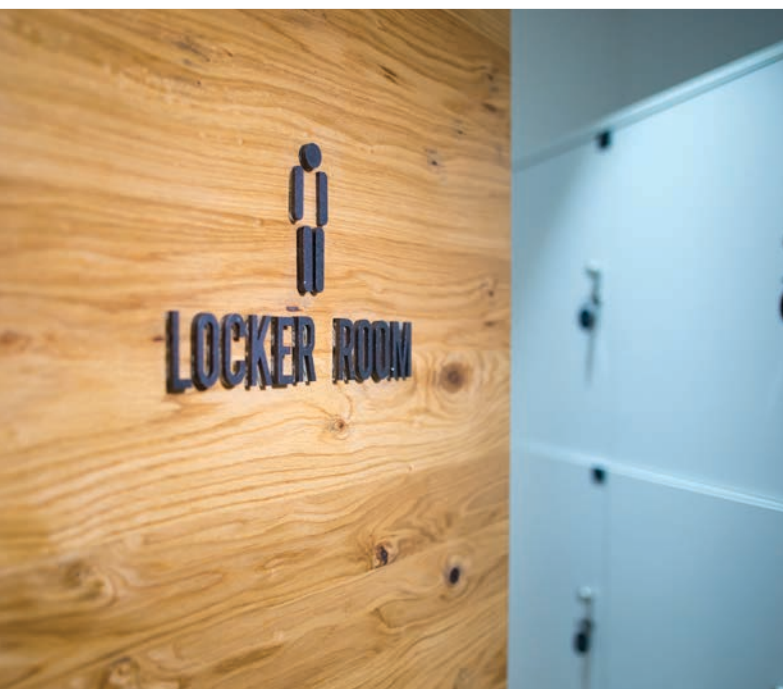


CITY MULTI

QAHV Hot Water Heat Pump

For Large Capacity Hot Water Applications



QAHV Hot Water Heat Pump Series

As a leading manufacturer of air-to-water heat pumps, Mitsubishi Electric have developed QAHV; the latest innovation in their comprehensive lineup of Hot Water Heat Pump products. QAHV has been specifically designed to produce high volume hot water and is suitable for commercial and industrial applications where hot water demand is high. By adopting Mitsubishi Electric's unique technology, QAHV ensures highly reliable performance as well as high heating capacity even at low outdoor temperatures.

Ideal Applications

- ✓ Gyms
- ✓ Hotels
- ✓ Motels
- ✓ Aged Care Facilities
- ✓ Schools
- ✓ Universities



Main Features of QAHV

- Utilises natural refrigerant (CO₂)
- High efficiency (Achieved COP 3.88*)
- Supplies high temperature hot water of up to 90°C
- Operable even at low outdoor temperature of -25°C

Increased Energy Savings

Unique to Mitsubishi Electric, QAHV utilises a twisted and spiral gas cooler. Using twisted pipes as water pipes and running the refrigerant pipes along their grooves helps to increase the heat-conductive area; allowing for better heat transfer and an impressive COP of 3.88*. The continuous spiral groove design accelerates the turbulence effect of water and helps to reduce pressure loss within the heat exchanger, enhancing efficiency. Equipped with the latest inverter scroll compressor, QAHV offers unparalleled efficiency when compared to fixed speed systems.

