

Job Name:

System Reference:

Date:

**CO2 Based Air To Water Domestic
Hot Water Heat Pump**

UNIT OPTION

- ☐ Standard Model.....QAHV-N136Y-HPB
- ☐ Seacoast (BS) Model.....QAHV-N136Y-HPB-BS

FEATURES

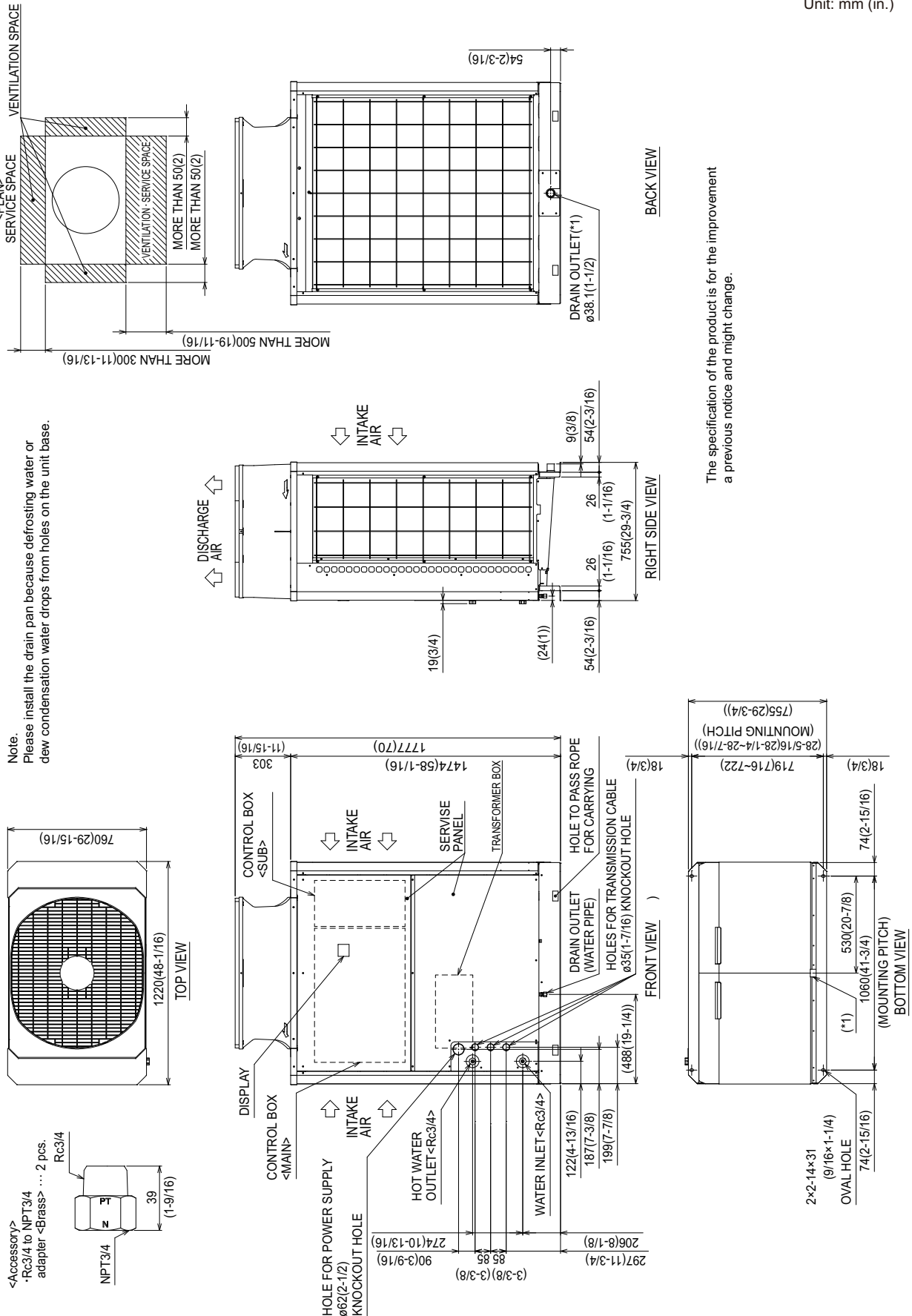
- Utilizes natural refrigerant (CO2, R744)
- High efficiency - COP up to 4.11
- Provides up to 160°F potable hot water (after separation HX indoors)
- Guaranteed operation down to -13°F
- 100% capacity down to 26°FDB ambient (40kW / 136,480 BTU/H)
- 50% capacity at -13°F (20kW / 68,242 BTU/H)
- 2 capacity settings available *Capacity settings are only available under certain operating conditions, unit shall be sized based on 40KW
 - 40kW/136,480 BTU/H - Energy Saving
 - <58KW - Max Capacity (See Data Book)
- Up to 16 QAHV units can operate together in a domestic hot water (DHW) system

