



CREATING FUTURES THROUGH SCENARIOS

AIR SOURCE HEAT PUMPS
ORIGINATING FROM NATURE.

INTRODUCTION OF TMF AIR SOURCE HEAT PUMP

THERMOFLOW TECHNOLOGIES UK LTD.



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18kW HP 45kW HP
90kW HP 500kW HP

About us

Our Mission

To become the UK's most agile provider of high-efficiency data center cooling systems, next-generation heat pumps, and advanced energy storage thermal solutions, driving the transition to sustainable energy while meeting the demands of a rapidly evolving digital world.

Our Vision

To lead the way in sustainable thermal energy solutions, empowering industries to achieve optimal performance, reduce environmental impact, and thrive in a technology-driven future.



Advantages

The Capacity of R&D

All products in the series are independently developed, with intellectual property rights of core technologies. We also possess the capabilities of a heat pump laboratory and virtual simulation analysis, which places our thermal management technology in a world-leading position.

Diversified Service

With diversified products and services, we have realized various business service models such as product sales, contract energy management services, financing or operating leasing, etc., fully meeting the needs of customers in all aspects.

Excellent System

The heat pump system is green, digital and intelligent. Our team has complete installation, operation, maintenance and service capabilities, possesses years of technical engineering experience, implements intelligent operation and maintenance management, and ensures product quality and project returns.

Company Values

The development concept of "technological leadership, product empowerment, low carbon ecology, and service priority" is adopted to provide customers with green and low carbon, efficient, quiet, safe and reliable energy saving products.



