MITSUBISHI HEAVY INDUSTRIES

HOT WATER SOLUTIONS

Q-ton Air to Water



Q-TON: AIR TO WATER

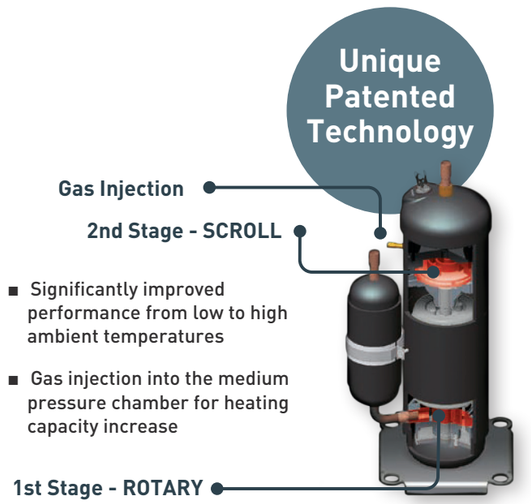
CO_2 HOT WATER HEAT PUMP FOR COMMERCIAL APPLICATIONS

About Q-ton

Q-ton is a high-efficiency, air-to-water heat pump that uses natural CO_2 refrigerant and patented compressor technology to deliver a reliable sanitary hot water and space-heating solution for a wide range of commercial applications.

At the heart of Q-ton is an advanced two-stage compressor, combining rotary and scroll technologies to maintain exceptional efficiency and performance - even in low ambient temperatures. This unique design allows Q-ton to consistently deliver high-temperature hot water using outside air, without compromising efficiency.





COMMERCIAL APPLICATIONS

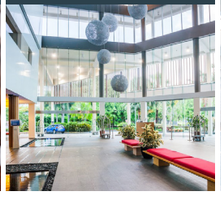
Q-ton is designed to deliver reliable, sanitary-grade hot water for a wide range of commercial applications where hygiene and dependable performance are essential.

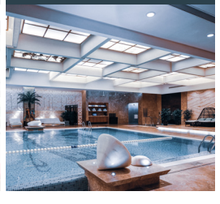
Built with high-quality, robust components, its durable design ensures reliable operation in demanding, high-use environments, making Q-ton well suited to facilities with continuous or high-volume hot water requirements.





















Features and Benefits

High Performance
- **60°C to 90°C** water supply in **-25°C** ambient temperature
- Maintains **100%** capacity down to **-7°C**

High Efficiency
- High coefficient of performance (**4.3** in intermediate season)*
- Massive reductions in both running costs and CO_2 emissions

Environmentally Responsible
- **74% less emissions** than an electric heater**
- **76% less emissions** than a gas boiler**

Flexible System Designs
- Can be easily retrofitted into existing hot water systems or specified as part of new building developments.

Easy Operation
- Easy to use **touch screen** control with advanced functions
- User friendly scheduling options and one-touch fill up

Long Term Reliability
- High quality, robust technology and components
- Long life expectancy with regular maintenance

Space Saving Design
- Much smaller footprint compared to gas boilers
- Offers easier installation and design flexibility

Modbus
- Ability to send messages via Modbus communication
- Connection is possible with RCI-MDQE interface kit

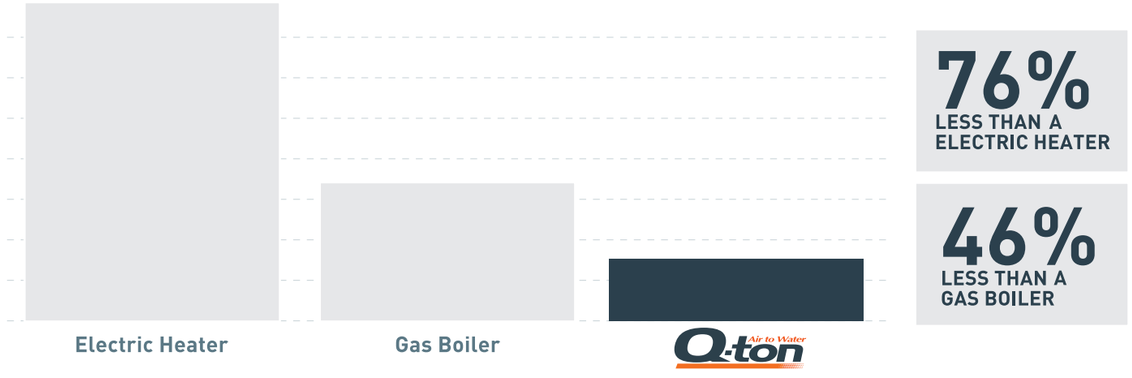
GWP = 1
- By utilising CO_2 as a refrigerant, Q-ton is able to deliver an industry leading Global Warming Potential (GWP) of just 1

