]
		Tj = -7 °C	COPd	2.13 [-]
		Tj = 2 °C	COPd	3.58 [-]
		Tj = 7 °C	COPd	4.74 [-]
		Tj = 12 °C	COPd	6.39 [-]
		Tj= temperatura biwalentna	COPd	2.13 [-]
		Tj= graniczna temperatura robocza	COPd	1.83 [-]

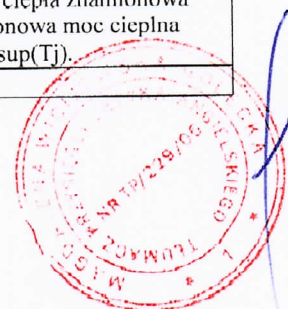
temperatura biwalentna	Tbivalent	-7 [°C]
graniczna temperatura robocza	TOL	-10 [°C]
temperatury	WTOL	- [°C]
Współczynnik degradacji	Cdh	0.96 [-]

Pobór mocy w trybach innych niż tryb aktywny	Tryb wyłączony	P <sub>OFF</sub>	0.015 [kW]
	Tryb wyłączenia termostatu	P <sub>TO</sub>	0.020 [kW]
	Tryb gotowości	P <sub>SB</sub>	0.015 [kW]
	Tryb grzałki karteru <sup>2)</sup>	P <sub>CK</sub>	0.015 [kW]
Dodatkowa grzałka <sup>1)</sup>	Znamionowa moc cieplna	P <sub>SUP</sub>	1.21 [kW]
	Rodzaj poboru energii		Elektryczna

Pozostałe parametry	Regulacja wydajności		Zmienna
	Regulacja przepływu wody		Zmienna
	Natężenie przepływu wody		-
	Roczne zużycie energii	Q <sub>HE</sub>	3286 [kWh]

1) 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 cieplna ogrzewacza dodatkowego Psup jest równa dodatkowej wydajności grzewczej dla trybu ogrzewania sup(Tj).

2) Do obliczenia SCOP używana jest wartość PCK - PSB. Patrz strona 17



**Wyniki badań dla cieplejszego klimatu i niskiej temperatury zgodnie z EN14825**

Nr	Warunki testowe	Wydajność grzewcza [kW]	COP
1	B	5.895	3.817
2	Tbivalent C i F	3.994	6.027

**Wyniki badań dla chłodniejszego klimatu i niskiej temperatury zgodnie z EN14825**

Nr	Warunki testowe	Wydajność grzewcza [kW]	COP
1	A	3.392	3.736
2	Tbivalent F i G	4.526	2.365

**Wyniki badań COP - niska temperatura - EN 14511**

Nr	Warunki testowe	Wydajność grzewcza [kW]	COP
1	A7/W35	6.462	4.996

**Wyniki badań COP - średnia temperatura - EN 14511**

Nr	Warunki testowe	Wydajność grzewcza [kW]	COP
1	A7/W55	6.127	2.979

[koniec strony]



**Wyniki badań pomiarów mocy akustycznej - EN 12102**

Nr	Warunki testowe	Poziom mocy akustycznej LW(A) [dB re 1pW]	Niepewność Otot [dB]
1 <sup>F</sup>	A7/W35	57.1	1.6
2 <sup>P</sup>	A7/W35	48.9	1.6
3 <sup>F</sup>	A7/W55	60.1	1.6
4 <sup>E</sup>	A7/55	50.7	1.6

F) Pełne obciążenie, P) Częściowe obciążenie, E) Oznaczenie ErP

Całkowity poziom mocy akustycznej ważony krzywą korekcyjną A jest wyznaczany dla mierzonego zakresu częstotliwości od 100 Hz do 10 kHz. Aby obliczyć niepewność, patrz załącznik 1.

Pomiary mocy akustycznej przeprowadza Kamalathasan Arumugam (KAMA), a weryfikuje Patrick Glibert (PGL) z Duńskiego Instytutu Technologicznego.

[koniec tłumaczenia]

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Poświadczam zgodność powyższego tłumaczenia z przedłożonym dokumentem sporządzonym w języku angielskim. Magister Magdalena Wicijewska-Golecka Tłumacz przysięgły języka angielskiego wpisana na Listę Tłumaczy przysięgłych przez Ministra Sprawiedliwości pod numerem TP/229/06. Numer repertorium 2845/2024 Ilość stron taryfowych 7 Wrocław, dnia 06.06.2024



# TEST REPORT

Report no.:  
300-KLAB-23-040-20



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Page 1 of 42  
Init: KAMA/RTHI  
File no.: 225959  
Enclosures: 2

**Customer:** Company: GD MIDEA HEATING & VENTILATING EQUIPMENT CO., LTD.  
Address: Penglai Industry Road, Beijiao  
City: Shunde, Foshan, Guangdong, 528311, China  
Tel.: +86 13902810522

**Component:** Brand: Midea  
Type: Air to water heat pump (mono block)  
Model: MHC-V6W/D2N8-B  
Series no.: 341H09752012A250100012  
Prod. year: Outdoor unit: N/A  
**Dates:** Teste period: January 2024

**Brand name:** Brand: BAXI  
Type: Air to water heat pump (mono block)  
Model: AURIGA 6 M-A

**Procedures** 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. Between each test condition Midea has been changing various parameters like compressor speed, expansion valve, fan speed, pump speed, defrost time, heating time. The report for the tested unit is named 300-KLAB-23-040 issued 2024.03.12 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.

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

**Date:** 2024.05.16

**Signature:**  
Kamalathan Arumugam  
B.Sc. Engineer

**Co-reader:**  
Rasmus Thisgaard  
B.TecMan & MarEng



 **DANAK**  
Test Reg. nr. 300



## Heat pumps of identical design

According to GD MIDEA HEATING & VENTILATING EQUIPMENT CO., LTD. The heat pumps listed in the table below are considered identical with the tested unit. They have identical:

- a. heating capacity
- b. refrigerant cycle (incl. refrigerant mass)
- c. heat source and sink medium
- d. main components / operating principle and control strategy
- e. same outdoor casing

Brand	Model
Midea	MHC-V6W/D2N8-B
Midea	MHC-V6W/D2N8-BE30
Midea	MHC-V6W/D2N8-BE30
Midea	MHC-V6W/D2N8-BE60
Midea	MHC-V6W/D2N8-BER90
Midea	MHC-V6W/D2N8-B1
Midea	MHC-V6W/D2N8-B1E30
Midea	MHC-V6W/D2N8-B1E60
Midea	MHC-V6W/D2N8-B1ER90
Midea	MHC-V6W/D2N8-B2
Midea	MHC-V6W/D2N8-B2E30
Midea	MHC-V6W/D2N8-B2E60
Midea	MHC-V6W/D2N8-B2ER90





## 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 5 and 6.

SCOP part load test in conditions  $SCOP_C$  and  $SCOP_{B\&F}$  at low temperature application for warmer climate according to EN 14825:2022.

SCOP part load test conditions  $SCOP_A$  and  $SCOP_{G\&F}$  at low temperature application for colder climate according to EN 14825:2022.

COP test standard rating conditions (heating mode) at low and medium temperature 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:

<b>Test conditions</b> .....	<b>5</b>
SCOP test conditions for low temperature – EN 14825 .....	5
SCOP test conditions for medium temperature – EN 14825 .....	6
COP test conditions - low temperature – EN 14511 .....	7
COP test conditions - medium temperature – EN 14511 .....	7
Test conditions for operating requirements – EN 14511-4 .....	7
Test conditions for shutting off the heat transfer medium – EN 14511-4 .....	8
Test conditions for complete power supply failure – EN 14511-4 .....	8
Test conditions for sound power measurements – EN 12102-1 .....	8
<b>Test results</b> .....	<b>9</b>
Test results of SCOP test at low temperature - heating season average – EN 14825.....	9
Test results of SCOP test at medium temperature - heating season average – EN 14825 .....	10
Test results for warmer climate, low temperature according to EN14825.....	11
Test results for colder climate, low temperature according to EN14825 .....	11
COP test results - low temperature – EN 14511 .....	11
COP test results - medium temperature – EN 14511.....	11
Test results of sound power measurements – EN 12102 .....	12
<b>Photos</b> .....	<b>13</b>
<b>SCOP - detailed calculation</b> .....	<b>14</b>
Detailed SCOP calculation of low temperature and average climate conditions – EN 14825.....	14
Detailed SCOP calculation of medium temperature and average climate conditions – EN 14825 .....	16
<b>Detailed test results</b> .....	<b>18</b>
Detailed SCOP part load test results - low temperature application - average climate – EN 14825.....	18
Detailed SCOP part load test results - medium temperature application - average climate – EN 14825 .....	23
Detailed SCOP part load test results - low temperature application - warmer climate – EN 14825 .....	28
Detailed SCOP part load test results - low temperature application - colder climate – EN 14825.....	30
Detailed COP test results - low temperature – EN 14511 .....	32
Detailed COP test results - medium temperature – EN 14511 .....	33
Detailed test results of sound power measurement – Test N#1 .....	34
Detailed test results of sound power measurement – Test N#2 .....	35
Detailed test results of sound power measurement – Test N#3 .....	36
Detailed test results of sound power measurement – Test N# 4.....	37
<b>Appendix 1</b> .....	<b>38</b>
<b>Appendix 2</b> .....	<b>42</b>