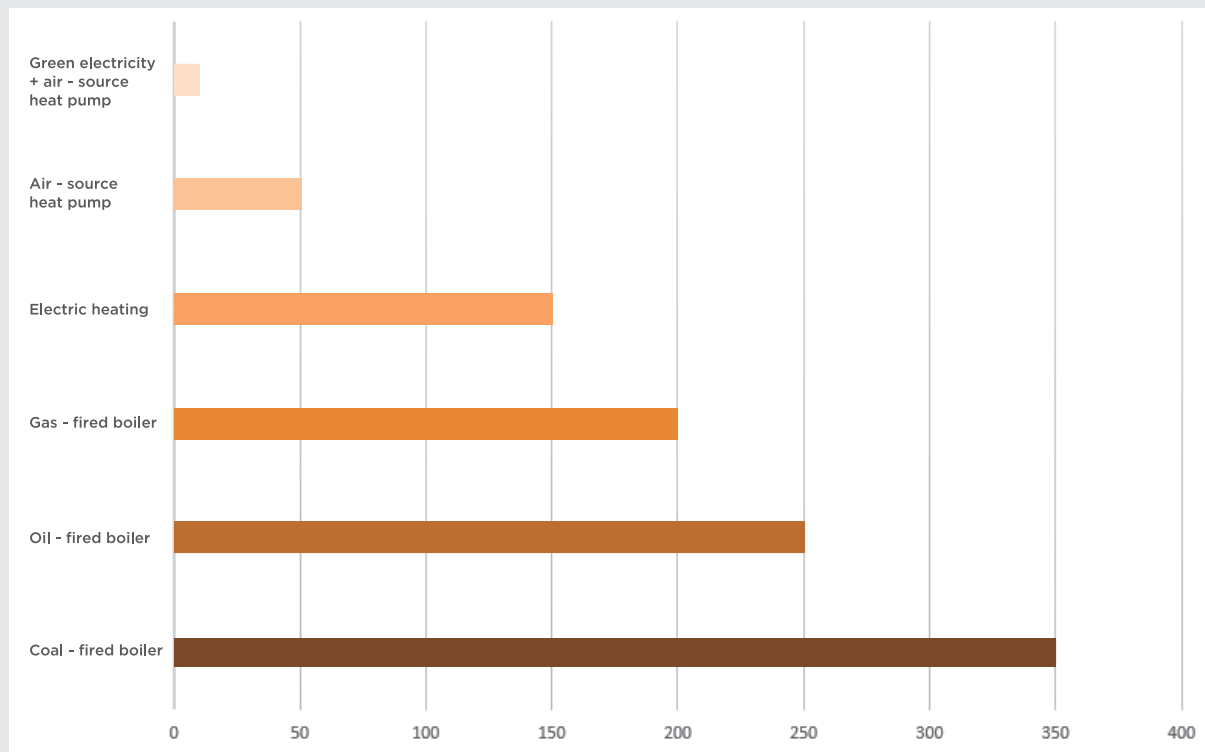
Application background

Climate change accelerates carbon neutrality


The Paris Agreement, jointly signed by 196 countries around the world, aims to address global climate change, control carbon dioxide emissions, enhance carbon sink capacity, achieve a balance of the carbon cycle, and is of great significance for dealing with global climate change.