Legionella Protection Cycle
- Programmable anti-legionella sanitary cycle superheats the water, assisting with regular thermal disinfection and eliminating legionella bacteria.

*Intermediate season Air on at 16°C, Water inlet at 17°C, Water outlet at 65°C. ** Operation conditions: senior care home, 80 persons, 8000L/day, 60°C conversion.

Lower Running Costs

ANNUAL RUNNING COSTS ($NZD)



76%
LESS THAN A ELECTRIC HEATER

46%
LESS THAN A GAS BOILER

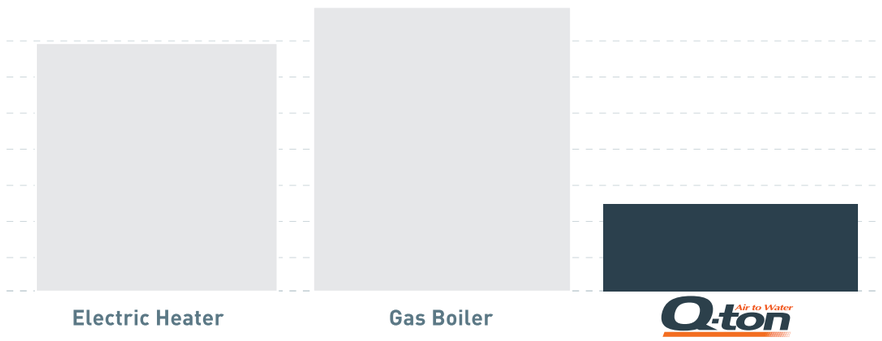
*Based on a senior care facility with 50 residents using hot water for bathing, showers and wash basins (8,000 L/day at 60°C conversion). Running cost figures are derived from UK data and converted to AUD for comparison. Actual Australian running costs are likely to be lower due to local energy tariffs.

Q-ton offers a dramatic reduction in energy usage compared to traditional hot water systems, delivering up to 76% lower running costs than electric water heaters and up to 46% lower running costs than gas boilers. This makes it a smarter choice for businesses looking to reduce operating costs while improving long-term efficiency.

Designed for consistent year-round performance, Q-ton operates efficiently regardless of seasonal temperature variations. By switching to Q-ton, businesses can significantly lower energy consumption, reduce ongoing running costs, and improve overall affordability -helping accelerate payback and deliver greater long-term savings.

Reduced Emissions

ANNUAL CO_2 EMISSIONS



74%
LESS THAN A ELECTRIC HEATER

76%
LESS THAN A GAS BOILER

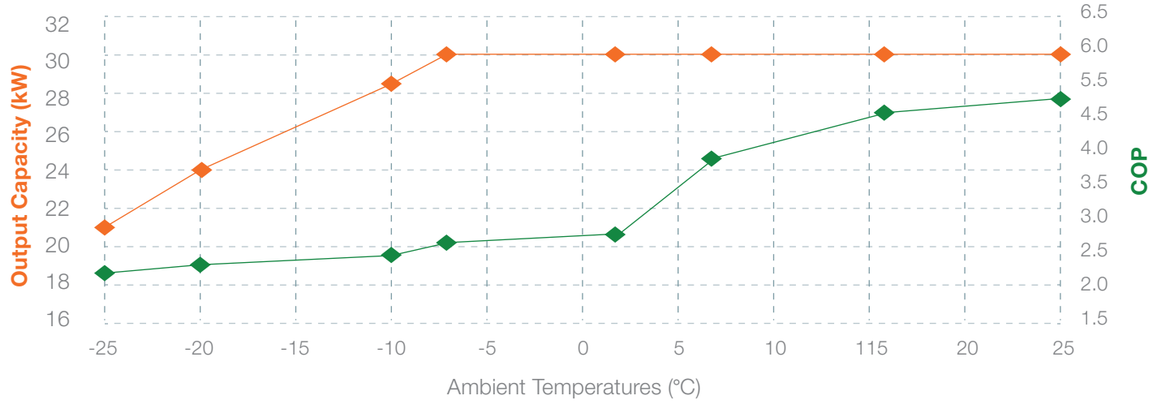
*Based on a senior care facility with 50 residents using hot water for bathing, showers and wash basins (8,000 L/day at 60°C conversion).