## 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 <sup>d</sup> °C		
	Formula	Average	Warmer	Colder	Outdoor air	Exhaust air	All climates	Average	Warmer	Colder
A	$(-7 - 16) / (T_{\text{designh}} - 16)$	88,46	n.a.	60,53	-7(-8)	20(12)	a / 35	a / 34	n.a.	a / 30
B	$(+2 - 16) / (T_{\text{designh}} - 16)$	53,85	100,00	36,84	2(1)	20(12)	a / 35	a / 30	a / 35	a / 27
C	$(+7 - 16) / (T_{\text{designh}} - 16)$	34,62	64,29	23,68	7(6)	20(12)	a / 35	a / 27	a / 31	a / 25
D	$(+12 - 16) / (T_{\text{designh}} - 16)$	15,38	28,57	10,53	12(11)	20(12)	a / 35	a / 24	a / 26	a / 24
E	$(TOL^e - 16) / (T_{\text{designh}} - 16)$				$TOL^e$	20(12)	a / 35	a / b	a / b	a / b
F	$(T_{\text{biv}} - 16) / (T_{\text{designh}} - 16)$				$T_{\text{biv}}$	20(12)	a / 35	a / c	a / c	a / c
G	$(-15 - 16) / (T_{\text{designh}} - 16)$	n.a.	n.a.	81,58	-15	20(12)	a / 35	n.a.	n.a.	a / 32

#### Additional information

Climate	$T_{\text{designh}}$ [°C]	$T_{\text{bivalent}}$ [°C]	TOL [°C]	Outlet temperature	Flow rate
Average	-10	-7	-10	Variable	Variable
Warmer	2	7	2	Variable	Variable
Colder	-22	-15	-22	Variable	Variable



## 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 <sup>d</sup> °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)	<sup>a</sup> / 55	<sup>a</sup> / 52	n.a.	<sup>a</sup> / 44
B	$(+2 - 16) / (T_{designh} - 16)$	53,85	100	36,84	2(1)	20(12)	<sup>a</sup> / 55	<sup>a</sup> / 42	<sup>a</sup> / 55	<sup>a</sup> / 37
C	$(+7 - 16) / (T_{designh} - 16)$	34,62	64,29	23,68	7(6)	20(12)	<sup>a</sup> / 55	<sup>a</sup> / 36	<sup>a</sup> / 46	<sup>a</sup> / 32
D	$(+12 - 16) / (T_{designh} - 16)$	15,38	28,57	10,53	12(11)	20(12)	<sup>a</sup> / 55	<sup>a</sup> / 30	<sup>a</sup> / 34	<sup>a</sup> / 28
E	$(TOL^e - 16) / (T_{designh} - 16)$				$TOL^e$	20(12)	<sup>a</sup> / 55	<sup>a</sup> / <sup>b</sup>	<sup>a</sup> / <sup>b</sup>	<sup>a</sup> / <sup>b</sup>
F	$(T_{biv} - 16) / (T_{designh} - 16)$				$T_{biv}$	20(12)	<sup>a</sup> / 55	<sup>a</sup> / <sup>c</sup>	<sup>a</sup> / <sup>c</sup>	<sup>a</sup> / <sup>c</sup>
G	$(-15 - 16) / (T_{designh} - 16)$	n.a.	n.a.	81,58	-15	20(12)	<sup>a</sup> / 55	n.a.	n.a.	<sup>a</sup> / 49

### Additional information

Climate	T <sub>designh</sub> [°C]	T <sub>bivalent</sub> [°C]	TOL [°C]	Outlet temperature	Flow rate
Average	-10	-7	-10	Variable	Variable



### COP test conditions - low temperature – EN 14511

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

S: Standard rating condition

### COP test conditions - medium temperature – EN 14511

N#	Heat source		Heat sink	
	Inlet dry bulb temperature (°C)	Inlet wet bulb temperature (°C)	Inlet temperature (°C)	Outlet temperature (°C)
1 <sup>S</sup>	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	-	14	415 L/h	Starting
2	-25	-	35	415 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	47	55	Indoor
2	7	6	47	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	47	55

### 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 <sup>F</sup>	7/6	30/35	66	550	6.46	1.23
2 <sup>P</sup>	7/6	30/35	30	400	3.06	0.57
3 <sup>F</sup>	7/6	47/55	66	550	6.13	2.06
4 <sup>E</sup>	7/6	47/55	38	400	3.19	1.14

F) Full load, P) part load, E) ErP labelling



## Test results

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

<b>Model (Outdoor)</b>	MHC-V6W/D2N8-B
<b>Air-to-water heat pump mono bloc</b>	Y
<b>Low-temperature heat pump</b>	N
<b>Equipped with supplementary heater</b>	Y
<b>Heat pump combination heater</b>	N
<b>Reversible</b>	Y

<b>Rated heat output<sup>1)</sup></b>	$P_{rated}$	<b>6.8 [kW]</b>
<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>192.8 [%]</b>
	SCOP	<b>4.89 [-]</b>

<b>Measured capacity for heating for part load at outdoor temperature <math>T_j</math></b>	Average Climate	$T_j = -15\text{ °C}$	$P_{dh}$	- [kW]
	-	$T_j = -7\text{ °C}$	$P_{dh}$	5.74 [kW]
	Low temperature application	$T_j = 2\text{ °C}$	$P_{dh}$	3.72 [kW]
		$T_j = 7\text{ °C}$	$P_{dh}$	3.21 [kW]
		$T_j = 12\text{ °C}$	$P_{dh}$	3.76 [kW]
		$T_j = \text{bivalent temperature}$	$P_{dh}$	5.74 [kW]
		$T_j = \text{operation limit}$	$P_{dh}$	5.39 [kW]

<b>Measured coefficient of performance at outdoor temperature <math>T_j</math></b>	Average Climate	$T_j = -15\text{ °C}$	COPd	- [-]
	-	$T_j = -7\text{ °C}$	COPd	3.02 [-]
	Low temperature application	$T_j = 2\text{ °C}$	COPd	4.76 [-]
		$T_j = 7\text{ °C}$	COPd	6.79 [-]
		$T_j = 12\text{ °C}$	COPd	8.85 [-]
		$T_j = \text{bivalent temperature}$	COPd	3.02 [-]
		$T_j = \text{operation limit}$	COPd	2.68 [-]

<b>Bivalent temperature</b>	$T_{bivalent}$	-7 [°C]
<b>Operation limit temperatures</b>	TOL	-10 [°C]
	WTOL	- [°C]
<b>Degradation coefficient</b>	$C_{dh}$	0.95 [-]

<b>Power consumption in modes other than active mode</b>	Off mode	$P_{OFF}$	0.015 [kW]
	Thermostat-off mode	$P_{TO}$	0.020 [kW]
	Standby mode	$P_{SB}$	0.015 [kW]
	Crankcase heater mode <sup>2)</sup>	$P_{CK}$	0.015 [kW]
<b>Supplementary heater<sup>1)</sup></b>	Rated heat output	$P_{SUP}$	1.41 [kW]
	Type of energy input		Electrical

<b>Other items</b>	Capacity control		Variable
	Water flow control		Variable
	Water flow rate		-
	Annual energy consumption	$Q_{HE}$	2870 [kWh]

<sup>1)</sup>For heat pump space heaters and heat pump combination heaters, the rated heat output,  $P_{rated}$ , is equal to the design load for heating,  $P_{designh}$ , and the rated heat output of a supplementary heater,  $P_{sup}$ , is equal to the supplementary capacity for heating,  $sup(T_j)$ .