Heat pumps are the main technical route for low carbon

CO2 equivalent emissions from different heating systems

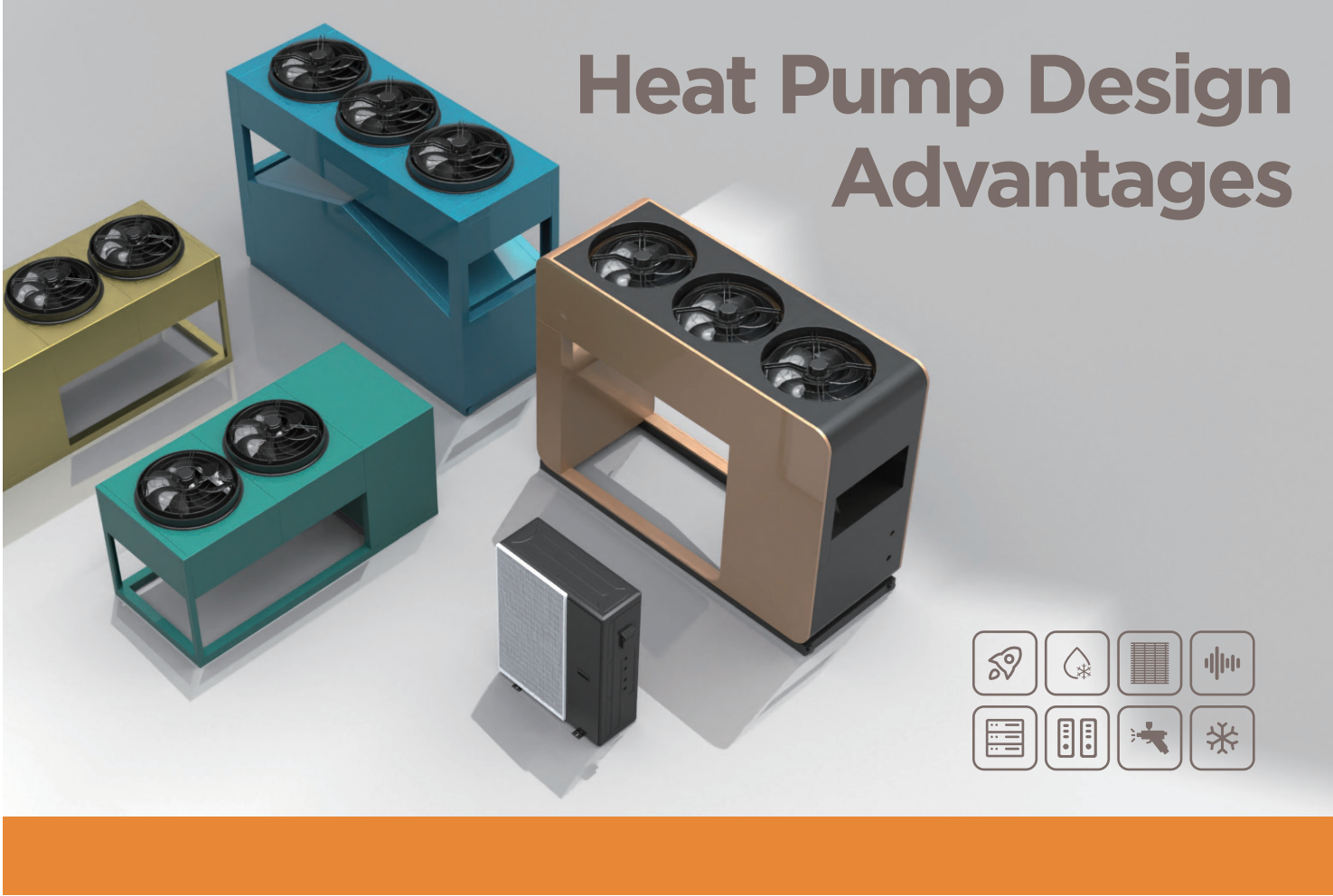


*来源：欧洲热泵协会研究报告2023年及基础计算

An aerial photograph of a modern, multi-story building with a flat roof. The building's facade is composed of dark, vertical glass panels. The roof is light-colored and features a large, central, square skylight with a white, geometric lattice pattern. Four rectangular, white, perforated structures are positioned around the central skylight. The building is situated in an urban environment, with roads, green spaces, and other buildings visible in the background. The sun is low in the sky, creating a bright glow and long shadows.

Whenever a "heat pump" is mentioned, many people first think of an air source heat pump. It is not only overly suitable for new buildings ,but can also be quickly retrofitted to existing buildings. Air source heat pumps are a high-efficiency energy conversion device, using an electromechanical compression heating cycle to obtain combined heat from the air quantity, converting low-grade heat energy into high-grade heat energy, meeting the needs of construction, industrial, and all fields landscape heat demand.

Heat Pump Design Advantages



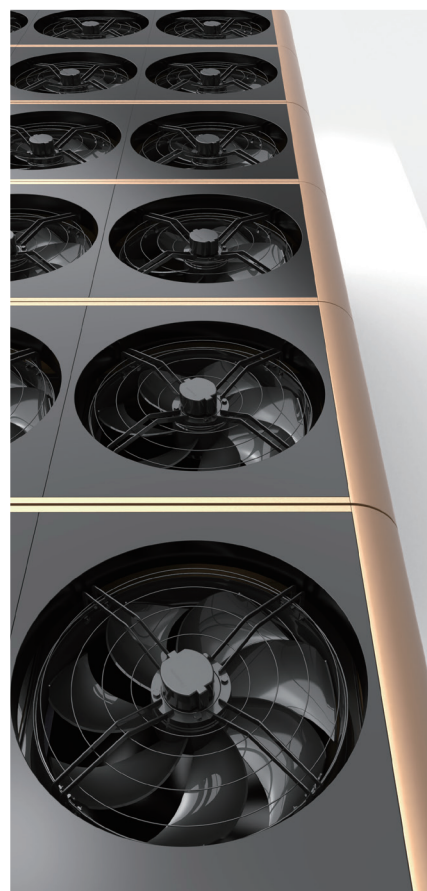
Advantages

Heat Pump Design Advantages

European genes: UK User Center, Austrian Aesthetics Center, German Innovation Center.

Adhere to the essence of simplicity and long term quality innovation. Embrace openness and collaboration, jointly innovate, and create a new ecosystem of AI smart technology.

Advantages



Ultra-efficient

A full range of top European brand components, unique defrosting technology and high efficiency and energy saving.

Silent Running

By adopting the eight-layer vibration reduction and noise reduction technology combined with the frequency conversion technology of the fan, an excellent level of silence has been achieved, and it has been widely recognized in regions with very strict relevant requirements.