Q-ton produces 76% less emissions than gas boilers and 74% less emissions than electric water heaters*, offering businesses a long-term solution to reducing their carbon footprint and environmental impact.

By switching to Q-ton, businesses can not only cut operational costs but also significantly reduce their carbon footprint, supporting long-term sustainability goals.

High Performance

Q-TON PERFORMANCE AT 65°C



Q-ton delivers unmatched efficiency and reliability, even in sub-zero temperatures. As shown in this graph, Q-ton maintains a high coefficient of performance (COP) and stable output capacity even when ambient temperatures drop as low as -25°C.

Unlike traditional systems that struggle in cold conditions, Q-ton continues to deliver 65°C hot water efficiently, ensuring consistent performance and lower energy consumption year-round. This makes it an ideal solution for businesses operating in colder climates, providing significant cost savings and long-term reliability.

Q-ton In Action

CASE STUDIES

Q-ton has been successfully installed across a wide range of industries—including aged care, food and beverage, healthcare, hospitality, fitness, and horticulture—proving itself as a reliable, energy-efficient solution for businesses of all sizes and sectors.


Warrigal Aged Care | NSW


Lark Distillery | TAS


Timaru Hospital | NZ

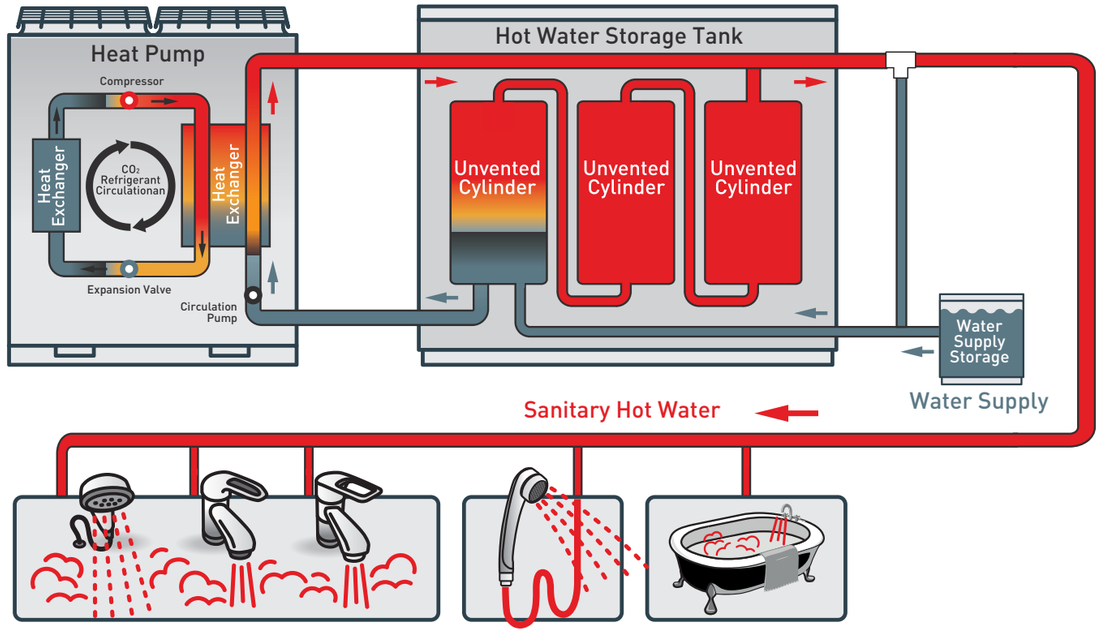

Shangri La Hotel | QLD


Altura Hotel | NZ


Alcheringa Aged Care | VIC

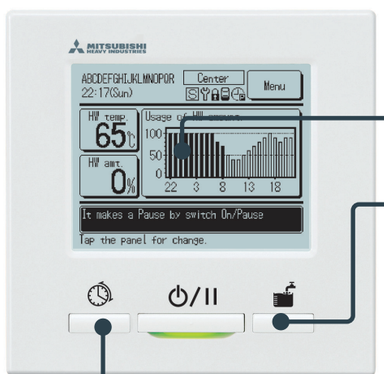
How Q-ton Works

The Q-ton heat pump operates using a coil of low-temperature refrigerant that absorbs heat from the outside air. This refrigerant is then compressed by Q-ton's unique two-stage compressor, substantially increasing both its pressure and temperature. An onboard heat exchanger transfers this thermal energy from the refrigerant to produce sanitary hot water between 60°C and 90°C.



EASY TO USE CONTROLLER

The intuitive controller offers clear system visibility, simple touchscreen operation and manual control, with flexible scheduling and timer settings that enable off-peak hot water production to help reduce operating costs. It also supports MODBUS communication via the RCI-MDQE2 interface for integration into building management systems.



