



DC Inverter Air Source Heat Pump

-25C Application



The reliable and efficient heating/cooling system



Over view

Meidibao DC inverter air source heat pump utilize DC inverter technology and REPM compressor which running speeds can be adjusted follow the variation of ambient or water temperature, hence to regulate the output capacity with changeably, this can heat the storage tank or room much quicker than normal on/off heat pumps, and balance the water or air temp very precisely. This also provides a very high COP as inverter system does not waste the energy. By inverter technology of frequency changeable the inverter heat pump can increase the compressor speeds to be more than 5000rpm at very low ambient at -25C. This can increase refrigerant mass flow rate to offset the source energy loss and keep an acceptable performance



Monoblock Type



Split Type

Advantages

Meidibao Inverter operates 4-5 times more efficiently than a traditional heating system as fossil fuels or electricity. By utilizing the heat in the air, you use far less energy while still enjoying a stable and pleasant of comfort. Also maintenance requirements are minimal ensuring low running costs. Thanks for the excellent components of compressor, plate exchanger, EEV, smart control system Meidibao Inverter energy savings are even greater than most other heat pump

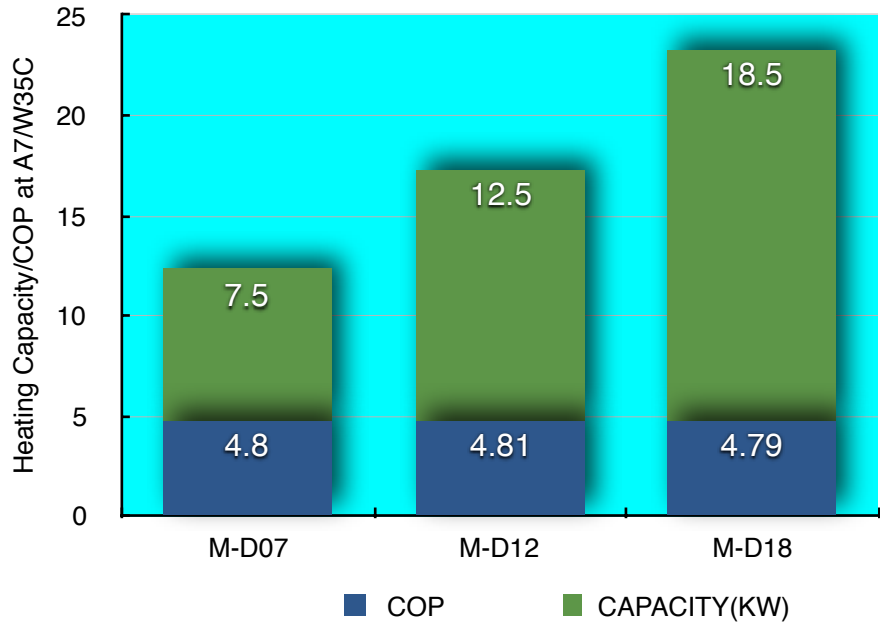
● Low ambient -25C application

The most advantage of Meidibao inverter series is it can work at extremely cold climate such as minus 25 degrees, and still provide reasonable performance. This superior feature is created by unique design and high inverter technology of Meidibao

