

Future Style Electric Water Heater
for Industrial Use

First of its kind
in the world

Next Generation Type
Water Heater with
Environmentally Friendly
CO₂ refrigerant IS...

BORN!

Powerful and Low Cost
Itomic Industrial use Eco-cute

Registered as the Promotion
of Procurement of Eco-friendly
Goods & Services by the State
(Law on Promoting Green
Purchasing)

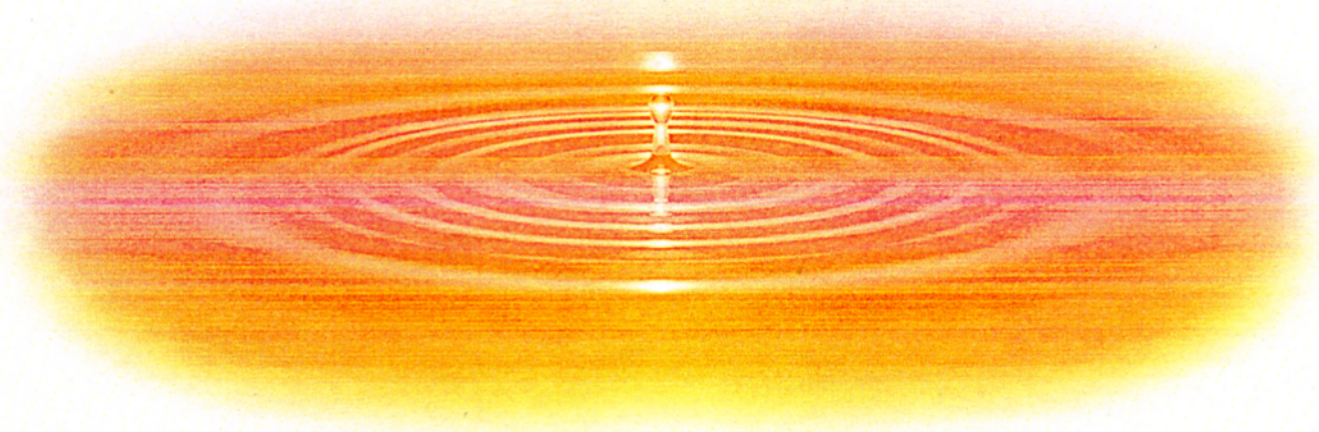


**Powerful and
Energy efficient**

**Remarkable Efficiency
COP 3.8 achieved!**



Won 2004 Progress Award by Japan Institute of Energy



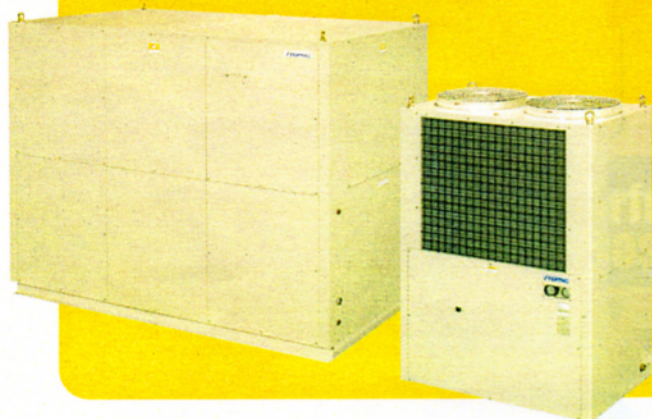
Itomic Industrial use Eco-cute is Powerful & Economical

Energy
efficient

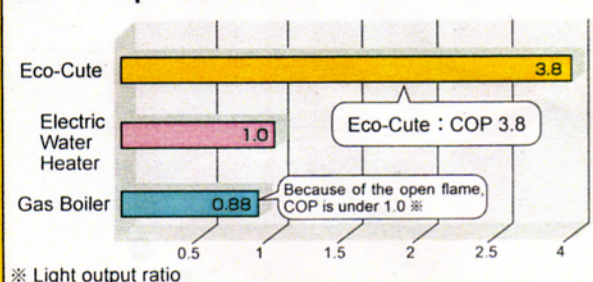
[1Electricity+2Heat from the Air=3Hot Water Supply Energy]

**By Using the Natural Air,
it realizes High efficiency of COP3.8!**

Itomic Industrial use Eco-Cute introduces CO₂ Heat Pump System which utilizes Heat from the Air and produces Heat Energy to make Hot Water. 1electrical energy can produce 3.8 heating energy.



COP Comparison



COP (Coefficient of Performance) is the ratio of heat delivered by the heat pump and the electricity supplied to the compressor. The bigger the figure, the better the efficiency.

※ Rating COP : Energy consumption efficiency when run under the JRAIA (Japan refrigerating and Air Conditioning Industry Association) standard condition.

Economical

**These are
the Points!**

Adding to the efficiency, Running cost is far lower by using the night time electricity.