Combined Cooling Heating and Heat Water

The operation mode can be freely switched, integrating three supply methods of cooling, heating and hot water supply.

Collaboration of Multiple Heat Sources

Customized heat pumps can be coupled with solar and photovoltaic energy storage for green power supply.energy saving.

Easy to install

The heat pump system features an integrated design, which saves space and can be put into operation once the waterway and power supply are connected.

AI

From the stage of intelligent Internet of Things and scene interconnection training to the stage of autonomous learning, it can automatically adjust parameters according to the weather and users' usage habits, control energy consumption adaptively, and understand users better.

Super long life

The equipment has a lifespan of more than 20 years, meeting the requirements of contracted energy management projects.

18kW HP

Product Features

- It adopts full DC frequency conversion, which is super energy-saving, and its energy efficiency ratio is as high as 3.12.
- The third generation EVI gas injection and enthalpy increase heat pump can operate within a wide temperature range of -35°C to 50°C.
- Eight kinds of anti-freezing protection, safe and reliable.
- Use R32/R290 environmentally friendly refrigerants, and the maximum outlet water temperature can reach 65°C.
- It features flexible suspension and eight measures for vibration reduction and noise reduction, reducing the noise level to as low as 45 dB(A).

Perfect for

Villas, residences, and other places that require silence.



18kW HP

45kW HP



45kW HP

Product Features

- Ultra low noise, with eight vibration reduction measures and an EC DC frequency conversion fan. The minimum operating noise is below 50 decibels. For the customized version, the noise level can be lower than 45 decibels.
- Excellent low-temperature performance with gas injection and enthalpy increase.
- The heating season lasts for 120 days, and the comprehensive COP value is as high as 3.3.
- The designed service life is more than 20 years, meeting the requirements of contract energy management projects
- AI defrosting accounts for 2% -3% of total energy consumption.
- The vertical fins can perform self cleaning, maintain their performance without attenuation, and require no maintenance.
- The fluorocarbon spraying surface enables the equipment to maintain its aesthetic appearance for 30 years.

Perfect for

Villas, residences, and other places that require silence.

90kW HP

Product Features

- Ultra low noise, with eight vibration reduction measures and an EC DC frequency conversion fan. The minimum operating noise is below 50 decibels.
- Excellent low-temperature performance with gas injection and enthalpy increase.
- The heating season lasts for 120 days, and the comprehensive COP value is as high as 3.3.
- Modular design is easy to install and maintain.
- AI defrosting accounts for 2% -3% of total energy consumption.
- The vertical fins can perform self cleaning, maintain their performance without attenuation, and require no maintenance.
- The fluorocarbon spraying surface enables the equipment to maintain its aesthetic appearance for 30 years.
- The designed service life is more than 20 years. Meet the requirements of contracted energy management projects.

Perfect for

Industrial and commercial buildings that require the simultaneous supply of both cold and warm air.



90kW HP



500kW HP



500kW HP Product Features

- It has excellent low temperature heating performance and can operate normally at a temperature of -35°C .
- The heating season lasts for 120 days, and the comprehensive COP value is as high as 3.3.
- Modular design is easy to install and maintain.
- Optional hydraulic module to adapt to different scenarios.
- AI defrosting accounts for 2% -3% of total energy consumption.
- The vertical fins can perform self cleaning, maintain their performance without attenuation, and require no maintenance.
- The fluorocarbon spraying surface enables the equipment to maintain its aesthetic appearance for 30 years.
- The designed service life is more than 20 years. Meet the requirements of contracted energy management projects.

Perfect for

Places with high demand for heating and cooling, such as offices, commercial buildings, industrial facilities, and residential buildings.