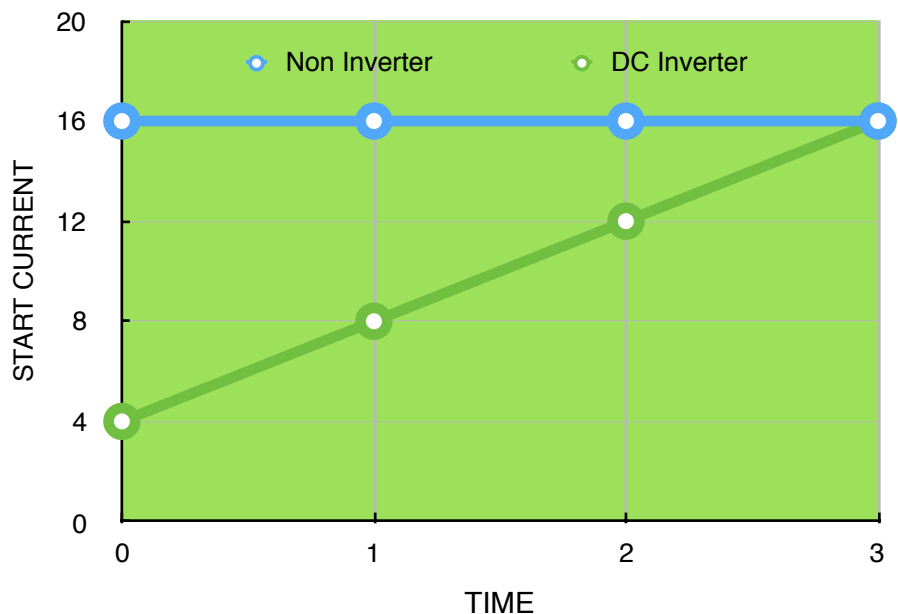
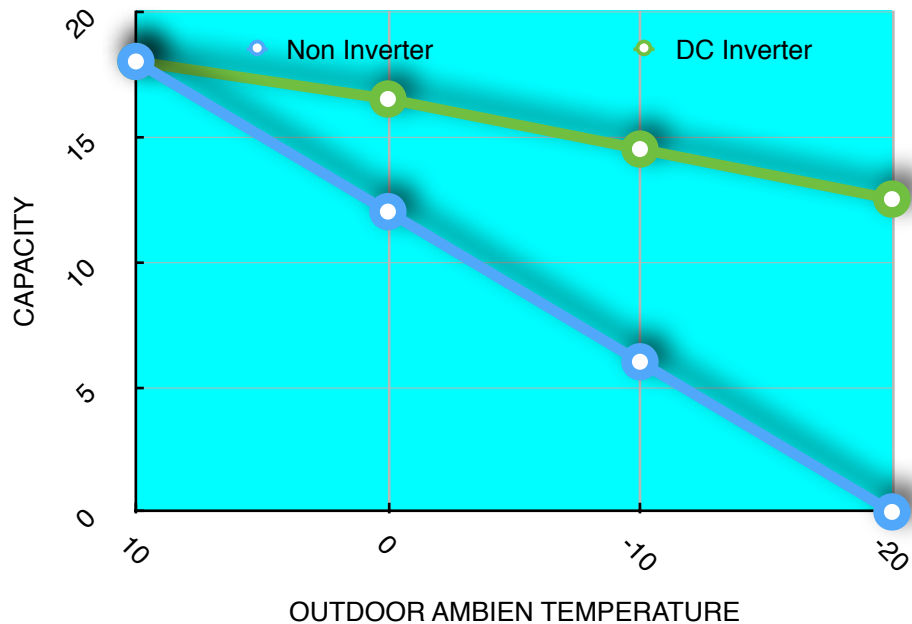
● Low current start up

Meidibao Inverter series is other than traditional heat pumps, which start current is almost double times than normal operation current. This gives hugely Impact to the power line and other electrical appliances. With variable speed compressor and inverter IPM module, the start current of Meidibao Inverter series is only 10% of its normal operation current.

Performance of Meidibao Inverter series



Performance comparison between DC inverter and normal heat pump at different ambient