<sup>2)</sup>For SCOP calculation the value  $P_{CK} - P_{SB}$  is used. See page 15



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

<b>Model (Outdoor)</b>	MHC-V6W/D2N8-B
<b>Air-to-water heat pump mono bloc</b>	Y
<b>Low-temperature heat pump</b>	N
<b>Equipped with supplementary heater</b>	Y
<b>Heat pump combination heater</b>	N
<b>Reversible</b>	Y

<b>Rated heat output<sup>1)</sup></b>	$P_{rated}$	<b>5.7 [kW]</b>
<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>140.4 [%]</b>
	SCOP	<b>3.58 [-]</b>

<b>Measured capacity for heating for part load at outdoor temperature <math>T_j</math></b>	Average Climate	$T_j = -15\text{ °C}$	$P_{dh}$	- [kW]
	-	$T_j = -7\text{ °C}$	$P_{dh}$	5.18 [kW]
	Medium temperature application	$T_j = 2\text{ °C}$	$P_{dh}$	3.13 [kW]
		$T_j = 7\text{ °C}$	$P_{dh}$	2.94 [kW]
		$T_j = 12\text{ °C}$	$P_{dh}$	3.59 [kW]
		$T_j = \text{bivalent temperature}$	$P_{dh}$	5.18 [kW]
		$T_j = \text{operation limit}$	$P_{dh}$	4.49 [kW]

<b>Measured coefficient of performance at outdoor temperature <math>T_j</math></b>	Average Climate	$T_j = -15\text{ °C}$	COPd	- [-]
	-	$T_j = -7\text{ °C}$	COPd	2.13 [-]
	Medium temperature application	$T_j = 2\text{ °C}$	COPd	3.58 [-]
		$T_j = 7\text{ °C}$	COPd	4.74 [-]
		$T_j = 12\text{ °C}$	COPd	6.39 [-]
		$T_j = \text{bivalent temperature}$	COPd	2.13 [-]
		$T_j = \text{operation limit}$	COPd	1.83 [-]

<b>Bivalent temperature</b>	$T_{bivalent}$	-7 [°C]
<b>Operation limit temperatures</b>	TOL	-10 [°C]
<b>Degradation coefficient</b>	$C_{dh}$	0.96 [-]

<b>Power consumption in modes other than active mode</b>	Off mode	$P_{OFF}$	0.015 [kW]
	Thermostat-off mode	$P_{TO}$	0.020 [kW]
	Standby mode	$P_{SB}$	0.015 [kW]
	Crankcase heater mode <sup>2)</sup>	$P_{CK}$	0.015 [kW]
<b>Supplementary heater<sup>1)</sup></b>	Rated heat output	$P_{SUP}$	1.21 [kW]
	Type of energy input		Electrical

<b>Other items</b>	Capacity control		Variable
	Water flow control		Variable
	Water flow rate		-
	Annual energy consumption	$Q_{HE}$	3286 [kWh]

<sup>1)</sup>For heat pump space heaters and heat pump combination heaters, the rated heat output,  $P_{rated}$ , is equal to the design load for heating,  $P_{designh}$ , and the rated heat output of a supplementary heater,  $P_{sup}$ , is equal to the supplementary capacity for heating,  $sup(T_j)$ .

<sup>2)</sup>For SCOP calculation the value  $P_{CK} - P_{SB}$  is used. See page 17





### Test results for warmer climate, low temperature according to EN14825

N°	Test condition	Heating capacity [kW]	COP
1	B	5.895	3.817
2	Tbivalent C and F	3.994	6.027

### Test results for colder climate, low temperature according to EN14825

N°	Test condition	Heating capacity [kW]	COP
1	A	3.392	3.736
2	Tbivalent F & G	4.526	2.365

### COP test results - low temperature – EN 14511

N#	Test conditions	Heating capacity [kW]	COP
1	A7/W35	6.462	4.996

### COP test results - medium temperature – EN 14511

N#	Test conditions	Heating capacity [kW]	COP
1	A7/W55	6.127	2.979



## Test results of sound power measurements – EN 12102

N <sup>#</sup>	Test conditions	Sound power level LW(A) [dB re 1pW]	Uncertainty $\sigma_{\text{tot}}$ [dB]
1 <sup>F</sup>	A7/W35	57.1	1.6
2 <sup>P</sup>	A7/W35	48.9	1.6
3 <sup>F</sup>	A7/W55	60.1	1.6
4 <sup>E</sup>	A7/55	50.7	1.6

F) Full load, P) part load, 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 Kamalathan Arumugam (KAMA) and co-read by Patrick Glibert (PGL), Danish Technological Institute.



## Photos

### Rating plate (outdoor unit)

MONOBLOC HEAT PUMP	
MODEL	MHC-V6W/D2N8-B
COOLING CAPACITY/EER @ A35W18	6.50kW / 4.80
HEATING CAPACITY/COP @ A7W35	6.35kW / 4.95
POWER SOURCE	220-240V~ 50Hz
RATED INPUT	2700W
RATED WATER PRESSURE	0.1-0.3MPa
NET WEIGHT	86kg
REFRIGERANT	R32/1400g
GWP	675
EQUIVALENT CO <sub>2</sub>	0.95t
EXCESSIVE OPERATING PRESSURE	HIGH 4.3MPa LOW 2.6MPa
MAXIMUM ALLOWABLE PRESSURE	4.3MPa
OUTDOOR RESISTANCE CLASS	IP24
Hermetically sealed equipment contains fluorinated greenhouse gases	
GD Midea Heating & Ventilating Equipment Co., Ltd. <small>(Pengjia Industry Road, Beijing, Shunde, Foshan, Guangdong, P.R. China)</small>	



### 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	6.02	5.74	3.02	0.99	1.00	3.02
B	2	54	3.66	3.72	4.76	0.97	1.00	4.76
C	7	35	2.35	3.21	6.79	0.96	0.73	6.68
D	12	15	1.05	3.76	8.85	0.95	0.28	7.90
E	-10	100	6.80	5.39	2.68	0.99	1.00	2.68
F - BIV	-7	88	6.02	5.74	3.02	0.99	1.00	3.02

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	0.0149	0.0149	0
Thermostat off	178	0.0197	0.0197	3.5066
Standby	0	0.0149	0.0149	0
Crankcase heater	178	0.0149	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]	
<b>E</b>	21	-10	1	6.80	5.39	1.41	1.41	2.68	6.80	3.42	5.39	2.01
	22	-9	25	6.54	5.51	1.03	25.77	2.80	163.46	75.03	137.69	49.26
	23	-8	23	6.28	5.62	0.65	15.03	2.91	144.37	59.54	129.34	44.51
<b>A / F - BIV</b>	24	-7	24	6.02	5.74	0.00	0.00	3.02	144.37	47.85	144.37	47.85
	25	-6	27	5.75	5.51	0.00	0.00	3.21	155.35	48.39	155.35	48.39
	26	-5	68	5.49	5.28	0.00	0.00	3.40	373.48	109.73	373.48	109.73
	27	-4	91	5.23	5.05	0.00	0.00	3.60	476.00	132.33	476.00	132.33
	28	-3	89	4.97	4.82	0.00	0.00	3.79	442.26	116.68	442.26	116.68
	29	-2	165	4.71	4.58	0.00	0.00	3.98	776.77	194.99	776.77	194.99
	30	-1	173	4.45	4.35	0.00	0.00	4.18	769.18	184.15	769.18	184.15
	31	0	240	4.18	4.12	0.00	0.00	4.37	1004.31	229.80	1004.31	229.80
	32	1	280	3.92	3.89	0.00	0.00	4.56	1098.46	240.70	1098.46	240.70
	<b>B</b>	33	2	320	3.66	3.66	0.00	0.00	4.76	1171.69	246.31	1171.69
	34	3	357	3.40	3.40	0.00	0.00	5.14	1213.80	236.03	1213.80	236.03
	35	4	356	3.14	3.14	0.00	0.00	5.53	1117.29	202.12	1117.29	202.12
	36	5	303	2.88	2.88	0.00	0.00	5.91	871.71	147.41	871.71	147.41
	37	6	330	2.62	2.62	0.00	0.00	6.30	863.08	137.02	863.08	137.02
<b>C</b>	38	7	326	2.35	2.35	0.00	0.00	6.68	767.35	114.80	767.35	114.80
	39	8	348	2.09	2.09	0.00	0.00	6.93	728.12	105.11	728.12	105.11
	40	9	335	1.83	1.83	0.00	0.00	7.17	613.31	85.54	613.31	85.54
	41	10	315	1.57	1.57	0.00	0.00	7.41	494.31	66.68	494.31	66.68
	42	11	215	1.31	1.31	0.00	0.00	7.66	281.15	36.73	281.15	36.73
<b>D</b>	43	12	169	1.05	1.05	0.00	0.00	7.90	176.80	22.38	176.80	22.38
	44	13	151	0.78	0.78	0.00	0.00	8.14	118.48	14.55	118.48	14.55
	45	14	105	0.52	0.52	0.00	0.00	8.38	54.92	6.55	54.92	6.55
	46	15	74	0.26	0.26	0.00	0.00	8.63	19.35	2.24	19.35	2.24