All-in-one 18kW

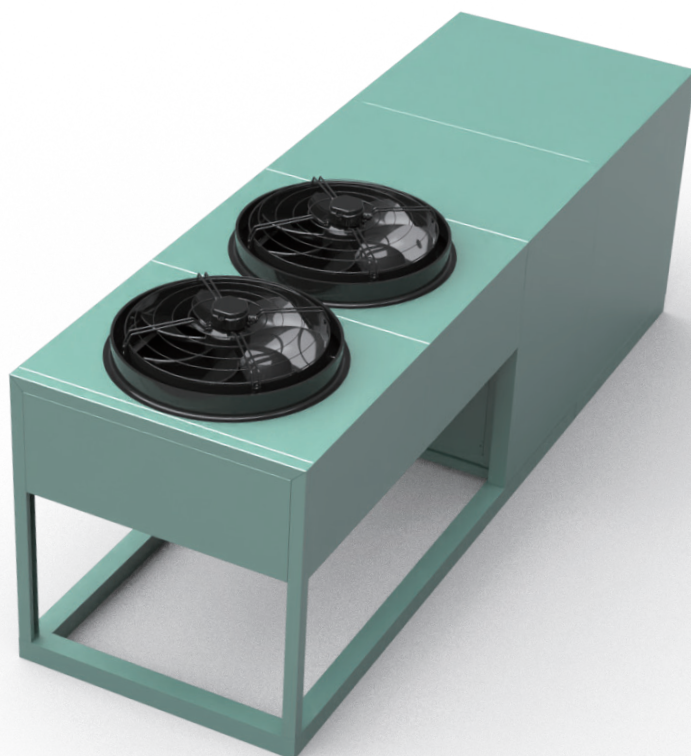
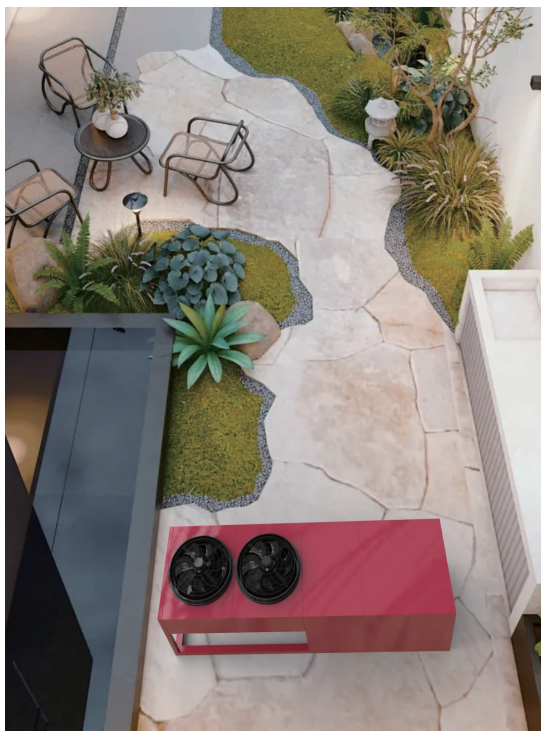
Product Features

- Ultra low noise, with eight vibration reduction measures and an EC DC frequency conversion fan. The minimum operating noise is below 50 decibels.
- Excellent low-temperature performance with gas injection and enthalpy increase.
- The heating season lasts for 120 days, and the comprehensive COP value is as high as 3.3.
- Modular design is easy to install and maintain.
- AI defrosting accounts for 2% -3% of total energy consumption.
- The vertical fins can perform self cleaning, maintain their performance without attenuation, and require no maintenance.
- The fluorocarbon spraying surface enables the equipment to maintain its aesthetic appearance for 30 years.
- The designed service life is more than 20 years. Meet the requirements of contracted energy management projects.

Perfect for

Villas, residences, and other places that require silence.