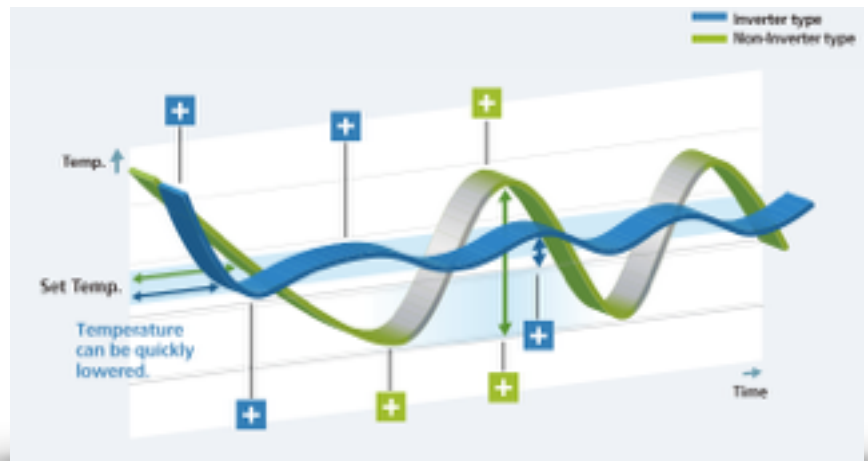


● Intelligent Internet and APP Control

Armed with Intelligent internet and app control program of meidibao inverter units, you can operate and monitoring your unit any time, anywhere. Watching the temperatures, pressure, current, energy consumption and fault diagnosis etc all this gives the user a pleasant experience;

● Precise temperature control

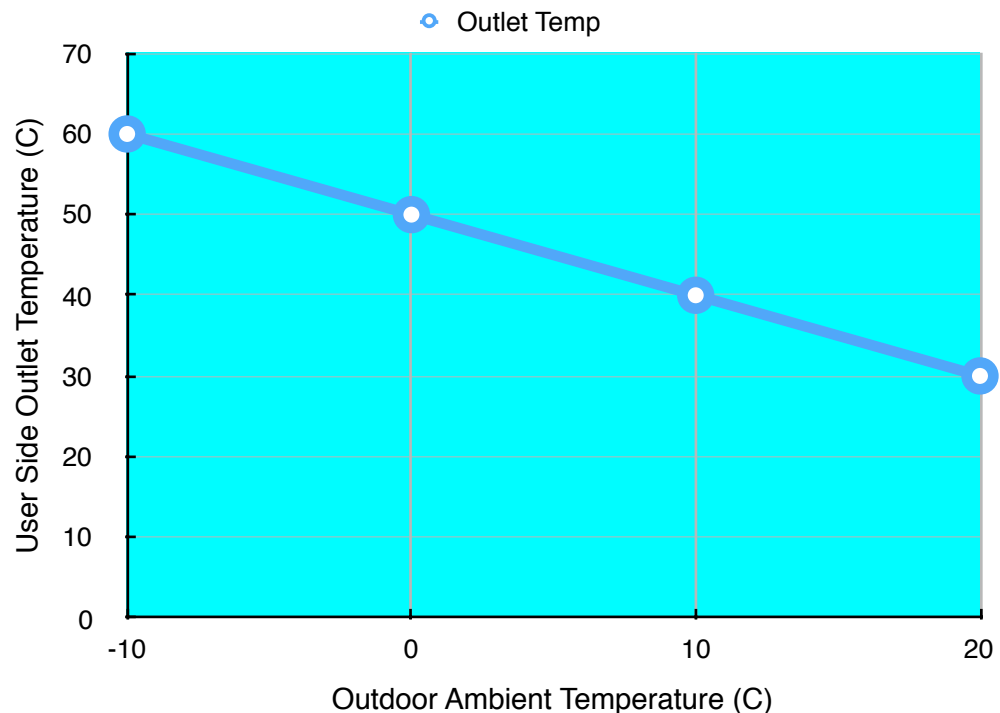
Compressors are driven by motor, and motor rotation speed depends on the power supply frequency. An inverter modulates power supply frequency to control motor rotation speed. Inverters stable temperature by adjusting the compressor operation according to the load to eliminate waste and save energy.



