



M thermal Arctic Split Series

DC Inverter



Selection Rating Application
Name: ACCL_MH
Selection Rating Application
Version: V1.1



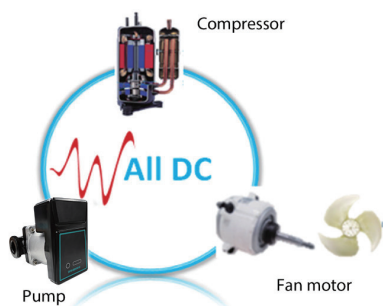
R32 environmental refrigerant

- ❖ Higher heat transfer coefficient and better performance
- ❖ Less charged volume is needed in the system
- ❖ Less costs and easier to get R32
- ❖ Lower GWP and carbon emission (GWP: Global Warming Potential)
- ❖ The GWP value is 675



Inverter system design

All the units are equipped with DC compressor, DC fan motor, DC pump, which allows precise control of motor speed, ensuring that only the power necessary to perfectly match the real load is used and energy saving.

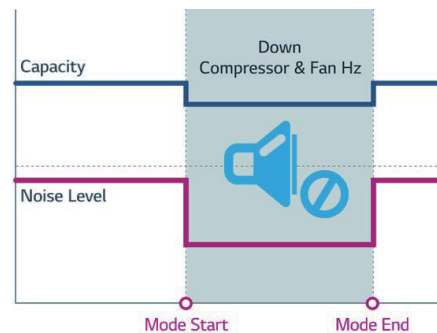


Powerful heating with high efficiency

- ❖ No capacity attenuation at 14°F ambient temperature
- ❖ Operation range down to -13°F
- ❖ Maximum LWT reach 149°F
- ❖ Single point maximum COP 15.33

Extremely silent

- ❖ Two level of silent mode provides more comfort
- ❖ Silent mode minimum sound pressure level 45dB(A)



Multi-function wired controller and APP control

- ❖ Multiple languages meet customer needs
- ❖ Modbus protocol and network flexibility
- ❖ Holiday away & Holiday home makes life convenient
- ❖ Built-in wifi module supports APP control

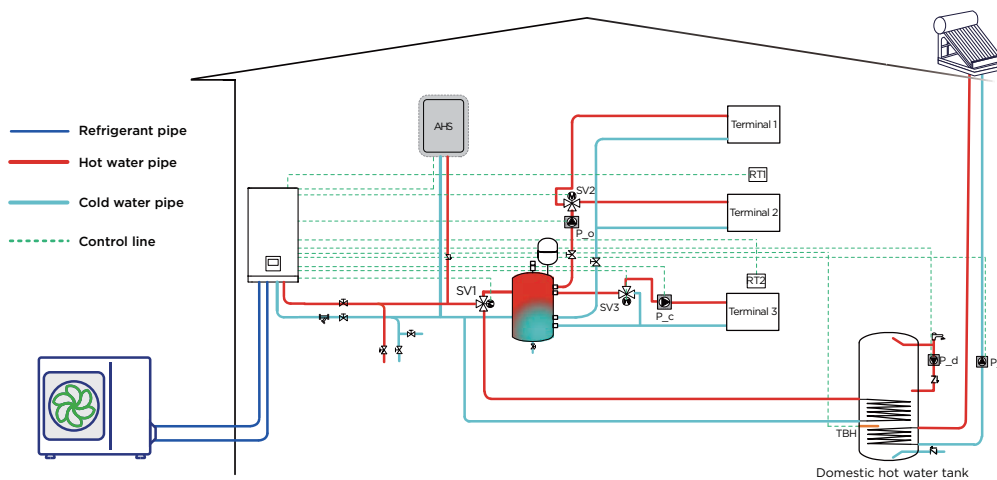


- Through APP, user can
- ❖ Check the running state of heat pump, zone switch, operation mode and temperature.
 - ❖ Set switch, operation mode and temperature of each zone
 - ❖ Know energy consumption and energy-saving suggestion

One-stop solution

Heating, cooling and domestic hot water in one system

M thermal is an integrated system that provides space heating and cooling as well as domestic hot water, offering a complete, all-year-round solution which can remove the need for traditional gas or oil boilers, or work together with them as well as solar system.