All-in-one 45kW Product Features



- Ultra low noise, with eight vibration reduction measures and an EC DC frequency conversion fan. The minimum operating noise is below 50 decibels.
- For the customized version, the noise level can be lower than 45 decibels.
- Excellent low-temperature performance with gas injection and enthalpy increase.
- The heating season lasts for 120 days, and the comprehensive COP value is as high as 3.3.
- The designed service life is more than 20 years, and meet the requirements of contracted energy management projects.
- AI defrosting accounts for 2% -3% of total energy consumption.
- The vertical fins can perform self cleaning, maintain their performance without attenuation, and require no maintenance.
- The fluorocarbon spraying surface enables the equipment to maintain its aesthetic appearance for 30 years.
- The heat pump unit is integrated with the hydraulic system, making the installation convenient. It can be debugged and operated just by connecting the water and electricity.

Perfect for

Luxurious office areas, villas, hotels, residential houses and other places that require silence.

All-in-one 90kW

Product Features

- Ultra low noise, with eight vibration reduction measures and an EC DC frequency conversion fan. The minimum operating noise is below 50 decibels.
- Excellent low-temperature performance with gas injection and enthalpy increase.
- The heating season lasts for 120 days, and the comprehensive COP value is as high as 3.3.
- Modular design is easy to install and maintain.
- AI defrosting accounts for 2% -3% of total energy consumption.
- The vertical fins can perform self cleaning, maintain their performance without attenuation, and require no maintenance.
- The fluorocarbon spraying surface enables the equipment to maintain its aesthetic appearance for 30 years.
- The designed service life is more than 20 years.
- Meet the requirements of contracted energy management projects.
- The heat pump unit is integrated with the hydraulic system, making the installation convenient. It can be debugged and operated just by connecting the water and electricity.



Perfect for

Luxurious office areas, villas, hotels, residential houses and other places that require silence.





All-in-one 500kW Product Features

- It has excellent low temperature heating performance and can operate normally at a temperature of -35°C .
- The heating season lasts for 120 days, and the comprehensive COP value is as high as 3.3.
- Modular design is easy to install and maintain.
- Optional hydraulic module to adapt to different scenarios.
- AI defrosting accounts for 2% -3% of total energy consumption.
- The vertical fins can perform self cleaning, maintain their performance without attenuation, and require no maintenance.
- The fluorocarbon spraying surface enables the equipment to maintain its aesthetic appearance for 30 years.
- The designed service life is more than 20 years, and meet the requirements of contracted energy management projects.
- The heat pump unit is integrated with the hydraulic system, making the installation convenient. It can be debugged and operated just by connecting the water and electricity.

Perfect for

Luxurious office areas, villas, hotels, residential houses and other places that require silence.

Free Combination

01

It can be flexibly arranged the quantity of equipment according to the project requirements, and the required quantity can be invested.



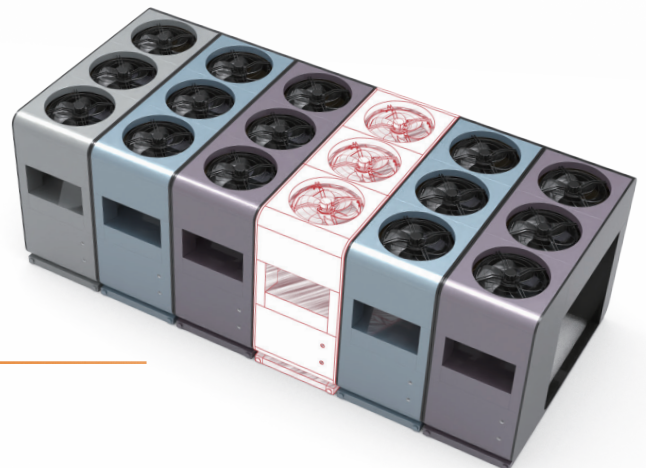
02

It enables multi-level capacity adjustment. According to the users' demands, it can automatically adjust the number of equipment in operation, providing cooling and heating as needed, and always maintaining an economical operation status.



03

When any slave machine requires maintenance or repair, it will not affect the normal operation of other units. Moreover, the master/slave machine attributes can be changed on-site to promptly deal with the occurrence of master machine failures.