Temperature control by inverter/Non inverter compressor

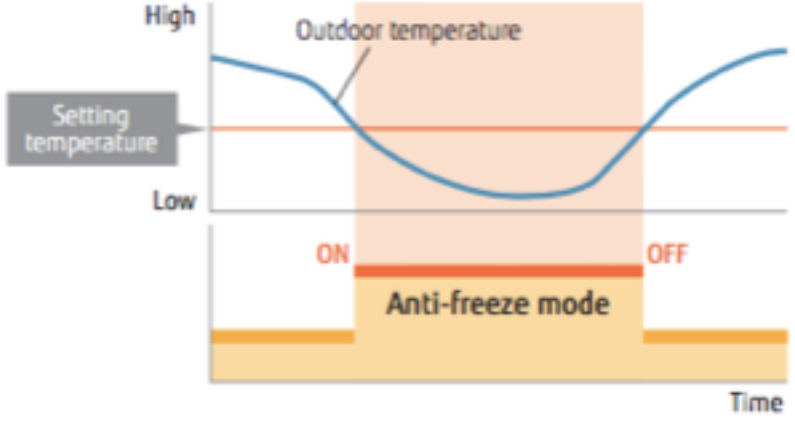
● Automatic heating curve control based on outdoor temp and setting room temperature.

When user set Auto heating mode, Meidibao inverter units regulate the outlet water temperature automatically according to the outdoor temperature variation, if the ambient temperature is higher then the outlet water temperature will be lower, this can save more energy and provide more comfortable than other heat pumps without heating curve function.



Anti-legionella function
 The growth of Legionella in DHW tank is suppressed and safe and clean hot water is supplied at all times.

Anti-freeze function
 Water circulation and compressor can be automatically performed at low outdoor temperature. Freezing of circulated water can be pre-vented.

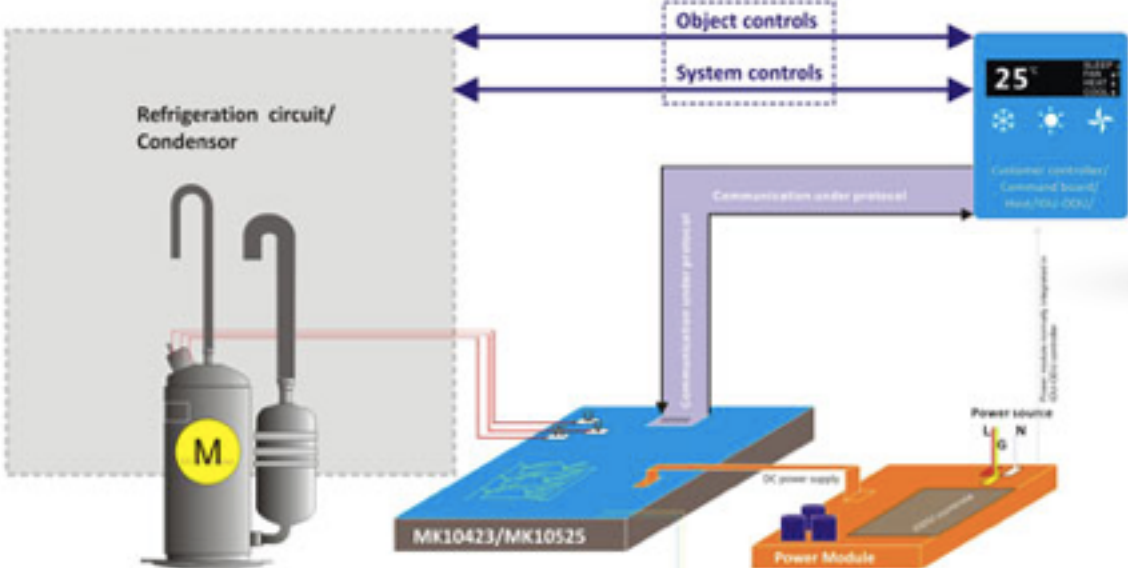


Design Features

● **Inverter-driven compressors.**
 Allows the compressor to ramp up and ramp down as the cooling or heating need increases or decreases. Meidibao has adopted the famous brand inverter compressor which has the superior performance and reliability.