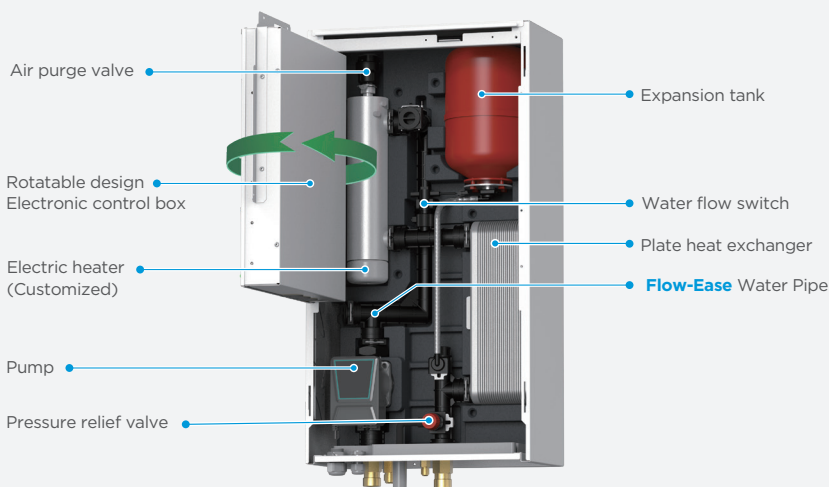


- SV1:** Three-way valve 1(Switching water circuit between space cooling/heating and domestic hot water)
- SV2:** Three-way valve 2(Switching Zone 1 water circuit between space cooling and heating)
- SV3:** Three-way valve 3(Regulating Zone 2 water temperature)

- P_o:** Outside circulation pump
- P_d:** DHW pump
- P_c:** Zone 2 circulation pump
- P_s:** Solar pump

- TBH:** Tank boost heater
- AHS:** Auxiliary heat source
- RT:** Thermostat

Easy maintenance



The picture may differ from the actual products

- Good corrosion resistance, no verdigris
- Excellent thermal insulation performance
- Better performance with lower water resistance
- Low-carbon, reduce production energy consumption
- Lighter for easier transportation and installation
- Quick connection for easier maintenance



- Rotable electronic control box to facilitate hydronic key components maintenance

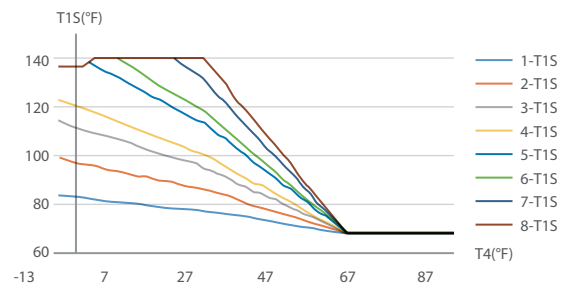
Power limitation function

Power limitation function allows heat pump to suitable a variety of current supplies. 8 configurations can be defined according to the maximum allowable access current. Only simple setting on the wired controller is needed, heat pump can easily fit into more electric applications.