User Friendly
- Easy to use, touch screen LCD panel
- Large 3.8 inch full dot display
- Back light function

Manual Fill
- Easy to use manual operation to manually fill water tank to suit demand

Schedule Setting
- Variety of schedule options including weekly and daily timers and a peak-cut timer.

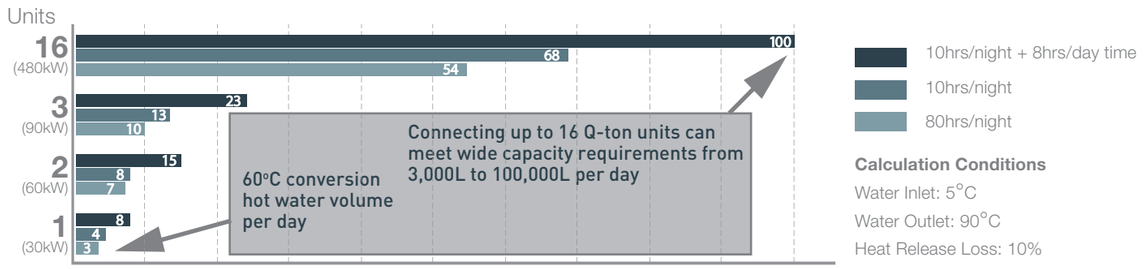
Flexible & Scalable System Design

Q-ton heat pumps can be installed as stand-alone units or combined in tandem systems of up to 16 units, delivering up to 100,000 litres of sanitary hot water per day. Whether operating a single unit or a multi-unit system, Q-ton is controlled from one central controller, which can be remotely installed for ease of access and operation. This ensures consistent performance, simplified management and system visibility across the entire installation.

Approx. Daily Hot Water Volume	Example Applications	Example System Configurations
3,000L	Restaurant Gym / Recreation Centre	1 x Controller, 1 x Q-ton, 3 x 1,000L Water Tanks
6,000L	Aged Care Home Medium Sized Hotel Food Processing Plant	1 x Controller, 1 x Q-ton, 2 x 1,000L Water Tanks, 2 x 2,000L Water Tanks
10,000L	Hospital Large Hotel Commercial Offices	1 x Controller, 2 x Q-tons, 5 x 2,000L Water Tanks

*System configurations shown are examples only and are provided for illustrative purposes. Actual system design will vary depending on application requirements, hot water demand and site-specific conditions. Larger configurations using 3,000L tanks are also available.

SIZING AND GUIDANCE



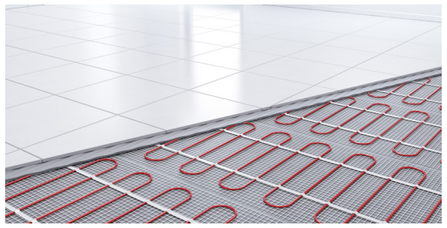
Space Heating

NEW

HYDRONIC FLOOR & LOW TEMPERATURE RADIATOR HEATING

In addition to sanitary hot water, Q-ton can supply hot water for hydronic space heating systems, including in-slab underfloor heating and low-temperature radiators.

This delivers consistent, comfortable heating across commercial buildings. These applications operate at lower water temperatures, allowing Q-ton to run efficiently while maintaining reliable performance.