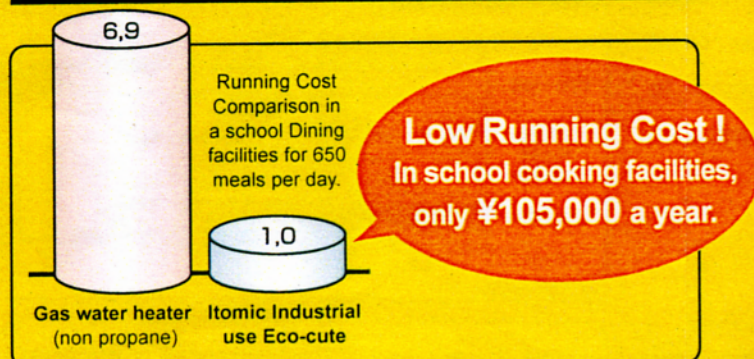
Saves approx. 30% of energy compared with other combustion water heater. On top of that, by using less expensive off-peak electricity, the running cost can be drastically reduced.

※ Night time electricity : Time range for Industrial thermal storage adjustment discount (22:00 ~ next day 8:00)



Night time running =
Low electricity cost

Annual hot water supply Running Cost



(Calculation condition)

Hot Water Supply Load: Calculated based on the assumption that 60°C hot water is needed for making 650 meals a day (195 days annually) depending on the water temperature of each season.

Electricity rate : Apply Industrial thermal storage adjustment discount by Tokyo Electric Power Company. Industrial electricity 6kV in June 2000

Gas rate (non propane) : Based on Tokyo Gas Co., Ltd. Gas Rate Table in June 2000.

**Powerful and
Low cost**

COP 3.8 achieved !

HOT

CO₂

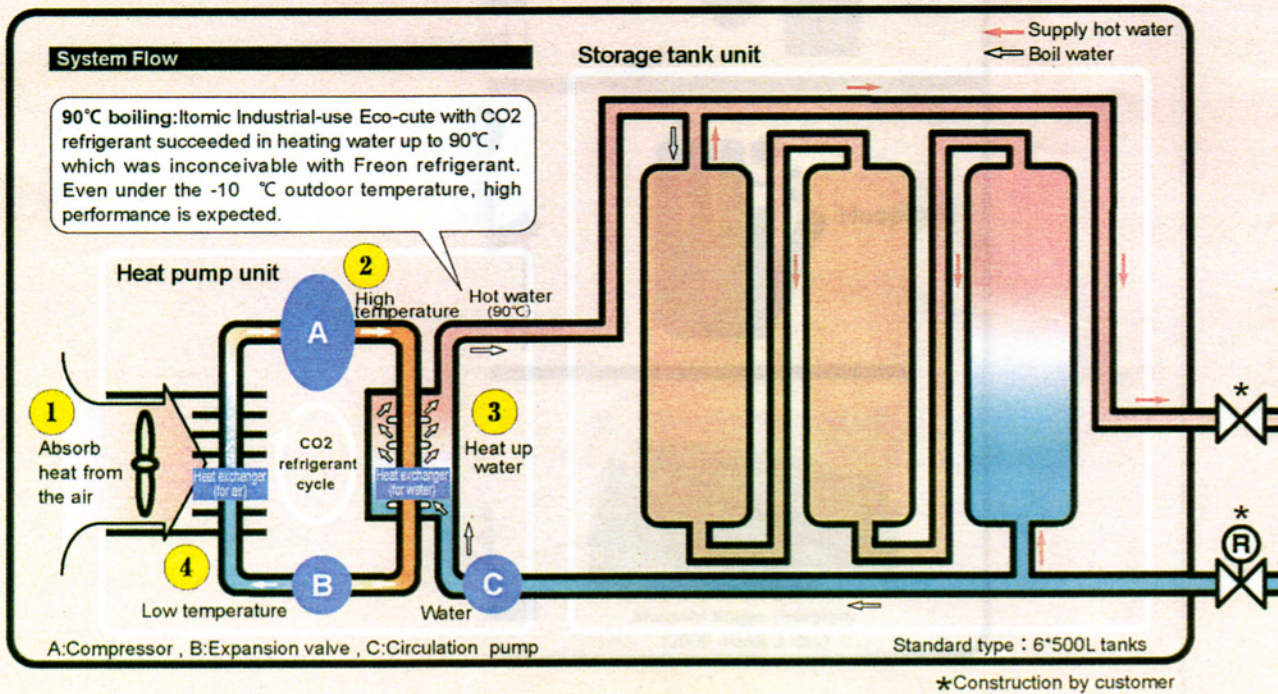
Wherever Hot water is needed

For Facilities to use large volume of hot water like School Dining facilities, Restaurants, Hotels, Hospitals, and Nursery homes.

**System
Works As:**

Realized the production of large volume of 90°C hot water by CO₂ refrigerant which was previously inconceivable with Freon. Ideal for facilities to consume large amount of hot water like hotels, restaurants, school cooking facilities, swimming pools, hospitals, and nursery homes.