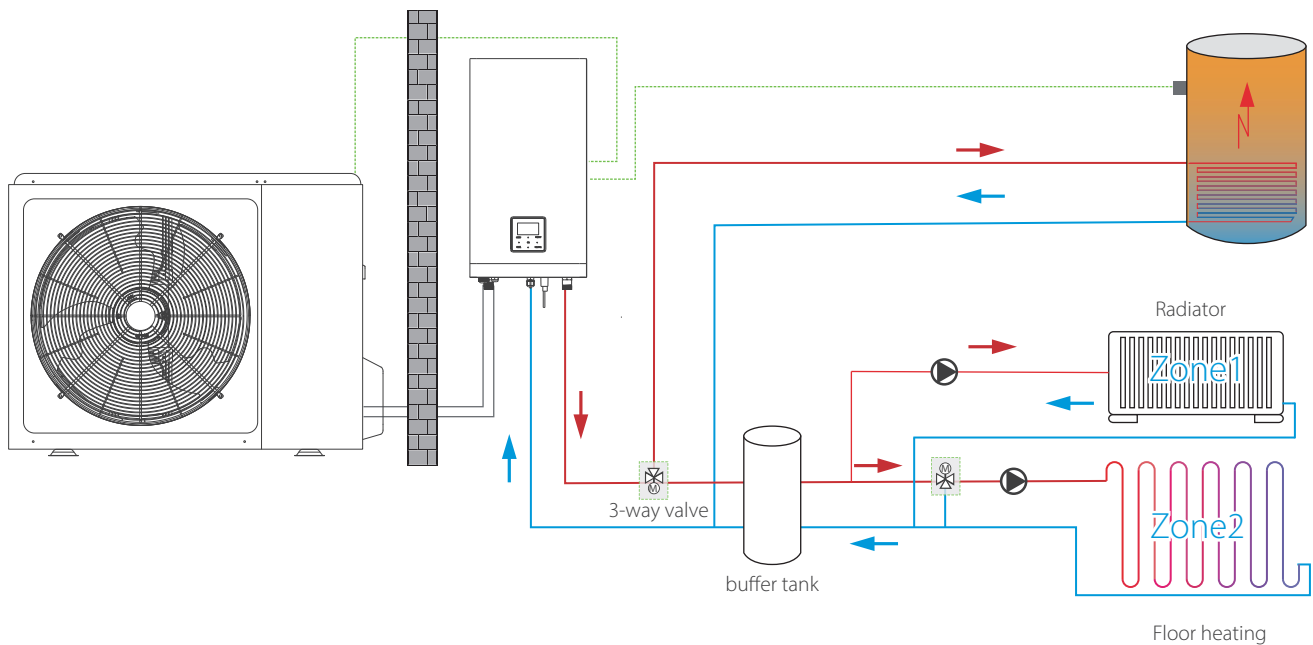
Climate curve function

Totally there are 8 cooling climate curves, 8 heating climate curves for choice and one custom curve is optional. Once the curve is selected, the unit set the outlet water temperature automatically according to the outdoor ambient temperature, which realizes intelligent control.



Zones control more flexibility

- ❖ More accurate low temperature area temperature control
- ❖ DC water pump accurate control of water flow and electromagnetic three-way valve cycle regulation to achieve stable low temperature heating



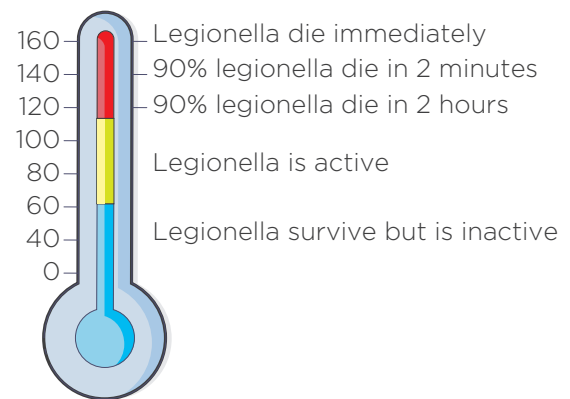
USB function

- ❖ Realize setting transmission between wired controllers
- ❖ Realize program upgrade with one key and save the time of on-site installation



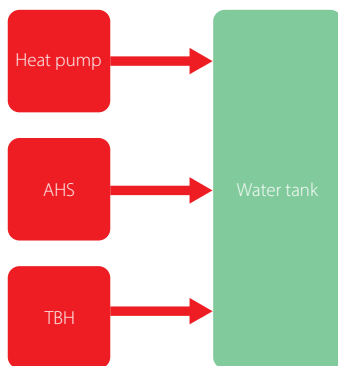
Disinfect function

The disinfect function is used to kill legionella by 140-160 °F water to ensure the health and safety.