<b>SUM</b>	14046.18	2866.09	14003.97	2823.88
<b>SCOPon</b>		4.90	<b>SCOPnet</b>	4.96



## 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	5.04	5.18	2.13	0.99	1.00	2.13
B	2	54	3.07	3.13	3.58	0.98	1.00	3.58
C	7	35	1.97	2.94	4.74	0.97	0.67	4.67
D	12	15	0.88	3.59	6.39	0.96	0.24	5.77
E	-10	100	5.70	4.49	1.83	0.99	1.00	1.83
F - BIV	-7	88	5.04	5.18	2.13	0.99	1.00	2.13

### 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	0.0149	0.0149	0
Thermostat off	178	0.0197	0.0197	3.5066
Standby	0	0.0149	0.0149	0
Crankcase heater	178	0.0149	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]
<b>E</b>	21	-10	1	5.70	4.49	1.21	1.83	5.70	3.66	4.49	2.46
	22	-9	25	5.48	4.67	0.81	1.93	137.02	80.72	116.87	60.57
	23	-8	23	5.26	4.86	0.40	2.03	121.02	64.33	111.75	55.06
<b>A / F - BIV</b>	24	-7	24	5.04	5.04	0.00	2.13	121.02	56.81	121.02	56.81
	25	-6	27	4.82	4.82	0.00	2.29	130.22	56.84	130.22	56.84
	26	-5	68	4.60	4.60	0.00	2.45	313.06	127.69	313.06	127.69
	27	-4	91	4.38	4.38	0.00	2.61	399.00	152.72	399.00	152.72
	28	-3	89	4.17	4.17	0.00	2.77	370.72	133.66	370.72	133.66
	29	-2	165	3.95	3.95	0.00	2.93	651.12	221.89	651.12	221.89
	30	-1	173	3.73	3.73	0.00	3.10	644.76	208.30	644.76	208.30
	31	0	240	3.51	3.51	0.00	3.26	841.85	258.53	841.85	258.53
	32	1	280	3.29	3.29	0.00	3.42	920.77	269.46	920.77	269.46
	<b>B</b>	33	2	320	3.07	3.07	0.00	3.58	982.15	274.50	982.15
34		3	357	2.85	2.85	0.00	3.80	1017.45	268.03	1017.45	268.03
35		4	356	2.63	2.63	0.00	4.01	936.55	233.31	936.55	233.31
36		5	303	2.41	2.41	0.00	4.23	730.70	172.65	730.70	172.65
37		6	330	2.19	2.19	0.00	4.45	723.46	162.56	723.46	162.56
<b>C</b>	38	7	326	1.97	1.97	0.00	4.67	643.22	137.78	643.22	137.78
	39	8	348	1.75	1.75	0.00	4.89	610.34	124.87	610.34	124.87
	40	9	335	1.53	1.53	0.00	5.11	514.10	100.66	514.10	100.66
	41	10	315	1.32	1.32	0.00	5.33	414.35	77.79	414.35	77.79
	42	11	215	1.10	1.10	0.00	5.55	235.67	42.49	235.67	42.49
<b>D</b>	43	12	169	0.88	0.88	0.00	5.77	148.20	25.70	148.20	25.70
	44	13	151	0.66	0.66	0.00	5.98	99.31	16.59	99.31	16.59
	45	14	105	0.44	0.44	0.00	6.20	46.04	7.42	46.04	7.42
	46	15	74	0.22	0.22	0.00	6.42	16.22	2.53	16.22	2.53

<b>SUM</b>	11774.01	3281.51	11743.38	3250.88
<b>SCOPon</b>		3.59	<b>SCOPnet</b>	3.61



## Detailed test results

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

<b>Detailed result for 'EN14825:2022' Average Low (A and F) A -7 /W34</b>		
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	6.80
Heating demand:	kW	6.02
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:		Transient
Integrated circulation pump:		Yes
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>5.739</b>
COP	-	<b>3.017</b>
Power consumption	kW	<b>1.902</b>
<b>Measured</b>		
Heating capacity	kW	5.746
COP	-	3.007
Power consumption	kW	1.911
<b>During heating</b>		
Air temperature dry bulb	°C	-7.00
Air temperature wet bulb	°C	-8.12
Inlet temperature	°C	29.02
Outlet temperature	°C	33.99
Outlet temperature (Time averaged)	°C	<b>33.99</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	3774
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.13
Calculated Capacity correction	W	8
Calculated Power correction	W	9
Water Flow	m <sup>3</sup> /s	0.000295





<b>Detailed result for 'EN14825:2022' Average Low (B) A 2 /W30</b>		
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	6.80
Heating demand:	kW	3.66
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Transient	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>3.716</b>
COP	-	<b>4.757</b>
Power consumption	kW	<b>0.781</b>
<b>Measured</b>		
Heating capacity	kW	3.724
COP	-	4.709
Power consumption	kW	0.791
<b>During heating</b>		
Air temperature dry bulb	°C	2.09
Air temperature wet bulb	°C	0.95
Inlet temperature	°C	25.00
Outlet temperature	°C	29.86
Outlet temperature (Time averaged)	°C	<b>29.86</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	6441
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.13
Calculated Capacity correction	W	8
Calculated Power correction	W	10
Water Flow	m <sup>3</sup> /s	0.000193



<b>Detailed result for 'EN14825:2022' Average Low (C) A 7 /W27</b>		
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	6.80
Heating demand:	kW	2.35
CR:	-	0.7
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>3.214</b>
COP	-	<b>6.786</b>
Power consumption	kW	<b>0.474</b>
<b>Measured</b>		
Heating capacity	kW	3.222
COP	-	6.671
Power consumption	kW	0.483
<b>During heating</b>		
Air temperature dry bulb	°C	7.00
Air temperature wet bulb	°C	6.01
Inlet temperature	°C	23.23
Outlet temperature	°C	28.22
Outlet temperature (Time averaged)	°C	<b>26.88</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	7725
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.13
Calculated Capacity correction	W	8
Calculated Power correction	W	9
Water Flow	m <sup>3</sup> /s	0.000155



<b>Detailed result for 'EN14825:2022' Average Low (D) A 12 /W24</b>		
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	6.80
Heating demand:	kW	1.05
CR:	-	0.3
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>3.760</b>
COP	-	<b>8.848</b>
Power consumption	kW	<b>0.425</b>
<b>Measured</b>		
Heating capacity	kW	3.766
COP	-	8.724
Power consumption	kW	0.432
<b>During heating</b>		
Air temperature dry bulb	°C	12.00
Air temperature wet bulb	°C	10.92
Inlet temperature	°C	22.61
Outlet temperature	°C	27.47
Outlet temperature (Time averaged)	°C	<b>23.96</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	4440
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.12
Calculated Capacity correction	W	6
Calculated Power correction	W	7
Water Flow	m <sup>3</sup> /s	0.000185



<b>Detailed result for 'EN14825:2022' Average Low (E) A -10 /W35</b>		
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 Tivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	6.80
Heating demand:	kW	6.80
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>5.392</b>
COP	-	<b>2.684</b>
Power consumption	kW	<b>2.009</b>
<b>Measured</b>		
Heating capacity	kW	5.404
COP	-	2.672
Power consumption	kW	2.023
<b>During heating</b>		
Air temperature dry bulb	°C	-10.00
Air temperature wet bulb	°C	-11.02
Inlet temperature	°C	29.99
Outlet temperature	°C	34.96
Outlet temperature (Time averaged)	°C	<b>34.96</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	7052
Calculated Hydraulic power	W	2
Calculated global efficiency	η	0.14
Calculated Capacity correction	W	12
Calculated Power correction	W	14
Water Flow	m <sup>3</sup> /s	0.000261