Superior Heating Performance in Low Temperatures

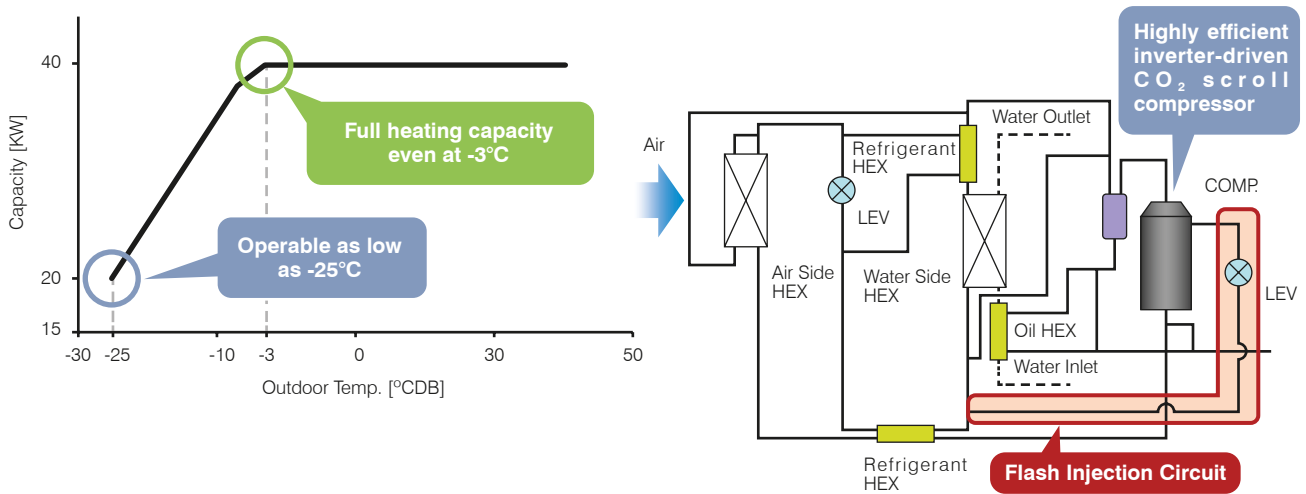
QAHV is able to provide its full heating capacity of 40kW even at ambient temperatures as low as -3°C. Furthermore, the unit operates to supply 90°C hot water in ambient temperatures as low as -25°C. This superior level of performance is achieved using Mitsubishi Electric's industry-first Flash Injection Circuit which provides the optimum amount of refrigerant to the system via a compressor through a specially designed injection port, ensuring highly stable operation.

Why is CO₂ Refrigerant Used?

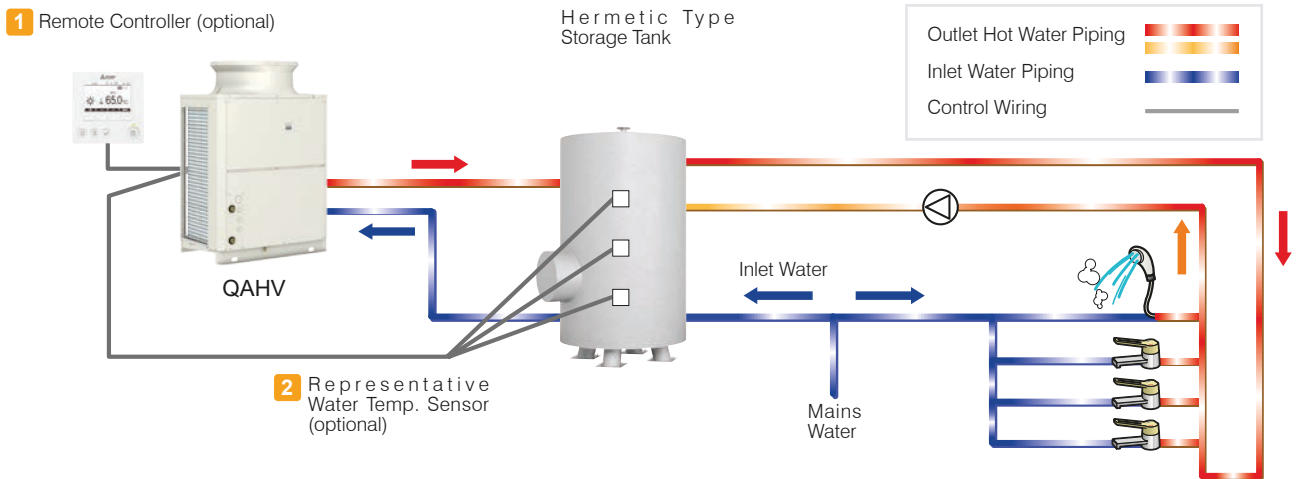
QAHV adopts CO₂ (R744) as it is an environmentally-friendly, natural refrigerant which has zero Ozone Depletion Potential (ODP) and has a Global Warming Potential (GWP) of 1.

*Under normal heating conditions at outdoor temp:16°CDB/12°CWB, inlet water temp 17°C, outlet water temp 65°C

Stable Heating Capacity Even at Low Temperatures



QAHV System Schematic Image



Mitsubishi Electric Patented Twisted and Spiral Gas Cooler



Twisted water pipe with the refrigerant pipe spiralled around it



Cut section detail

Using twist pipes as water pipes and running the refrigerant pipes along their grooves helps to increase the heat-conductive area, allowing for better heat transfer.