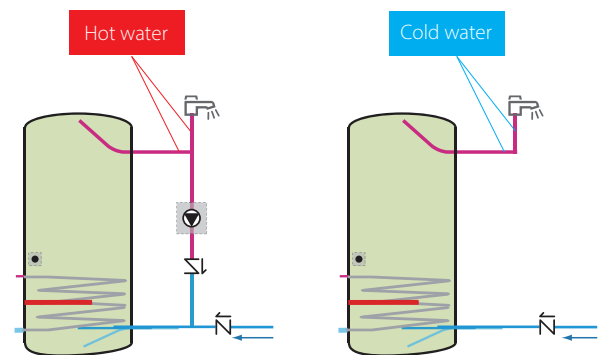
Fast DHW function

FAST DHW function is used to force the system to operate in DHW mode when hot water is needed urgently.



DHW pump function

The DHW pump function is used to return water in the water pipe net to the hot water tank according to set timer. With the function, when hot water is needed, hot water will flow out from tap immediately without waiting time.



Additional control

- ❖ Remote control for ON/OFF, TBH, AHS
- ❖ Balance tank temperature sensor (field supplied) ensures accurate water temperature control
- ❖ Adaptable terminal board with 24V control signal

Specifications

Outdoor Unit		MHA-V12WD2MN8-B2	MHA-V14WD2MN8-B2	MHA-V16WD2MN8-B2	
Indoor Unit		HB-A160CMDM30GN8-B2			
Power supply		V/Ph/Hz	208/230,1,60		
Heating (A44.6W95)/(A7W35)	Capacity	Btu/h	41283	49471	54589
		kW	12.1	14.5	16
	Rated input	kW	2.44	3.09	3.56
	COP	W/W	4.95	4.70	4.50
Heating (A44.6W95)/(A7W45)	Capacity	Btu/h	41965	48448	54589
		kW	12.3	14.2	16
	Rated input	kW	3.24	3.89	4.44
	COP	W/W	3.80	3.65	3.60
Heating (A44.6W95)/(A7W55)	Capacity	Btu/h	40942	47083	54589
		kW	12	13.8	16
	Rated input	kW	3.87	4.60	5.52
	COP	W/W	3.10	3.00	2.90
Heating (A44.6W95)/(A2W35)	Capacity	Btu/h	31730	38895	44353
		kW	9.3	11.4	13
	Rated input	kW	2.35	3.12	3.71
	COP	W/W	3.95	3.65	3.50
Heating (A35.6W113)/(A2W45)	Capacity	Btu/h	36506	39918	43671
		kW	10.7	11.7	12.8
	Rated input	kW	3.57	4.09	4.49
	COP	W/W	3.00	2.86	2.85
Heating (A35.6W131)/(A2W55)	Capacity	Btu/h	38895	42306	45718
		kW	11.4	12.4	13.4
	Rated input	kW	4.47	5.06	5.58
	COP	W/W	2.55	2.45	2.40
Heating (A19.4W95)/(A-7W35)	Capacity	Btu/h	34118	40942	45377
		kW	10	12	13.3
	Rated input	kW	3.33	4.29	4.93
	COP	W/W	3.00	2.80	2.70
Heating (A19.4W113)/(A-7W45)	Capacity	Btu/h	34800	40259	44012
		kW	10.2	11.8	12.9
	Rated input	kW	4.25	5.02	5.78
	COP	W/W	2.40	2.35	2.23
Heating (A19.4W131)/(A-7W55)	Capacity	Btu/h	34118	37530	42648
		kW	10	11	12.5
	Rated input	kW	4.88	5.37	6.19
	COP	W/W	2.05	2.05	2.02
Heating (A5W110)/(A-15W43.3)	Capacity	Btu/h	31392	32757	33780
		kW	9.2	9.6	9.9
	Rated input	kW	4.36	4.61	4.8
	COP	W/W	2.11	2.08	2.06
Cooling (A95W64.4)/(A35W185)	Capacity	Btu/h	40942	46059	48448
		kW	12.00	13.5	14.2
	Rated input	kW	3.00	3.74	3.93
	EER	Btu/(W*h)	13.65	12.33	12.33
Cooling (A95W44.6)/(A35W7)	Capacity	Btu/h	39577	43330	47765
		kW	11.6	12.7	14
	Rated input	kW	4.22	4.98	5.71
	EER	Btu/(W*h)	9.38	8.70	8.37
Cooling(IPLV.IP)		W/W	2.75	2.55	2.45
		Btu/(W*h)	19.22	19.08	18.41
		W/W	5.63	5.60	5.40