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

<b>Detailed result for 'EN14825:2022' Average Medium (A and F) A -7 /W52</b>		
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 Tivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	5.70
Heating demand:	kW	5.04
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>5.180</b>
COP	-	<b>2.130</b>
Power consumption	kW	<b>2.433</b>
<b>Measured</b>		
Heating capacity	kW	5.188
COP	-	2.125
Power consumption	kW	2.441
<b>During heating</b>		
Air temperature dry bulb	°C	-6.98
Air temperature wet bulb	°C	-8.01
Inlet temperature	°C	44.00
Outlet temperature	°C	52.01
Outlet temperature (Time averaged)	°C	<b>52.01</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	7038
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.13
Calculated Capacity correction	W	8
Calculated Power correction	W	9
Water Flow	m <sup>3</sup> /s	0.000156



<b>Detailed result for 'EN14825:2022' Average Medium (B) A 2 /W42</b>		
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	5.70
Heating demand:	kW	3.07
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>3.134</b>
COP	-	<b>3.578</b>
Power consumption	kW	<b>0.876</b>
<b>Measured</b>		
Heating capacity	kW	3.138
COP	-	3.564
Power consumption	kW	0.880
<b>During heating</b>		
Air temperature dry bulb	°C	2.10
Air temperature wet bulb	°C	1.01
Inlet temperature	°C	35.01
Outlet temperature	°C	41.85
Outlet temperature (Time averaged)	°C	<b>41.85</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	4813
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.12
Calculated Capacity correction	W	4
Calculated Power correction	W	4
Water Flow	m <sup>3</sup> /s	0.000110



<b>Detailed result for 'EN14825:2022' Average Medium (C) A 7 /W36</b>		
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	5.70
Heating demand:	kW	1.97
CR:	-	0.7
Minimum flow reached:	-	Yes
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>2.938</b>
COP	-	<b>4.741</b>
Power consumption	kW	<b>0.620</b>
<b>Measured</b>		
Heating capacity	kW	2.945
COP	-	4.695
Power consumption	kW	0.627
<b>During heating</b>		
Air temperature dry bulb	°C	7.00
Air temperature wet bulb	°C	6.00
Inlet temperature	°C	31.81
Outlet temperature	°C	38.11
Outlet temperature (Time averaged)	°C	<b>36.04</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	8300
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.12
Calculated Capacity correction	W	7
Calculated Power correction	W	8
Water Flow	m <sup>3</sup> /s	0.000112



<b>Detailed result for 'EN14825:2022' Average Medium (D) A 12 /W30</b>		
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	5.70
Heating demand:	kW	0.88
CR:	-	0.2
Minimum flow reached:	-	Yes
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>3.589</b>
COP	-	<b>6.391</b>
Power consumption	kW	<b>0.562</b>
<b>Measured</b>		
Heating capacity	kW	3.593
COP	-	6.343
Power consumption	kW	0.566
<b>During heating</b>		
Air temperature dry bulb	°C	12.00
Air temperature wet bulb	°C	10.90
Inlet temperature	°C	28.11
Outlet temperature	°C	35.79
Outlet temperature (Time averaged)	°C	<b>29.98</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	5273
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.12
Calculated Capacity correction	W	4
Calculated Power correction	W	5
Water Flow	m <sup>3</sup> /s	0.000112





<b>Detailed result for 'EN14825:2022' Average Medium (E) A -10 /W55</b>		
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 Tivalent	°C	-7
Tdesign	°C	-10
Pdesign	kW	5.70
Heating demand:	kW	5.70
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>4.491</b>
COP	-	<b>1.829</b>
Power consumption	kW	<b>2.455</b>
<b>Measured</b>		
Heating capacity	kW	4.496
COP	-	1.827
Power consumption	kW	2.461
<b>During heating</b>		
Air temperature dry bulb	°C	-10.03
Air temperature wet bulb	°C	-11.14
Inlet temperature	°C	46.99
Outlet temperature	°C	55.08
Outlet temperature (Time averaged)	°C	<b>55.08</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	5299
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.12
Calculated Capacity correction	W	5
Calculated Power correction	W	6
Water Flow	m <sup>3</sup> /s	0.000135



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

<b>Detailed result for 'EN14825:2022' Warmer Low (B) A 2 /W35</b>		
Tested according to:	EN14511:2022 and EN14825:2022	
Climate zone:	Warmer	
Temperature application:	Low	
Condition name:	B	
Condition temperature:	°C	2
Part load:	%	100%
Chosen Tbivalent	°C	7
Tdesign	°C	2
Pdesign	kW	6.10
Heating demand:	kW	6.10
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Transient	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>5.895</b>
COP	-	<b>3.817</b>
Power consumption	kW	<b>1.544</b>
<b>Measured</b>		
Heating capacity	kW	5.906
COP	-	3.794
Power consumption	kW	1.556
<b>During heating</b>		
Air temperature dry bulb	°C	2.12
Air temperature wet bulb	°C	0.97
Inlet temperature	°C	30.05
Outlet temperature	°C	35.21
Outlet temperature (Time averaged)	°C	<b>35.21</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	5353
Calculated Hydraulic power	W	2
Calculated global efficiency	η	0.13
Calculated Capacity correction	W	10
Calculated Power correction	W	12
Water Flow	m <sup>3</sup> /s	0.000295



<b>Detailed result for 'EN14825:2022' Warmer Low (C) A 7 /W31</b>		
Tested according to:	EN14511:2022 and EN14825:2022	
Climate zone:		Warmer
Temperature application:		Low
Condition name:		C
Condition temperature:	°C	7
Part load:	%	64%
Chosen Tbivalent	°C	7
Tdesign	°C	2
Pdesign	kW	6.10
Heating demand:	kW	3.92
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:		Steady State
Integrated circulation pump:		Yes
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>3.994</b>
COP	-	<b>6.027</b>
Power consumption	kW	<b>0.663</b>
<b>Measured</b>		
Heating capacity	kW	3.997
COP	-	5.998
Power consumption	kW	0.666
<b>During heating</b>		
Air temperature dry bulb	°C	7.00
Air temperature wet bulb	°C	6.00
Inlet temperature	°C	26.01
Outlet temperature	°C	31.07
Outlet temperature (Time averaged)	°C	<b>31.07</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	2369
Calculated Hydraulic power	W	0
Calculated global efficiency	η	0.12
Calculated Capacity correction	W	3
Calculated Power correction	W	4
Water Flow	m <sup>3</sup> /s	0.000190



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

<b>Detailed result for 'EN14825:2022' Colder Low (A) A -7 /W30</b>		
Tested according to:	EN14511:2022 and EN14825:2022	
Climate zone:	Colder	
Temperature application:	Low	
Condition name:	A	
Condition temperature:	°C	-7
Part load:	%	61%
Chosen Tbivalent	°C	-15
Tdesign	°C	-22
Pdesign	kW	5.60
Heating demand:	kW	3.39
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>3.392</b>
COP	-	<b>3.736</b>
Power consumption	kW	<b>0.908</b>
<b>Measured</b>		
Heating capacity	kW	3.400
COP	-	3.708
Power consumption	kW	0.917
<b>During heating</b>		
Air temperature dry bulb	°C	-6.98
Air temperature wet bulb	°C	-8.00
Inlet temperature	°C	25.00
Outlet temperature	°C	29.92
Outlet temperature (Time averaged)	°C	<b>29.92</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	6897
Calculated Hydraulic power	W	1
Calculated global efficiency	η	0.13
Calculated Capacity correction	W	8
Calculated Power correction	W	9
Water Flow	m <sup>3</sup> /s	0.000166



