# NA M thermal Arctic Split Series

DC Inverter | R32 | 149°F | -13°F

Selection Rating Application Name: ACCL_MH

Selection Rating Application Version: V1.1



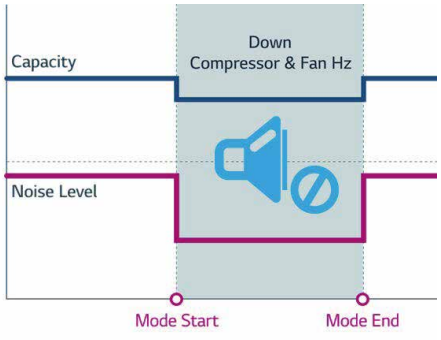
## R32 environmental refrigerant

- 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



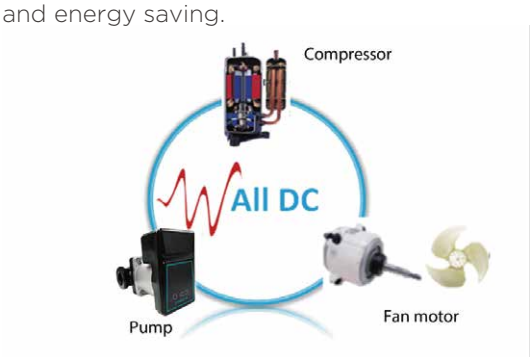
## Extremely silent

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




## 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.




## 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

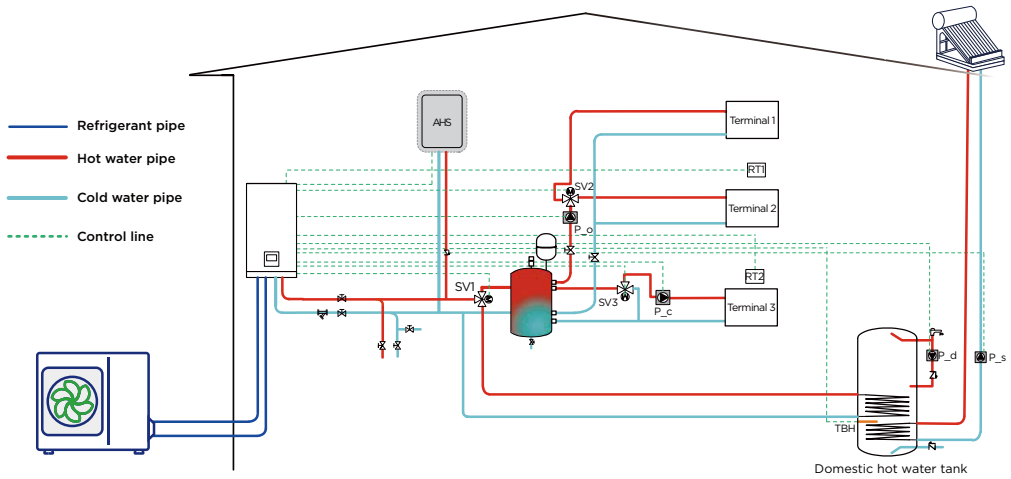
## Powerful heating with high efficiency

- No capacity attenuation at 14°F ambient temperature
- Operation range down to -13°F
- Maximum LWT reach 149°F
- Single point maximum COP 4.95

## 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.




Domestic hot water tank

**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

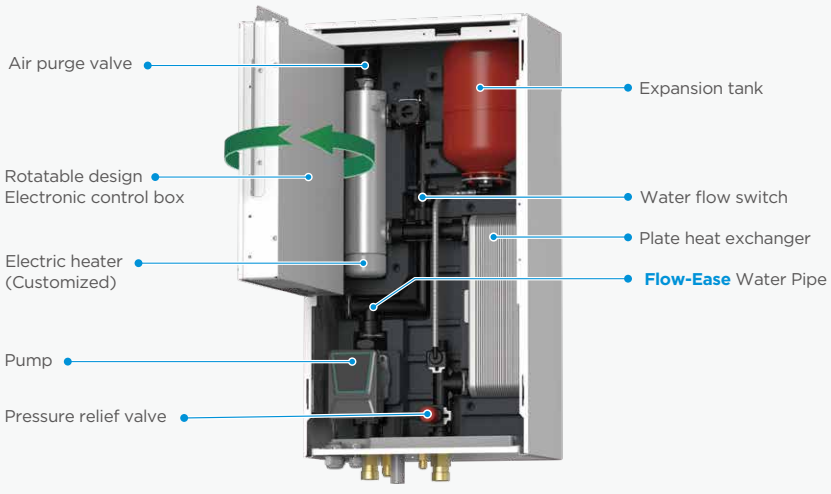
**P_s**: Solar pump

**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

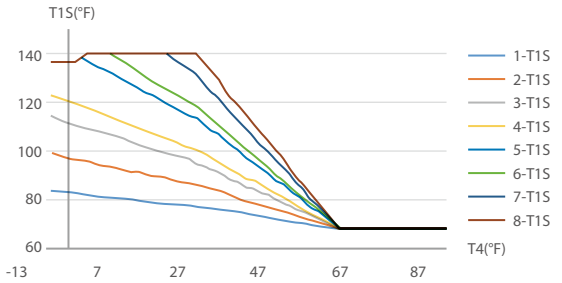
## Power limitation function

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.