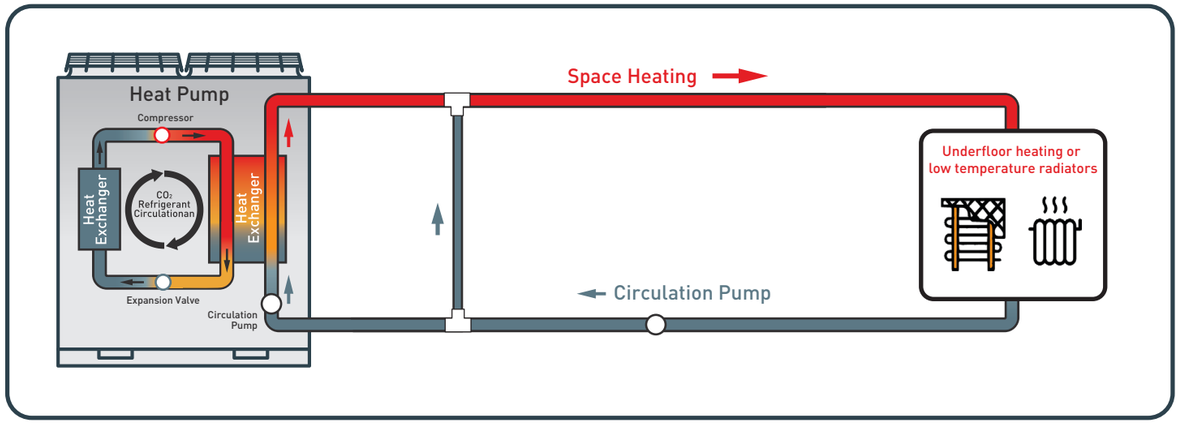
UNDERFLOOR HEATING



LOW TEMPERATURE RADIATORS

COMBINED MODE

In combined mode, Q-ton can supply hot water for both sanitary and space heating use simultaneously, ensuring continuous operation across both demands. System priorities can be easily configured, allowing operators to prioritise either hot water or space heating depending on operational requirements.



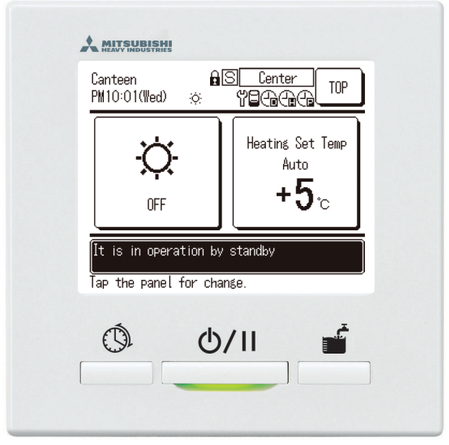
UPGRADED, EASY TO USE CONTROL

An upgraded touch-screen controller provides simple, centralised control of both hot water and heating operations.



HOT WATER MANAGEMENT

Easily control the hot water supply including temperature, timers and scheduling.



HEATING MANAGEMENT

Easily control the space heating elements including hydronic floor or radiators.

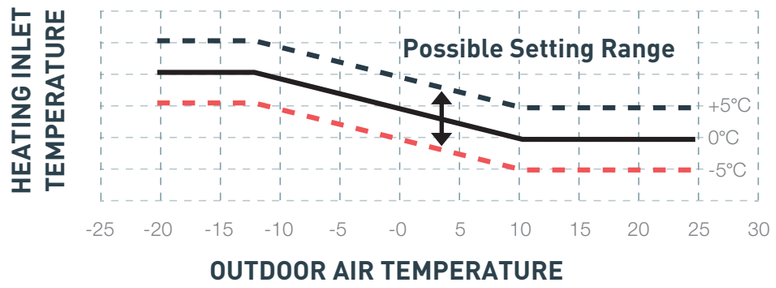
OPERATING MODES (SPACE HEATING)

When used in space-heating applications, the system offers two simple control modes, allowing performance to be tailored to building and comfort requirements.

- **Auto mode**
  Heating temperatures are automatically adjusted based on a pre-set heating curve, responding to changes in outdoor air temperature. The heating curve can be fine-tuned in 5°C or 1°C increments to suit specific building needs.