Specification			System
Unit Type			QAHV-N136YAU-HPB (-BS)
Power Source			3-phase 3-wire 460 V 60 Hz
Minimum Circuit Ampacity (MCA)			39
Maximum Overcurrent Protection (MOP)			40
Capacity *1			BTU/h
			136,480
			kW
			40
Capacity *2	Power input	kW	9.73
	Current input	A	13.6
	COP	kW/kW	4.11
			BTU/h
			136,480
			kW
			40
Capacity *2	Power input	kW	10.44
	Current input	A	14.6
	COP	kW/kW	3.83
Allowable external pump head			ftAq (kPa)
			22.75 (68)
Temperature range *3	Inlet water temperature	°F (°C)	41–145 (5–63)
	Outlet water temperature - Secondary		Up To 160F On Secondary Side (Note 7)
	Outdoor temperature	D.B.	-13–109°F (-25–43°C)
Sound pressure level (measured 1m below the unit in an anechoic room) *1 *4			dB (A)
			56
Water pipe diameter and type	Inlet	in. (mm)	Rc 3/4 (19.05), screw pipe *5
	Outlet	in. (mm)	Rc 3/4 (19.05), screw pipe *5
External finish			Acrylic painted steel plate <MUNSELL 5Y 8/1 or similar>
External dimensions H x W x D			in. (mm)
			70 × 48-1/16 × 29-15/16 (1,777 × 1,220 × 760)
Net weight			lbs (kg)
			934 (424)
Design pressure	R744	psi (MPa)	2,030 (14)
	Water	psi (MPa)	72.5 (0.5)
Heat exchanger	Water-side		Copper tube coil
	Air-side		Plate fins and copper tubes
Compressor	Type		Inverter scroll hermetic compressor
	Manufacturer		MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	11.0
	Case heater	kW	0.045
	Lubricant		PAG

Specification			System
Unit Type			QAHV-N136YAU-HPB (-BS)
Fan	Air flow rate	cfm	7,768
		m ³ /min	220
		L/s	3,666
	Type and quantity		Propeller fan × 1
	Control and driving mechanism		Inverter control, direct driven by motor
	Motor output	kW	0.92
HIC (Heat inter-changer) circuit			Copper pipe
Protection devices	High pressure		High-pressure sensor and switch set at 2,030 psi (14 MPa)
	Inverter circuit		Overheat and overcurrent protection
	Compressor		Overheat protection
	Fan motor		Thermal switch
Defrosting method			Auto-defrost mode (Hot gas)
Refrigerant	Type and factory charge	lbs (kg)	CO ₂ (R744) 14.3 lbs (6.5 kg)
	Flow and temperature control		LEV
Unit Drainage Protection Required (Condensate) *6			Integral drain pan, Field provided heat trace required (pan and drain Line).
Unit Water Piping Freeze Prevention			30% (MAX) Polypropylene Glycol Allowed w/ Separation HX Indoors (required), Field provided heat trace in cold climates.
Notes:			
*1.Under normal heating conditions at the outdoor temperature of 80.6°FDB/71.2°FWB (27.0°CDB/21.8°CWB), the outlet water temperature of 120°F (49°C), and the inlet water temperature of 70°F (21°C) This condition is based on 10 CFR. *2.Under normal heating conditions at the outdoor temperature of 80.6°FDB/71.2°FWB (27.0°CDB/21.8°CWB), the outlet water temperature of 149°F (65°C), and the inlet water temperature of 70°F (21°C) This condition is based on 10 CFR except for outlet water temperature. (Outlet water temperature is based on typical operating temperatures.) *3.The temperature difference between inlet water and outlet water must be kept above the following values. Energy saving operation 1 mode ... ΔT=50°F (28°C) Energy saving operation 2 mode ... ΔT=50°F (28°C) Max capacity operation ... ΔT=67°F (37°C) If the unit is operated with the inlet-outlet water temperature difference at or below the ΔT listed above, the flow rate will reach its maximum, which can adversely affect the normal operation of the unit and shorten product life. Note that, regardless of the inlet-outlet water temperature difference (even during operation within the range with the minimum water inlet-outlet temperature difference), the higher the inlet temperature, the lower the COP. Keep the inlet water temperature as low as possible to ensure efficient operation. *4.The sound pressure level is a value measured in an anechoic room in accordance with the conventional method in JRA4060. *5.PT-NPT reducers are included as accessories. *6.In cold climates, field provide heat trace in unit drain pan (320W minimum, 12watt/ft cable at 3" O.C. serpentine pattern). Heat trace and insulate (field provided) drain line to point of termination. Reference install manual. *7. Secondary side supply temperature achieved depends on total QAHV derated capacity and balanced low flow (min pump speed) on secondary potable side. Consult with Mitsubishi representative during design stage. *Due to continuing improvements, specifications may be subject to change without notice. *Do not use steel pipes as water pipes. *Keep the water circulated at all times. Blow the water out of the pipes if the unit will not be used for an extended period of time. *Do not use ground water or well water. *Do not install the unit in an environment where the wet bulb temperature exceeds 90°F (32°C). *The water circuit must be a closed circuit. *There is a possibility that the unit may abnormally stop when it operates outside its operating range. Provide backup (ex.boiler start with error display output signal (blue CN511 1-3)) for abnormal stop. *In a system in which the ascent rate of inlet water temperature becomes 5 K/min (9°F/min) or above instantly or 1 K/min (1.8°F/min) or above continuously, this model of units cannot be used.			