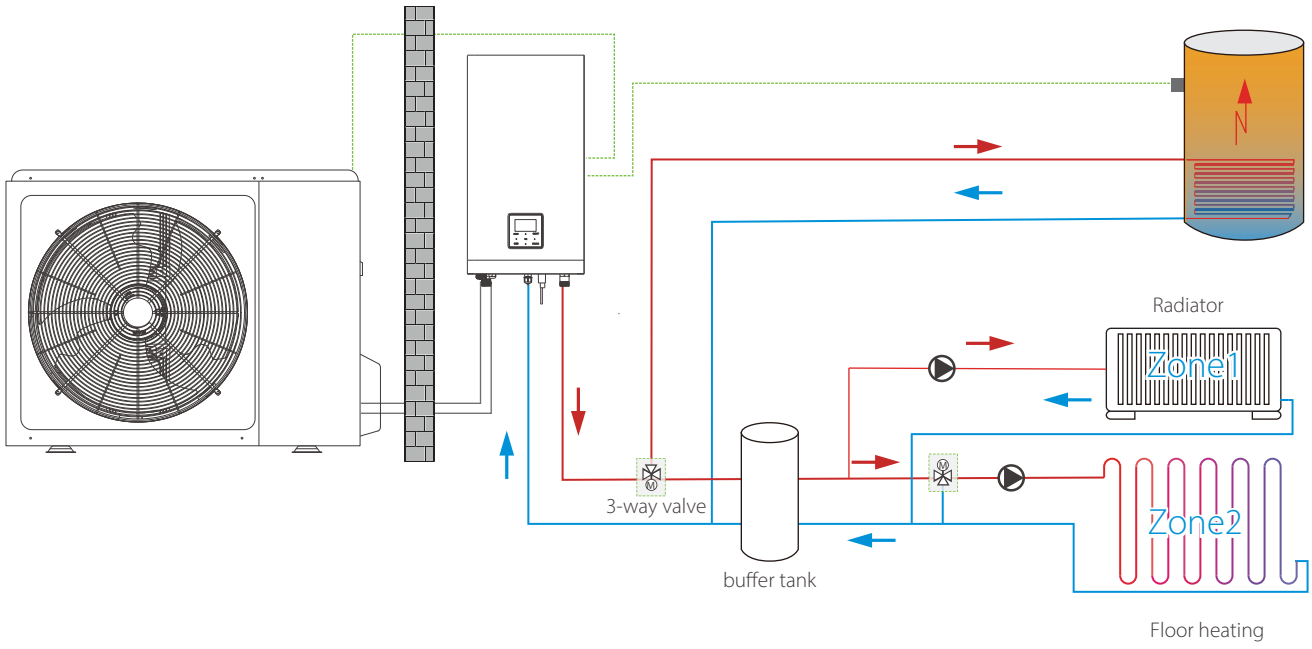
## Climate curve function

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



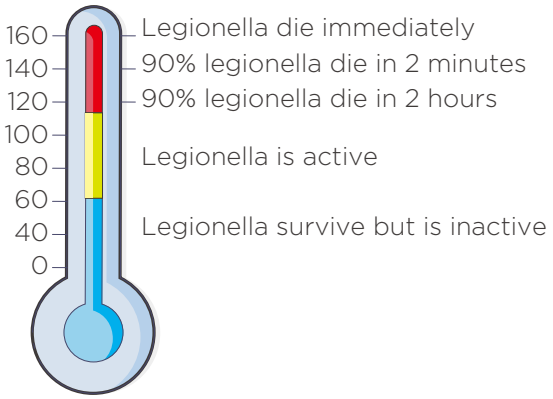
## USB function

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



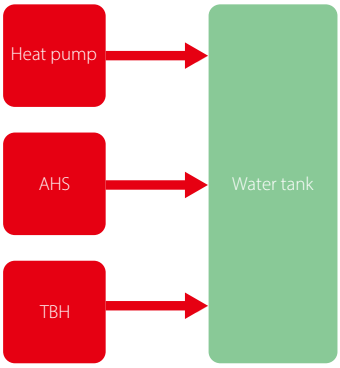
## Disinfect function

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



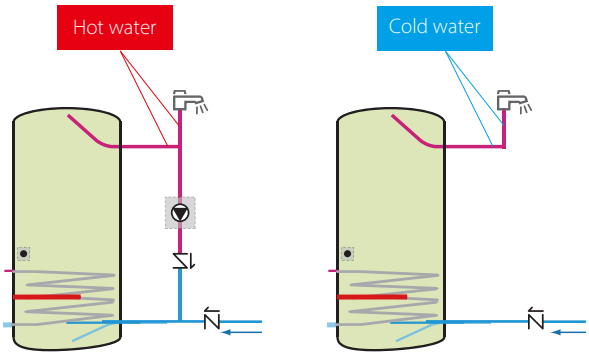

## Fast DHW function

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 |
| | COP | W/W | 4.00 | 3.61 | 3.61 |
| 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 |
| | COP | W/W | 2.75 | 2.55 | 2.45 |
| Cooling(IPLV.IP) | | 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 | | |
| ODU Gross weight | | lb | 243.61 | | |
| | | kg | 110.5 | | |
| ODU Packing size(W*H*D) | | in | 46-7/16*35-1/16*22-1/16 | | |
| | | mm | 1180*890*560 | | |
| 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 | | oF | 41-77 |
| | | | oC | 5-25 |
| | Heating | | oF | 77-149 |
| | | | oC | 25-65 |
| | DHW[2] | | oF | 68-140 |
| | | | oC | 20-60 |
| Power supply | | | V/Ph/Hz | 208/230,1,60 |
| Backup E-heater (Optional) | Standard mounted | | kW | 3 |
| | Capacity steps | | | 1 |
| | Power supply | 3kW | | 208/230,1,60 |
| 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 |
| IDU Gross weight | | | lb | 97 |
| | | | kg | 44 |
| IDU Packing size(W*H*D) | | | in | 20-11/16*41-5/16*14-3/16 |
| | | | mm | 525*1050*360 |
| 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 fow range | | gpm | 3.08-13.21 |
| | | | m3/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.


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