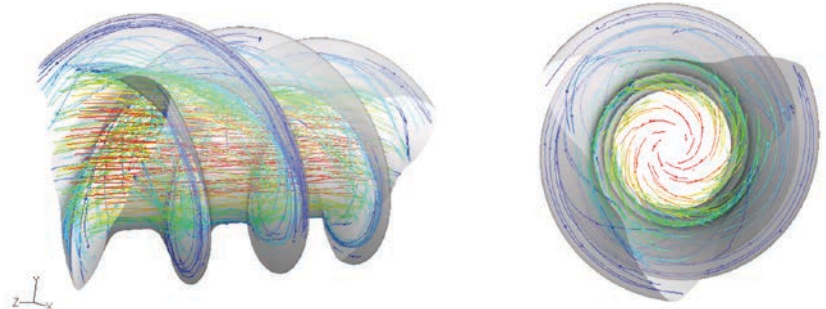


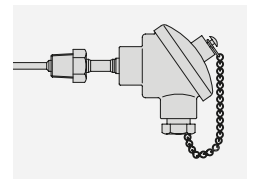
Illustration showing water flow and water temperature distribution

			QAHV-N560YA-HPB
Power Source			3-phase 4-wire 380-400-415V 50Hz
Capacity *1	Power Input	kW	40
		Btu/h	136480
	Current Input	A	17.8-16.9-16.3
	COP(kW/kW)		3.88
Capacity *2	Power Input	kW	40
		Btu/h	136480
	Current Input	A	20.0-19.0-18.3
	COP(kW/kW)		3.65
Capacity *3	Power Input	kW	40
		Btu/h	136480
	Current Input	A	20.4-19.4-18.7
	COP(kW/kW)		3.44
Maximum Current Input *4			A 28.8-27.4-26.4
Allowable External Pump Head			77kPa
Temperature Range	Outlet Water Temp		55-90°C (when the secondary side control is enabled: 55-80°C)
	Outdoor Temp		D.B. -25~43°C
Sound Pressure Level (measured 1m below the unit in an anechoic room) *1			dB(A) 56
Water Pipe Diameter and Type	Inlet	mm(in.)	19.05(Rc 3/4"), screw pipe
	Outlet	mm(in.)	19.05(Rc 3/4"), screw pipe
External Finish			Acrylic painted steel plate <MUNSELL 5Y 8/1 or similar>
External Dimension H x W x D		mm	1837(1777 not including legs) x 1220 x 760
Net Weight		kg(lbs)	400(882)
Design Pressure	R744	MPa	14
	Water	MPa	0.5
Heat Exchanger	Water-side		Copper tube coil
	Air-side		Plate fin and copper tube
Compressor	Type		Inverter scroll hermetic compressor
	Maker		MITSUBISHI ELECTRIC CORPORATION
	Motor Output	kW	11.0
	Case Heater	kW	0.045
FAN	Air Flow Rate		m3/min 220 L/s 3666
	Type x Quantity		Propeller fan
	Control, Driving Mechanism		Inverter-control, Direct-driven by motor
	Motor Output	kW	0.92
HIC (HIC: Heat inter-changer) Circuit			Copper pipe
Protection	High Pressure Protection		High pres.Sensor & High pres. Switch at 14MPa(643psi)
	Inverter Circuit		Overheat and overcurrent protection
	Compressor		Overheat protection
	Fan Motor		Thermal switch
Defrosting Method			Auto-defrost mode (Hot gas)
Refrigerant	Type x Original Charge		CO ₂ (R744) 6.5kg

Optional Parts



Remote Controller
PAR-W31MAA-J



Representative Water Temperature Sensor
TW-TH16-E

Notes:

*1.Under Normal heating conditions at the outdoor temp, 16°CDB/12°CWB(60.8°FDB/53.6°FWB), the outlet water temperature 65°C(149°F), and the inlet water temperature 17°C(62.6°F)

*2.Under Normal heating conditions at the outdoor temp, 7°CDB/6°CWB(44.6°FDB/42.8°FWB), the outlet water temperature 65°C(149°F), and the inlet water temperature 9°C(48.2°F)

*3.Under Normal heating conditions at the outdoor temp, 7°CDB/6°CWB(44.6°FDB/42.8°FWB), the outlet water temperature 65°C(149°F), and the inlet water temperature 15°C(59.0°F)

*4.Under Normal heating conditions at the outdoor temp, 7°CDB/6°CWB(44.6°FDB/42.8°FWB), when the unit is set to the "Capacity Priority" mode through the dry NC-contact.

*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 time.

*Do not use ground water or well water

*Do not install the unit in an environment where the wet bulb temperature exceeds 32°C

*The water circuit must use the 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.

UNIT CONVERTER

BTU/h = kW x 3,412
cfm = m3/min x 35.31
lbs = kg/0.4536



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or call our Customer Service Team on **0800 784 382**