QAHV-N136YAU-HPB (-BS)

Unit: mm (in.)



The specification of the product is for the improvement a previous notice and might change.

Item	Part #	Description	Selected	CONNECT (SKID)	KIT	CORE	Qty Per QAHV	Qty Per System
				QAHVCONNECT-1	QAHVKIT-1	"CORE" Solution (All Loose Ship)		
Stand	QSSB48M-24	Base Stand — 24" High	☐	X	X	X	1	Varies
	QSSB48M-18	Base Stand — 18" High	☐	X	X	X	1	Varies
	QSSB48M-12	Base Stand — 12" High	☐	X	X	X	1	Varies
Snow Hood	SHQ-1	Snow Discharge Hood	☐	X	X	X	1	N/A
Snow Guard (Side)	SGQ-1	Side Snow Guard (Qty 2 In Kit)	☐	X	X	X	1	N/A
Snow Guad (Rear)	SGQ-2	Rear Snow Goard	☐	X	X	X	1	N/A
Storage Tank	NST175	NILES 175 GALLON STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST175R20	NILES 175 GALLON STORAGE TANK R20 - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST175DX	NILES 175 GALLON DPLX SS STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST175DXR20	NILES 175 GALLON DPLX SS R20 STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST285	NILES 285 GALLON STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST285R20	NILES 285 GALLON STORAGE TANK R20 - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST285DX	NILES 285 GALLON DPLX SS STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST285DXR20	NILES 285 GALLON DPLX SS R20 STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST500	NILES 500 GALLON STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST500R20	NILES 500 GALLON STORAGE TANK R20 - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST500DX	NILES 500 GALLON DPLX SS STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Storage Tank	NST500DXR20	NILES 500 GALLON DPLX SS R20 STORAGE TANK - QAHV	☐	X	X	X	N/A	Varies
Tank Thermowells	A6-THERMOWELL	Tank Thermowells - varies by project (Min of 3)	☐	X	X	X	N/A	Min 3
Tank Sensors	ACP-INW-6-GD	6" Immersion sensor (sensor no well)	Required			X	N/A	3-6
Thermal Paste	TCC12-Thermal	Thermal Conductive Paste For Tank Sensors	☐	X	X	X	N/A	Varies
MN Converter (Optional)	AC-USCMS-MN-1	Maintenance Tool MN converter for diagnostics of QAHV	☐	X	X	X	N/A	1
Below: QAHV CORE								
Heat2O Core Control Panel	QAHV-CONTROLS-2	Control Panel for Heat2O Core	Required			X	N/A	1
Below: QAHV CORE Pump/HX Accessories (Qty 1 of Each Required Per QAHV for CORE) - See "QAHV "CORE" Pump/HX Required Accessory Summary" Submittal Packet								
	22HT-52	Belimo Contact Temperature Sensor	Required			X	1	N/A
	99833308-GF	GRDFS PUMP 32-120GF N 165 115/230V, QAHV				X	1	N/A
	B16DW-81-2P-HEX	Double Wall SWEP HX (Contamination Protection)				X	1 or N/A	N/A
	B85H-49-2P-HEX	Legacy Single Wall SWEP HX (Option - Higher Eff)				X	1 or N/A	N/A
	96824796-GF	GRUNDFOS MODBUS CARD CIM200, QAHV				X	1	N/A
	519652-GF	Flange Kit for Grundfos Pump Magna3 32-120GF N				X	1	N/A
	A-22P-A44	Thermal contact fluid				X	1	N/A
	PAC-UKPRC001-CN-1	Procon Adapter				X	1	N/A
Below: QAHV KIT / CONNECT								
Heat2O CONNECT (SKID)	QAHVCONNECT-1	Heat2O "CONNECT" Skid solution with improved flow tracking and COP metering capability - see "QAHVSKID-1" Submittal for further details.	☐	X			1	N/A
Heat2O KIT	QAHVKIT-1	Heat2O "KIT" solution with same controls, flow tracking, COP functionality of SKID solution - see "QAHVKIT-1" Submittal for further details - Includes QAHV ISC Pannel	☐		X		1	N/A
Advanced IO Panel (Optional)	QAHV-AIO-HYB	Optional IO Control Panel for Connect & KIT Solution	☐	X	X		N/A	1
Supervisory Panel (Optional)	QAHV-SUP	CMEY-APEX-QAHV-SUP / Supervisory Control Panel for Connect & KIT Solution	☐	X	X		N/A	1
TTC Panel (Required)	QAHV-TTC	CMEY-303-QAHV-TANK / Tank Temperature Control Panel for Connect & KIT Solution	Required	X	X		N/A	1