<b>Detailed result for 'EN14825:2022' Colder Low (F and G) A -15 /W32</b>		
Tested according to:	EN14511:2022 and EN14825:2022	
Climate zone:	Colder	
Temperature application:	Low	
Condition name:	F and G	
Condition temperature:	°C	-15
Part load:	%	82%
Chosen Tivalent	°C	-15
Tdesign	°C	-22
Pdesign	kW	5.60
Heating demand:	kW	4.57
CR:	-	1.0
Minimum flow reached:	-	No
Measurement type:	Steady State	
Integrated circulation pump:	Yes	
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>4.526</b>
COP	-	<b>2.365</b>
Power consumption	kW	<b>1.913</b>
<b>Measured</b>		
Heating capacity	kW	4.536
COP	-	2.356
Power consumption	kW	1.925
<b>During heating</b>		
Air temperature dry bulb	°C	-15.01
Air temperature wet bulb	°C	-15.07
Inlet temperature	°C	26.99
Outlet temperature	°C	31.89
Outlet temperature (Time averaged)	°C	<b>31.89</b>
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	6897
Calculated Hydraulic power	W	2
Calculated global efficiency	η	0.13
Calculated Capacity correction	W	10
Calculated Power correction	W	12
Water Flow	m <sup>3</sup> /s	0.000222



## Detailed COP test results - low temperature – EN 14511

<b>Detailed result for 'EN14511:2022' A7/W35</b>		
Tested according to:		EN14511:2022
Minimum flow reached:		No
Measurement type:		Steady State
Integrated circulation pump:		Yes
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>6.462</b>
COP	-	<b>4.996</b>
Power consumption	kW	<b>1.294</b>
<b>Measured</b>		
Heating capacity	kW	6.471
COP	-	4.961
Power consumption	kW	1.304
<b>During heating</b>		
Air temperature dry bulb	°C	6.99
Air temperature wet bulb	°C	6.00
Inlet temperature	°C	30.04
Outlet temperature	°C	35.09
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	4628
Calculated Hydraulic power	W	1
Calculated global efficiency	$\eta$	0.13
Calculated Capacity correction	W	10
Calculated Power correction	W	11
Water Flow	m <sup>3</sup> /s	0.000308




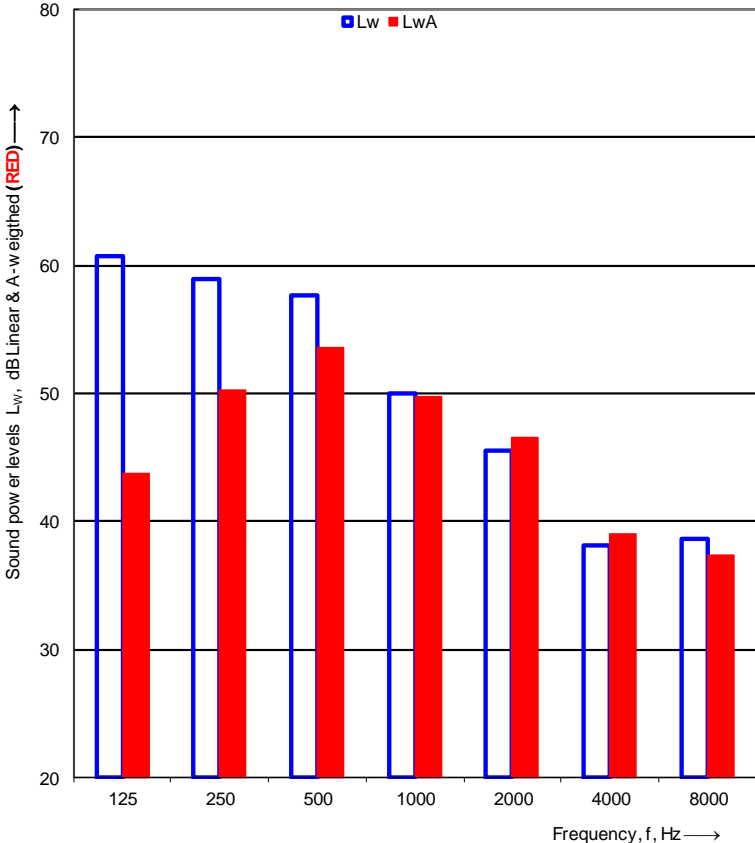


## Detailed COP test results - medium temperature – EN 14511

<b>Detailed result for 'EN14511:2018' A7/W55</b>		
Tested according to:		EN14511:2018
Minimum flow reached:		No
Measurement type:		Steady State
Integrated circulation pump:		Yes
<b>Included corrections (Final result)</b>		
Heating capacity	kW	<b>6.127</b>
COP	-	<b>2.979</b>
Power consumption	kW	<b>2.057</b>
<b>Measured</b>		
Heating capacity	kW	6.133
COP	-	2.972
Power consumption	kW	2.063
<b>During heating</b>		
Air temperature dry bulb	°C	7.00
Air temperature wet bulb	°C	6.00
Inlet temperature	°C	47.00
Outlet temperature	°C	54.99
<b>Circulation pump</b>		
Measured: Static differential pressure, liquid pump	Pa	4303
Calculated Hydraulic power	W	1
Calculated global efficiency	$\eta$	0.12
Calculated Capacity correction	W	6
Calculated Power correction	W	7
Water Flow	m <sup>3</sup> /s	0.000186






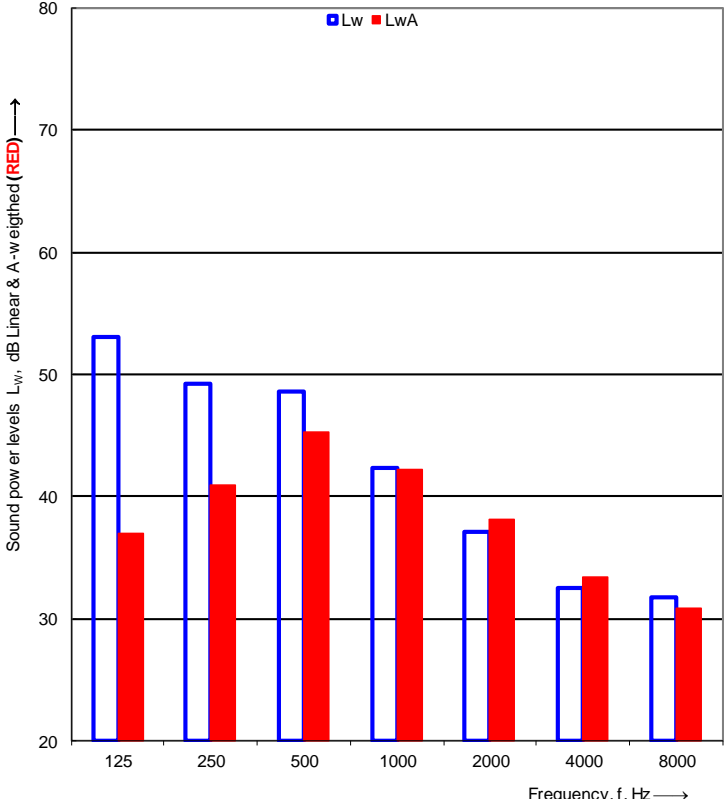
## Detailed test results of sound power measurement – Test N#1