- **Manual mode**
  The target inlet temperature can be set manually, allowing operators to select a fixed heating temperature between 20°C and 52°C.

These flexible control options enable precise, efficient system operation while maintaining occupant comfort and optimising energy use.



Heating curve can be shifted up and down by 5°C

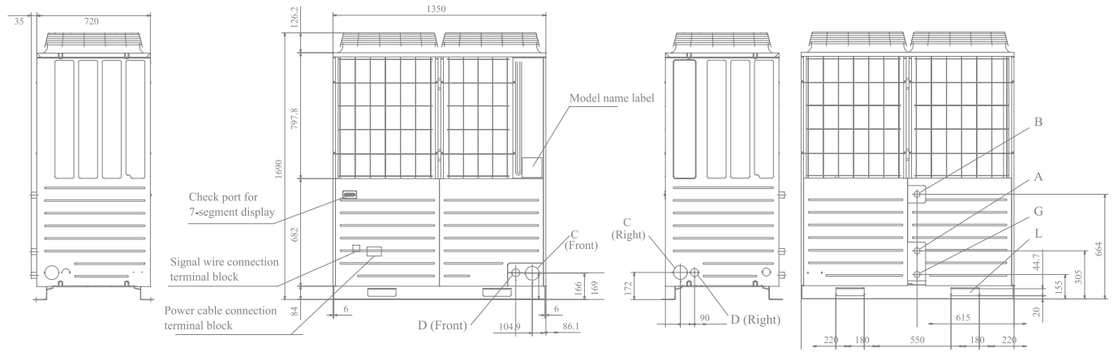
Specifications

Items	Model		ESA30EH2-25
Power source			3 Phase 380V±5%, 400V±5%, 415V±5%, 50/60Hz
Operation to top up (Intermediate season)*1	Heating capacity	kW	30.0
	Water amount	L/min	8.97
	Power consumption	kW	6.98
	COP	-	4.30
Operation to top up (cold season)*2	Heating capacity	kW	30.0
	Water amount	L/min	5.06
	Power consumption	kW	10.73
	COP	-	2.80
Operating sound pressure (In intermediate season)*1, 3		dB(A)	58
Operating sound power (In intermediate season)*1		dB(A)	70
External dimensions (HXWXD)		mm	1690 x 1350 x 720 + 35 (water pipe connection)
Current	Maximum	A	21
	Starting	A	5
Unit weight		kg	Off: 375 During operation: 385
Colour			Sutcco white (4.2Y 7.5/1.1 Approx)
Compressor	Type x Pcs		Hermetic inverter compressor x 1
	Nominal output	kW	6.4
Refrigerant	Type		R744 (CO_2)
	Charged amount	kg	8.5
Refrigerant Oil	Type		MA68
	Charged volume	cc	1200
Crackcase Heater		W	20
Anti-freezing heater	For water pipe	W	21 x 3
	For drain pan	W	40 x 2
	For drain hose	W	16 x 3
Heat exchanger, air-side	Type		Copper pipe straight fin type
Heat exchanger, water side (gas cooler)	Type		Copper pipe coil, indirect heat exchanger
	Possession quantity of water		10
Fan	Type		Axial flow type (direct coupled motor) x 2
	Output x pcs	W	386 x 2
	Air volume	m^3/min	260
	External statis pressure	Pa	50
Water pump	Type x output		Non-self-suction spiral type inverter pump × 95W
	Materials contacting water		PPS
	Actual pump head	m (kPa)	5m (49kPa) @ 17Litre/min
Usage temperature range	Outdoor air temperature	°C	-25 to +43
	Feed water inlet temperature	°C	Top up 5-35, Warm up 35-63
	Hot water outlet temperature	°C	60 - 90
Water pressure range		kPa	500 or lower (Keep water pressure more than 0kPa at the inlet of heat pump water heater)
Defrost			Hot gas type
Vibration and sound proofing devices			Compressor placed on anti-vibration rubber and wrapped with sound insulation
Protection devices			High pressure switch over current protection, power transistor overheat protection and anomalous high pressure protection
Pipe connection	Feed water inlet		Rc3/4 (Copper 20A)*4
	Hot water outlet		Rc3/4 (Copper 20A)*4
	Drain water outlet		Rc3/4 (Copper 20A)*4
Design pressure		MPa	High pressure:14.0, Low pressure: 8.5
IP Code			IP24