Product Parameters

Item type	Units	TBLNB-018UQP	TBLNA-040YQ	TBLNB-045YQ	TBLNB-090YQ	TBLNB-500YQ
Voltage	V	220V/50Hz	380V/50Hz	380V/50Hz	380V/50Hz	380V/50Hz
Rated heat capacity	kW	18 (A7W45)	40 (A7W45)	45 (A7W45)	90 (A7W45)	520 (A7W45)
Low temperature heat capacity	kW	12.2 (A-20W41)	20.8 (A-20W41)	27.5 (A-20W41)	48 (A-20W41)	285 (A-20W50)
Rated input power	kW	5.1 (A7W45)	12.82 (A7W45)	14.42 (A7W45)	23.68 (A7W45)	144.44 (A7W45)
Low temperature input power	kW	5.81 (A-20W41)	10.15 (A-20W41)	13.48 (A-20W41)	18.64 (A-20W41)	136.36 (A-20W50)
COPh	W/W	3.53 (A7W45)	3.12 (A7W45)	3.12 (A7W45)	3.8 (A7W45)	3.6 (A7W45)
COPdh	W/W	2.1 (A-20W41)	2.05 (A-20W41)	2.04 (A-20W41)	2.58 (A-20W41)	2.09 (A-20W50)
Nominal refrigerating capacity	kW	15 (A35W7)	30 (A35W7)	32.6 (A35W7)	70 (A35W7)	435 (A35W7)
Nominal heat capacity	kW	14.0 (A-12W41)	25 (A-12W41)	29 (A-12W41)	53 (A-12W41)	330 (A-12W41)
Nominal refrigerating input power	kW	5.56 (A35W7)	11.32 (A35W7)	12.3 (A35W7)	20.7 (A35W7)	145 (A35W7)
Nominal heat input power	kW	5.6 (A-12W41)	10.2 (A-12W41)	11.93 (A-12W41)	20.78 (A-12W41)	125.95 (A-12W41)
COPc	W/W	2.7 (A35W7)	2.65 (A35W7)	2.65 (A35W7)	3.39 (A35W7)	3.10 (A35W7)
COPh	W/W	2.5 (A-12W41)	2.45 (A-12W41)	2.43 (A-12W41)	2.56 (A-12W41)	2.62 (A-12W41)
HSPF	(W.h)/(W.h)	3.11	3.05	3.05	2.85	2.85
APF	(W.h)/(W.h)	3.12	3.06	3.06	3.10	3.10
Energy efficiency grade(GB19577)	/	First-level	First-level	First-level	First-level	First-level
Energy efficiency grade(EN14511)	/	A++(35°C)	A++(35°C)	A++(35°C)	A++(35°C)	A++(35°C)
Heat water operating limit temperature	°C	65	60	60	60	60
Size of water connector	/	DN25	DN40	DN40	DN50	DN100
Water side resistance	Kpa	50	50	50	50	70
Water flow rate	m ³ /h	2.7	7.5	7.5	15	90
Sound power level (LWA)	dB/(A)	57	60	61	63	63
Size	mm	990*450*1365	815*815*1767	2354*1054*1318	2870*1070*2200	2870*6480*2200
Weight	Kg	128	220	600	750	4500
Maximum input power	KW	8.00	13.50	14.80	38	228
Maximum input current	A	31	33	37.0	64.5	378
Level of protection	/	IPX4	IPX4	IPX4	IPX4	IPX4
Maximum working pressure	Mpa	4.3	4.3	4.3	4.3	4.3
Rate of application	°C	-35~50	-35~50	-35~50	-35~50	-35~50
Refrigerant charge	Kg	R32	R32	R32	R32	R32
Compressor	/	Two-spool	Two-spool	scroll	scroll	scroll

ThermoFlow Technologies UK Ltd.

info@thermoflowtech.co.uk.

www.thermoflowtech.co.uk