		<h3>Sound power levels according to ISO 3743-1:2010</h3>																																																																			
Engineering method for small, movable sources in reverberant fields - Comparison method for hard-walled test rooms																																																																					
Client: Midea		Date of test: 20-01-2024																																																																			
Object: Type: Air to water heat pump Model: MHC-V6WD2N8-BE30																																																																					
Mounting conditions: The outdoor unit is mounted on the supporting metal support frame using six vibration insulators and placed on four pieces of concrete tiles (20x20x2.5 cm). All of these are placed in a water drop tray 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/W35, Compressor speed: 66[Hz], Fan speed: 550[rpm], Pump speed: 40 [%], EXV1(P): 264, Heating capacity: 6.46 [kW], Power input: 1.23 [kW], Water flow rate: 1109 [l/h]																																																																					
Static pressure: 101.7 kPa		Reference box:																																																																			
Air temperature: 7.0 °C		L1: 1.3 m																																																																			
Relative air humidity: 84.0 %		L2: 0.4 m																																																																			
Test room volume: 102.8 m³		Room: Room 2																																																																			
Area, S, of test room: 138.9 m²		L3: 0.7 m																																																																			
		Volume: 0.4 m³																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Frequency f [Hz]</th> <th>L<sub>w</sub> 1/3 octave [dB]</th> <th>1/1 oct [dB]</th> </tr> </thead> <tbody> <tr><td>100</td><td>57.6</td><td></td></tr> <tr><td>125</td><td>57.3</td><td>60.7</td></tr> <tr><td>160</td><td>48.6</td><td></td></tr> <tr><td>200</td><td>54.0</td><td></td></tr> <tr><td>250</td><td>55.6</td><td>58.9</td></tr> <tr><td>315</td><td>52.2</td><td></td></tr> <tr><td>400</td><td>56.1</td><td></td></tr> <tr><td>500</td><td>49.9</td><td>57.6</td></tr> <tr><td>630</td><td>48.6</td><td></td></tr> <tr><td>800</td><td>46.7</td><td></td></tr> <tr><td>1000</td><td>45.0</td><td>50.0</td></tr> <tr><td>1250</td><td>43.3</td><td></td></tr> <tr><td>1600</td><td>43.0</td><td></td></tr> <tr><td>2000</td><td>40.2</td><td>45.5</td></tr> <tr><td>2500</td><td>36.9</td><td></td></tr> <tr><td>3150</td><td>34.7</td><td></td></tr> <tr><td>4000</td><td>32.6</td><td>38.1</td></tr> <tr><td>5000</td><td>32.2</td><td></td></tr> <tr><td>6300</td><td>33.2</td><td></td></tr> <tr><td>8000</td><td>33.7</td><td>38.6</td></tr> <tr><td>10000</td><td>34.5</td><td></td></tr> </tbody> </table>	Frequency f [Hz]	L <sub>w</sub> 1/3 octave [dB]	1/1 oct [dB]	100	57.6		125	57.3	60.7	160	48.6		200	54.0		250	55.6	58.9	315	52.2		400	56.1		500	49.9	57.6	630	48.6		800	46.7		1000	45.0	50.0	1250	43.3		1600	43.0		2000	40.2	45.5	2500	36.9		3150	34.7		4000	32.6	38.1	5000	32.2		6300	33.2		8000	33.7	38.6	10000	34.5				
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<b>Sound power level L<sub>w</sub>(A): 57.1 dB [re 1pW], Uncertainty <math>\sigma_{tot}</math>: 1.6 dB</b>																																																																					
Name of test institute: DTI		Date: 20-01-2024																																																																			
No. of test report: 300-KLAB-23-040																																																																					
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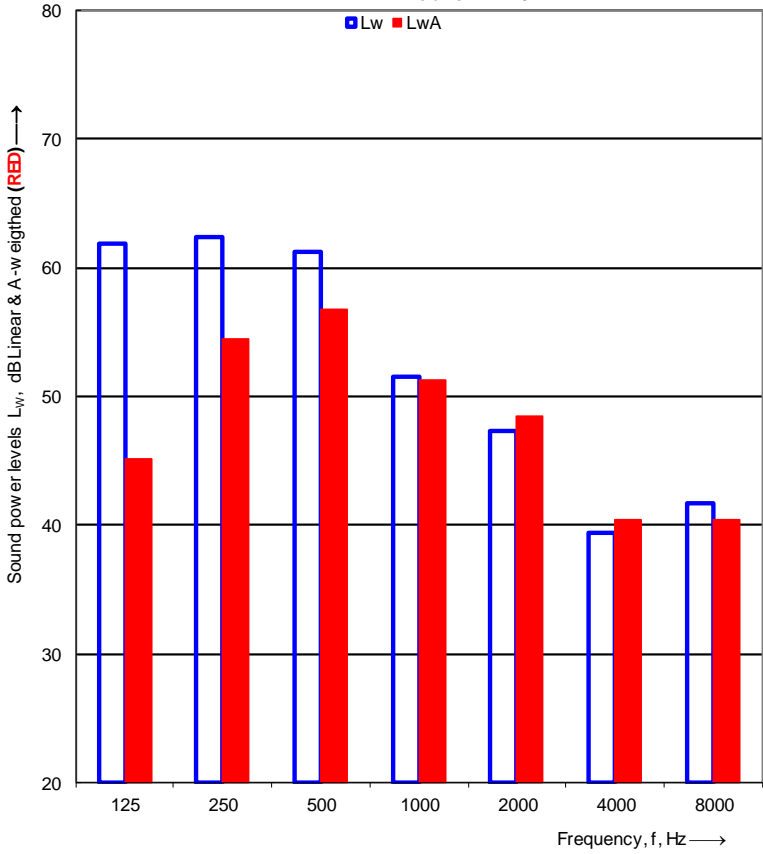


## Detailed test results of sound power measurement – Test N#2

 		<b>Sound power levels according to ISO 3743-1:2010</b>		 <b>TEKNOLOGISK INSTITUT</b>																																																																			
Engineering method for small, movable sources in reverberant fields - Comparison method for hard-walled test rooms																																																																							
Client:		Midea		Date of test: 20-01-2024																																																																			
Object:		Type: Air to water heat pump Model: MHC-V6WD2N8-BE30																																																																					
Mounting conditions:		The outdoor unit is mounted on the supporting metal support frame using six vibration insulators and placed on four pieces of concrete tiles (20x20x2.5 cm). All of these are placed in a water drop tray 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/W35, Compressor speed: 30[Hz], Fan speed: 400[rpm], Pump speed: 34 [%], EXV1(P): 124, Heating capacity: 3.06 [kW], Power_input: 0.566 [kW], Water flow rate: 525 [l/h]																																																																					
Static pressure:		101.7 kPa		Reference box:																																																																			
Air temperature:		7.0 °C		L1: 1.3 m																																																																			
Relative air humidity:		84.0 %		L2: 0.4 m																																																																			
Test room volume:		102.8 m³		L3: 0.7 m																																																																			
Area, S, of test room:		138.9 m²		Volume: 0.4 m³																																																																			
Room:		Room 2																																																																					
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<b>Sound power level L<sub>w</sub>(A): 48.9 dB [re 1pW],      Uncertainty <math>\sigma_{tot}</math>: 1.6 dB</b>																																																																							
Name of test institute:		DTI		Date: 20-01-2024																																																																			
No. of test report:		300-KLAB-23-040																																																																					
Measurements are in full conformity with ISO 3743-1																																																																							





## Detailed test results of sound power measurement – Test N#3

		<h3>Sound power levels according to ISO 3743-1:2010</h3>																																																																			
Engineering method for small, movable sources in reverberant fields - Comparison method for hard-walled test rooms																																																																					
Client: Midea		Date of test: 20-01-2024																																																																			
Object: Type: Air to water heat pump Model: MHC-V6WD2N8-BE30																																																																					
Mounting conditions: The outdoor unit is mounted on the supporting metal support frame using six vibration insulators and placed on four pieces of concrete tiles (20x20x2.5 cm). All of these are placed in a water drop tray 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: 66[Hz], Fan speed: 550[rpm], Pump speed: 31 [%], EXV1(P): 196, Heating capacity: 6.13 [kW], Power_input: 2.06 [kW], Water flow rate: 668 [l/h]																																																																					
Static pressure: 101.7 kPa		Reference box:																																																																			
Air temperature: 7.0 °C		L1: 1.3 m																																																																			
Relative air humidity: 84.0 %		L2: 0.4 m																																																																			
Test room volume: 102.8 m³		L3: 0.7 m																																																																			
Area, S, of test room: 138.9 m²		Volume: 0.4 m³																																																																			
Room: Room 2																																																																					
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<b>Sound power level L<sub>w</sub>(A): 60.1 dB [re 1pW],      Uncertainty <math>\sigma_{tot}</math>: 1.6 dB</b>																																																																					
Name of test institute: DTI		Date: 20-01-2024																																																																			
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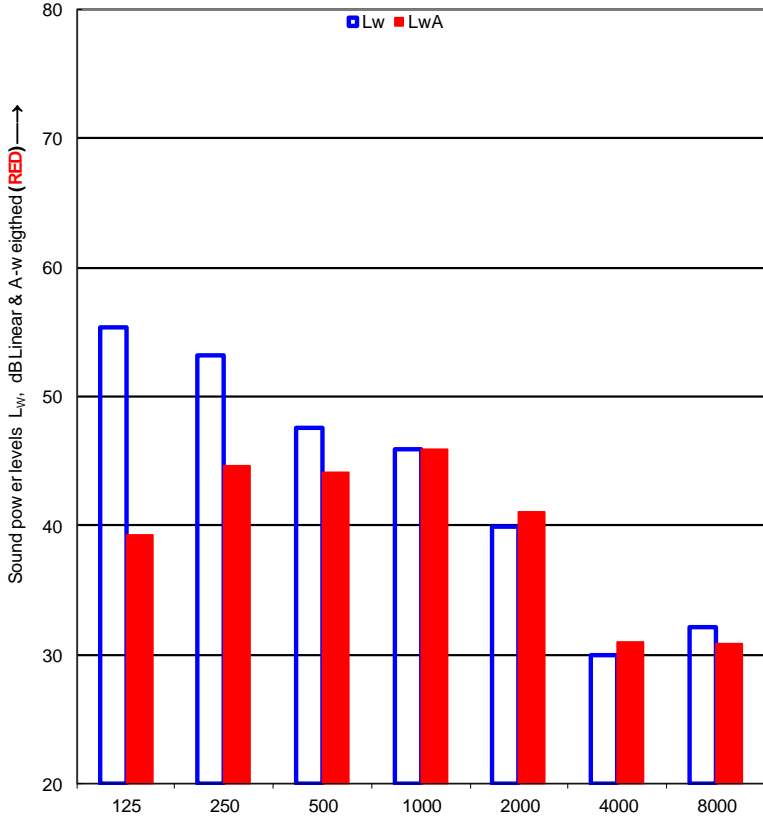