1. Performance of operation to top up during intermediate season shows the capacity measured under the conditions that outdoor temp is 16°C DB/12°C WB, water inlet temp is 17°C and how water outlet temp is 65°C.
2. Performance of operation to top up in cold region shows the capacity measured under the conditions that outdoor air temperature is -7°C DB/-8°C WB, water inlet temperature is 5°C and hot water outlet temperature is 90°C excluding heater for anti-freezing water (191W).
3. Operating sound shows a value is measured at 1m in front of the unit and 1m above the floor in an echoic room where the sound is slightly resonated. Accordingly, if the unit is installed on an actual site, it is normal that the measured sound levels may be higher than the value shown above, due to surrounding noise and echo within the room.
4. Pipe size 20A=DN20=20mm=3/4in.
5. The actual hot water outlet temp may vary ±3°C from target temp according to the change of outdoor air temp and water inlet temp. If feed water inlet temp is 30°C of high and outdoor air temp is 25°C or higher the water temp may be controlled to ensure temp does not increase too much.
6. Ensure clean water is used. Water quality should follow the standard which MTH specifies. If the water quality if not up to standard it may cause issues within the unit such as scale build-up and/or corrosion.
7. These articles mentioned above may vary without notice accordingly to development status.
8. Electrical installation work must be performed by an electrical installation service provider qualified by a power provider of the country. Electrical installation work must be executed according to the technical standards and other regulations applicable to the electrical installations in the country.

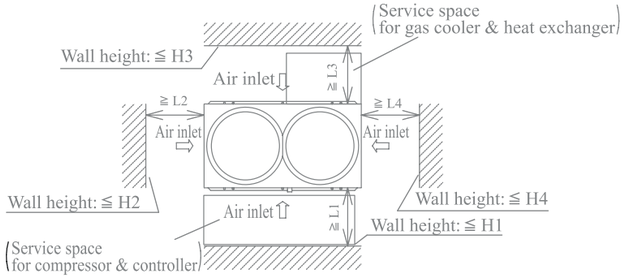
Dimensions

Model: ESA30EH2-25



Symbol	Contents	
A	Feed water inlet port	RC3/4 (Copper tube 20A)
B	Hot water outlet port	RC3/4 (Copper tube 20A)
C	Heat pump unit-tank connecting wire outlet port	φ88 (or φ100)
D	Power cable inlet port	φ50 (right, front) Long hole 40x80 (bottom)
G	Drain water pipe outlet port	RC3/4 (Copper tube 20A)
L	Hole for carrying in or hanging	230x60

Installation space (Service space)



Dimensions / Installation Example	1	2
L1	800	800
L2	10	10
L3	800	800
L4	100	500
H1	1500	1500
H2	No Limit	No Limit
H3	1000	1000
H4	No Limit	No Limit

Note
(1) Be sure to fix the unit with anchor bolts
(2) Be sure to keep space above the unit at least 2m
(3) the connection of water pipes (Feed water inlet, Hot water outlet, Drain water outlet) should be done on site locally.
(4) The holes for power cable inlet, and connection wire outlet from heat pump unit to tank unit are half-blanked.
Therefore please punch out the hole by cutting the residual portion and use it.
(5) In heavy snow region, please take following measures in order for the air inlet/outlet port and the bottom part of unit not to be covered with snow
① Place the unit on the rack in order to make the bottom of unit higher than the snow surface.
② Install a snow prevention hood on the outlet port of the unit.
③ Install the unit at the space under the eaves or the snow prevention roof.
(6) If ambient temp becomes below 0ºC, it may cause break of water pipes and damage on the unit due to freezing
Be sure to apply anti-freezing heater to feed water piping , hot water piping and drain water piping in order to prevent from freezing.
(7) Be sure to keep enough service spaces of more than 800mm in front of the unit service panel for easy inspection of the unit and replacement of components.
When piping work is done, be sure not to interfere the pipes with the unit service space.
If the service space cannot be kept, please install the piping below the unit by placing the unit on the rack.

Q-ton Air to Water

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Mitsubishi Heavy Industries Air-conditioners Australia, Pty. Ltd.
New Zealand Branch

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