● **Intelligent inverter controller**
 Meidibao DC inverter controller is consisted of IPM, PFC Power Function modules and operating panel, utilize 180 degrees PAM sinusoidal wave control, which regulates very precise speeds while the inverter compressor is running. Combine with multiple using functions and user friendly operating panel, the whole Meidibao inverter units always provide excellent performance and enjoyment.



IPM module

● **SWEP plate exchanger**

The highly efficient SWEP plate exchanger has been developed to have a maximum thermal length. Precision optimization allows efficient operation even at extremely small temperature differences, making the product the obvious choice for applications demanding high heat flux and improved energy utilization



● **Electrical Expansive Valve**

Carel electronic expansion valves are designed to meet any cooling capacity requirements up to 2000 kW in air-conditioning and refrigeration applications, and stand out above all for their excellent flow control, even at lower flow-rates.

High efficiency class A pump
Energy saving pump with constant volume or pressure adjustment function.

Easy control -4 heating mode
Auto mode 1-Tank +room heating
Auto mode 2-Tank heating+room cooling
Mode 3- Only Tank heating
Mode 4- Only room heating or cooling

Class A



Specifications

Model		M-D07ADH-M	M-D12ADH-M	M-D18ADH-M
Function		Hot water+Room heating+Room cooling+Solar control		
Power supply	P/V/Hz	1/220-240/50-60	1/220-240/50-60 or 3/380-420/50-60 alternative	
Compressor operation frequency	Hz	30-90	30-90	30-85
Heating performance of mono block and split type at A7/W35C according to standard EN14511-2				
Heating capacity	30Hz	2.3KW	3.8KW	5.5KW
	70Hz	7.5KW	12KW	18.5KW

Model		M-D07ADH-M	M-D12ADH-M	M-D18ADH-M
	90Hz	9.2KW	14.5KW	22KW
COP	30Hz	5.2	5.25	5.15
	70Hz	4.95	5.0	4.92
	90Hz	4.1	4.16	4.05
Cooling performance of mono block and split type at A35/W10C according to standard EN14511-2				
Cooling capacity	30Hz	2.06Kw	3.2KW	4.7KW
	70Hz	6.7KW	10.5KW	16.5KW
	90Hz	8.1KW	11.6KW	17.8KW
EER	30Hz	4.56	4.65	4.5
	70Hz	4.2	4.3	4.15
	90Hz	3.9	3.95	3.85

Overall parameters

Source side heat exchanger	Type	Double line tube in fin (Hydrophilic window shape fin)		
User side heat exchanger	Type	Plate exchanger		
Fan	Type	Axial Fan (three speed)		
	QTY	1	1	1
Circulating pump	Type	screened		
	QTY	1	1	1
Water flow volume	m3/h	1.3	2.1	3.2
Net dimensions	mm	600*450*700H	600*450*1000H	600*500*1250
Packing dimensions	mm	650*500*900H	650*500*1200H	650*550*1450H
Net/Packing weight of mono block type	Kg	67/77	95/108	118/133
Net/packing weight of split type outdoor unit	Kg	47/57	70/73	87/102

Note: for split type, the user side plate exchanger, circulating pump is placed in the indoor unit.

Overall parameters of split type indoor unit

Model		M-D07ADH-S	M-D12ADH-S	M-18ADH-S
Net dimensions	mm	450*250*600mm	450*250*600mm	450*250*600mm
Packing dimensions	mm	490*290*640mm	490*290*640mm	490*290*640mm
Net/packing weight	Kg	20/23	25/24	31/36

Meidibao inverter series not only provide Hot water or Room heating, it also has Room cooling and solar collector function, the installation methods is flexible, water tank, radiator, floor heating pipe, fan coils, solar collector even other equipments all of these can be connected and controlled by Meidibao Inverter unit. As only water connection needed, the unit is also easy to replace the old heating equipments.