## Detailed test results of sound power measurement – Test N# 4

	<h3>Sound power levels according to ISO 3743-1:2010</h3>		<b>TEKNOLOGISK INSTITUT</b>
Engineering method for small, movable sources in reverberant fields - Comparison method for hard-walled test rooms			
Client:	Midea	Date of test:	20-01-2024
Object:	Type: Air to water heat pump Model: MHC-V6WD2N8-BE30		
Mounting conditions:	The outdoor unit is mounted on the supporting metal support frame using six vibration insulators and placed on four pieces of concrete tiles (20x20x2.5 cm). All of these are placed in a water drop tray 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: 38[Hz], Fan speed: 400[rpm], Pump speed: 31 [%], EXV1(P): 114, Heating capacity: 3.19 [kW], Power_input: 1.14 [kW], Water flow rate: 405 [l/h]		
Static pressure:	101.7 kPa	Reference box:	
Air temperature:	7.0 °C	L1:	1.3 m
Relative air humidity:	84.0 %	L2:	0.4 m
Test room volume:	102.8 m <sup>3</sup>	Room:	Room 2
Area, S, of test room:	138.9 m <sup>2</sup>	L3:	0.7 m
		Volume:	0.4 m <sup>3</sup>

Frequency f [Hz]	L <sub>w</sub> 1/3 octave [dB]	1/1 oct [dB]
100	52.5	
125	47.9	55.3
160	50.1	
200	49.0	
250	48.5	53.2
315	47.7	
400	44.2	
500	42.5	47.6
630	41.2	
800	40.9	
1000	42.0	46.0
1250	40.5	
1600	38.4	
2000	33.2	39.9
2500	29.4	
3150	26.9	
4000	24.4	30.0
5000	23.5	
6300	27.4	
8000	26.0	32.1
10000	28.3	

<b>Sound power level L<sub>w</sub>(A): 50.7 dB [re 1pW],      Uncertainty <math>\sigma_{tot}</math>: 1.6 dB</b>
---

Name of test institute:	DTI	Date:	20-01-2024
No. of test report:	300-KLAB-23-040		
Measurements are in full conformity with ISO 3743-1			



## Appendix 1

### Unit specification

Type of unit: Mono air to water heat pump  
Manufacturer: Midea  
Size of the heat pump: 0.4 x 0.7 x 1.3m (W x L x H)  
Year of production: n/a.

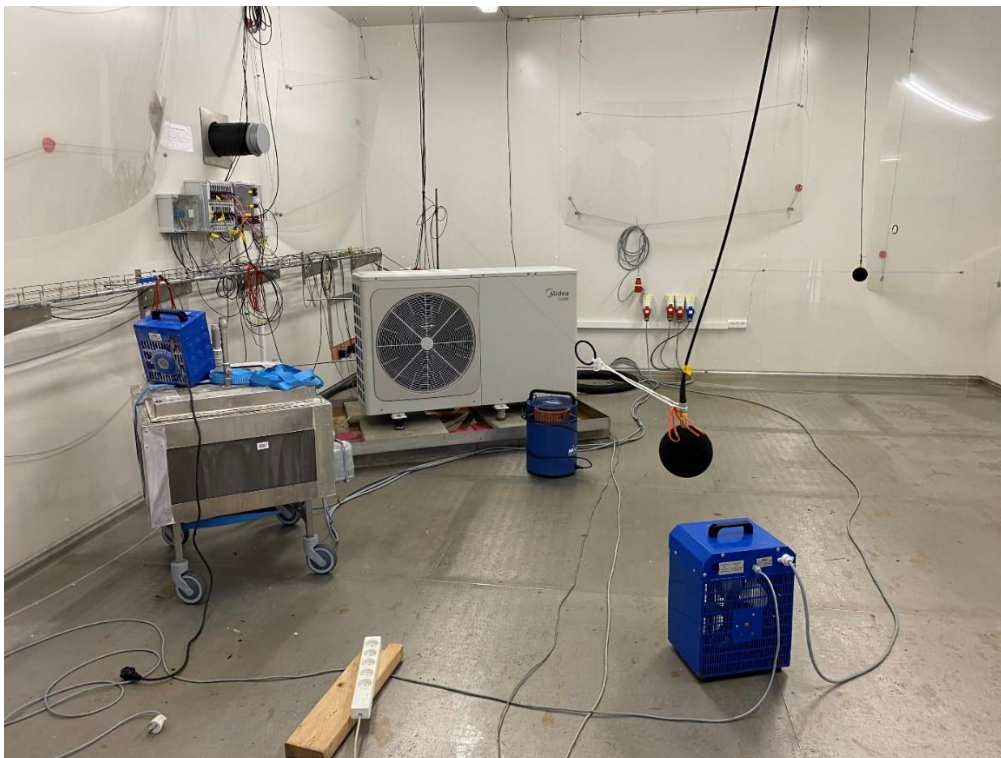
### Operating conditions and environment

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<sup>3</sup> 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

<b>Id nr.</b>	<b>Manufacturer</b>	<b>Description</b>	<b>Calibration company</b>
100864	GRAS	Gras 40AE_26CA, 1/2" free field microphone, Room 1	Norsonic A/S, Norway
100865	GRAS	Gras 40AE_26CA, 1/2" free field microphone, Room 1	Norsonic A/S, Norway
100866	GRAS	Gras 40AE_26CA, 1/2" free field microphone, Room 1	Norsonic A/S, Norway
100867*	GRAS	Gras 40AE_26CA, 1/2" free field microphone, Room 2	Norsonic A/S, Norway
100868*	GRAS	Gras 40AE_26CA, 1/2" free field microphone, Room 2	Norsonic A/S, Norway
100869*	GRAS	Gras 40AE_26CA, 1/2" free field microphone, Room 2	Norsonic A/S, Norway
100870	GRAS	Gras 40AE_26CA, 1/2" 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:

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

$\sigma_{RO}$  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.

$\sigma_{omc}$  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. Possible instability of the operating conditions is monitored and assessed prior to each noise test.





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

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

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

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

### Authorization Letter

This declaration of conformity is issued under the sole responsibility of

**Manufacturer's Name:** GD Midea HEATING&VENTILATING Equipment Co.,Ltd.

**Manufacturer's Address:** Midea Industrial City, Shunde, Foshan, Guangdong, P.R. China

We declare that the following Heat pump product we produced for BAXI S.p.A are identical to our following models

Master company(Midea) model	BAXI model
MHC - V4W/D2N8-B	AURIGA 4 M-A
MHC - V6W/D2N8-B	AURIGA 6 M-A
MHC - V8W/D2N8-B	AURIGA 8 M-A
MHC - V10W/D2N8-B	AURIGA 10 M-A
MHC - V12W/D2N8-B	AURIGA 12 M-A
MHC - V16W/D2N8-B	AURIGA 16 M-A
MHC - V12W/D2RN8-B	AURIGA 12 T-A
MHC - V16W/D2RN8-B	AURIGA 16 T-A

Company name: BAXI S.p.A

Tradename /-mark: BAXI

Address: Via Trozzetti, 20 I-36061 BASSANO DEL GRAPPA (VI).

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

Production year: 2021~2024

Date : 20/03/2024

Authorization: 