Specifications

Outdoor Unit			MHA-V12WD2MN8-B2	MHA-V14WD2MN8-B2	MHA-V16WD2MN8-B2
Rated water flow		gpm	9.25	10.79	12.11
		m ³ /h	2.1	2.45	2.75
Compressor	Type		Twin rotary DC inverter		
Outdoor fan	Motor type		Brushless DC motor		
	Number of fans		1		
Air side heat exchanger	Type		Finned tube		
Refrigerant(R32)	Factory charge	lb	4.04		
		kg	1.835		
Throttle type			Electronic expansion valve		
Piping connections	Type		Flare		
	Liquid Dia.(OD)	in	3/8		
		mm	9.53		
	Gas Dia.(OD)	in	5/8		
		mm	15.88		
	Min. pipe length	ft	6.5		
		m	1.98		
	Max. pipe length	ft	98		
m		29.87			
Installation height difference	Outdoor unit above	ft	65.5		
		m	19.96		
	Outdoor unit below	ft	65.5		
		m	19.96		
Sound pressure level(39.37 in/1m) ¹		dB(A)	49	51	57
ODU Net dimensions (W*H*D)		in	44*34-1/16*20-9/16		
		mm	1118*865*523		
ODU Net		lb	213.85		
		kg	97		
Operating temperature range	Cooling	°F	23 to 110		
		°C	-5 to 43		
	Heating	°F	-13 to 95		
		°C	-25 to 35		
	DHW	°F	-13 to 110		
		°C	-25 to 43		

Notes:

1. Sound pressure level is the maximum value tested under the two conditions of Heating:A44.6W95(A7W35) and Cooling:A95W64.4(A35W18)
2. Some specifications may change, for reference only

Specifications

Indoor Unit			HB-A160CMDM30GN8-B2		
Function			Heating and cooling		
Setting water temperature range	Cooling	°F	41-77		
		°C	5-25		
	Heating	°F	77-149		
		°C	25-65		
	DHW ²	°F	68-140		
		°C	20-60		
Power supply		V/Ph/Hz	208/230,160		
Backup E-heater (Optional)	Standard mounted		kW	3	
	Capacity steps			1	
	Power supply	3kW		208/230,160	
Sound pressure level(39.37 in/1m) ¹			dB(A)	35	
Dimension (W*H*D)			in	16-9/16*31-1/8*10-5/8	
			mm	420*790*270	
Net weight			lb	88.18	
			kg	40	
Water circuit	Piping connections		in	NPT 1"	
			mm	NPT 25.4	
	Safety valve set pressure		psi	43.51	
			bar	3	
	Drain pipe connection		in	1	
			mm	25.4	
	Expansion tank	Volume	gallon	1.32	
			L	5	
		Max. water pressure	psi	43.51	
			bar	3	
	Pre-pressure	psi	21.76		
		bar	1.5		
	Water side exchanger	Type		Plate type	
	Water pump head		ft	29.5	
			mm	8.99	
Water flow range		gpm	3.08-13.21		
		m ³ /h	0.7-3		
Internal water volume		gallon	0.66-1.93		
		L	2.5-7.3		
Refrigerant circuit		Liquid Dia. (OD)		in	3/8
				mm	9.53
		Gas Dia. (OD)		in	5/8
				mm	15.88

Notes:

1. Sound pressure level is the maximum value tested under the two conditions of Heating:A44.6W95(A7W35) and Cooling:A95W64.4(A35W18)
2. Maximum domestic hot water temperature 140 °F(60°C) is only available with TBH support.
3. Some specifications may change, for reference only.

Midea Building Technologies Division Midea Group

HA-SA202503V4

Add.: Midea Headquarters Building, 6 Midea Avenue, Shunde, Foshan, Guangdong, China

Postal code: 528311

mbt.midea.com / global.midea.com



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