Main components of Meidibao Inverter series

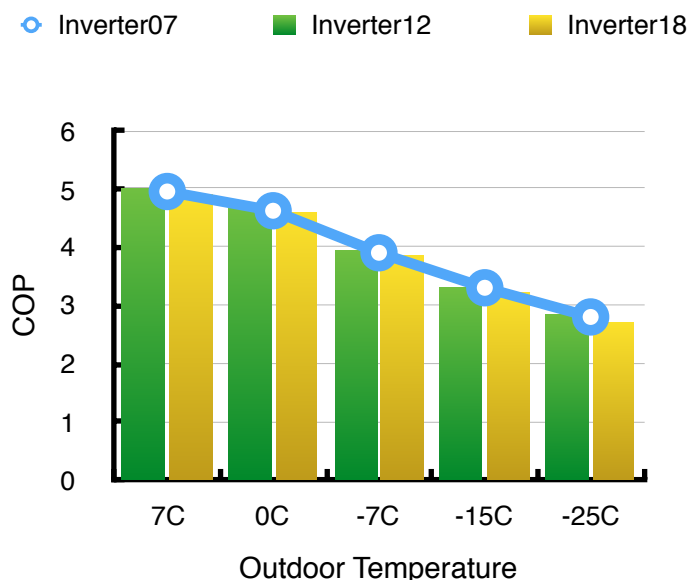
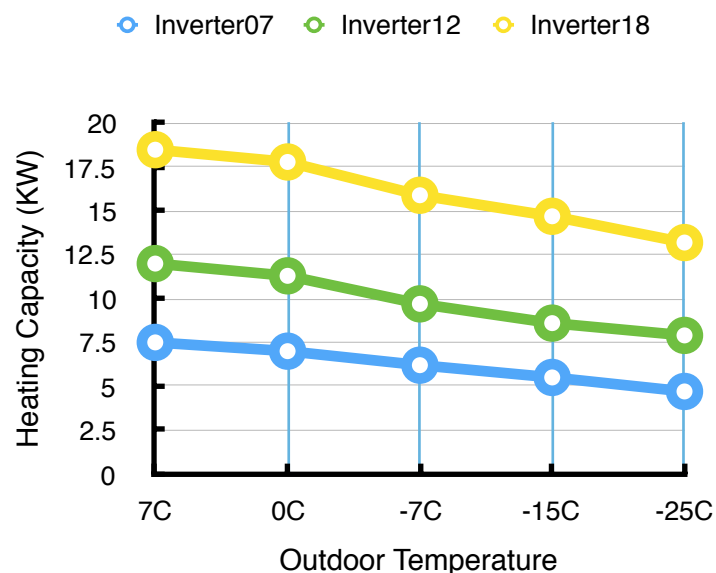
● Standard ● Optional

Model	Inverter07M	Inverter12M	Inverter18M
Inverter compressor	● Panasonic 5KD240XCA21	● Panasonic 5VD420ZAA21	● Mitsubishi/ MNB42FDAMC
User side heat exchanger	● SWEP B25T-18	● SWEP B25T-34	● SWEP B25T-46
Source side heat exchanger	● Tube in fin double row		
EEV	● Danfoss ● Carel		
Water Pump	● Wilo ● Grundfos		
Four way valve inside	● Saginomiya		
Three way valve inside	● okonoff		
Inverter controller	● Mitsubishi IPM Module		
Operating panel	● LCD panel ● Wifi and APP control		
Metal cabinet	● Galvanized Steel Sheet ● Stainless steel		
Color	● White ● Other color		
Refrigerant	● R410A		
Power supply	● 1Phase/ 220-240V/50-60Hz		● 3Phase/380V/50-60Hz ● 1Phase/220-240V/ 50-60Hz

Performance curve

Capacity curve of each model at different temperatures

COP curve of each model at different temperature



High Leaving Water Temperature

No
backup
heater*

High leaving water temperature 60°C kept down to -20°C outdoor temperature without using backup heater.

* If you want to raise the hot water supply temperature, backup heater can be used for the auxiliary operation.

Extended Operation Range Down to -25°C

Improved operation range down to -25°C outdoor temperature



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