- 1 Absorb heat from the air and transfer it to the heat exchanger(for air) , then deliver the heat to refrigerant.
- 2 Warmed up Refrigerant is pressed by compressor and becomes hotter.
- 3 Heat of refrigerant is transferred to water by a heat exchanger(for water) to boil water.
- 4 The refrigerant that loses heat is sent to the heat exchanger(for air) again.



For facilities
like follows:

Itomic Industrial use Eco-cute is ideal for facilities where heavy volume of hot water is used on a constant base.



Trest-Inn Tamachi
(123 room Business hotel in Tokyo)

Hotels



Restaurants



Sports facilities



Shower Rooms



Nursery homes



Seika-en
(Nursery home for 80 persons)



Hospitals



School Dining facilities



Schools



Musashi Kogyo University
(2000 meals a day)

*Induction valve



Supply water

Itomic Industrial use Eco-cute embodies Environmental symbiosis

Adding to the efficiency and low running cost, Itomic Industrial use Eco-cute has various other worth features such as safe, easy, and reliable operation.

90°C

Boil water at high temperature

Powerful enough to boil water to high temperature. Also size is compact.

Itomic Industrial use Eco-cute has succeeded in boiling water to 90°C with high heating ability of CO2 refrigerant and downsizing the storage tanks. Compared with the past heat pump water heater, it needs smaller space for installation.

Natural refrigerant

Environmental symbiosis

Ozone Depleting coefficient is 0. Global Warming Potential is 1/1700 of Freon refrigerant.

Stopping the Global Warming is one of our top priorities. Itomic Eco-cute uses naturally abundant CO2 as refrigerant, so "Ozone Depleting Coefficient is 0, Global Warming Potential is 0" is realized. CO2 refrigerant is not combustible nor toxic, which makes our Eco-cute next generation type water heater.

CO2 Emission deduction

Energy consumption is small, so CO2 emission is drastically reduced.

High COP means low consumption of energy supply. Compared with the combustion type of water heater, CO2 emission is negligible.

Condition: Climate, water supply load and water supply condition are based on standard data in Metropolitan Tokyo.

Reliability

Many functions

Safety and Operation

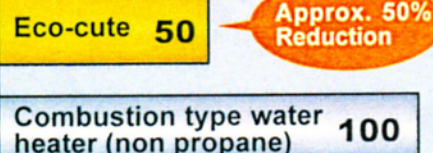
State-of-the-art safety and easy operation. Automatic operation requires no certified staff for operation.

Itomic Eco-cute offers safe and easy operation with the advanced control technology. Automatic boiling, timer controlled operation, temperature management with 6 sensors are just a few features we offer to meet customers' needs. As it is not combustible, no certified technician is required for operation.

Global Warming Potential



CO2 Emission Comparison

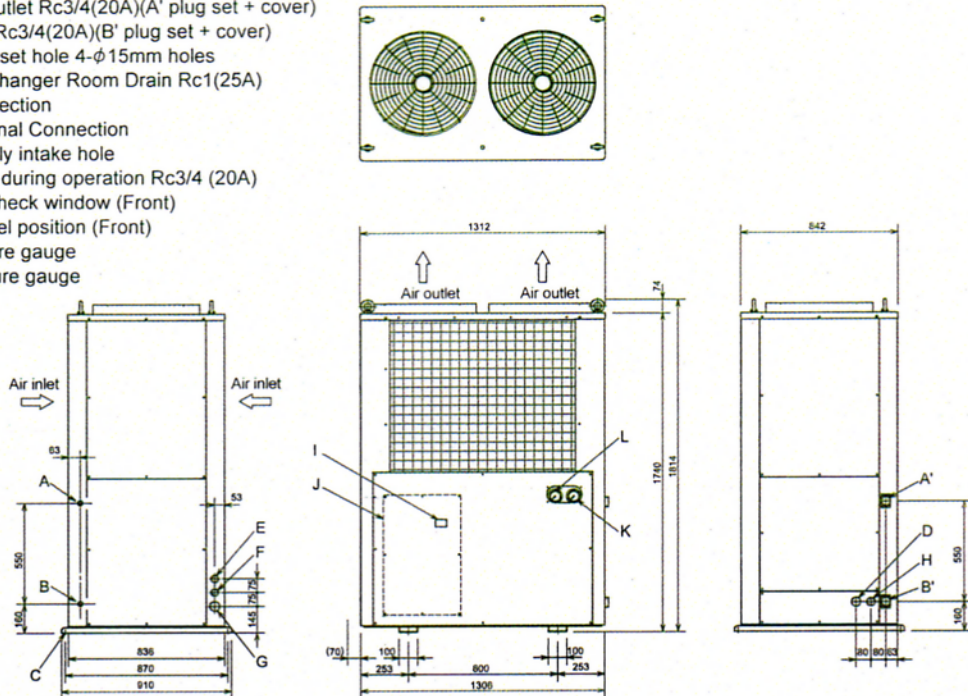


Figures based on the report by the Ministry of the Environment.

Sizes

Heater

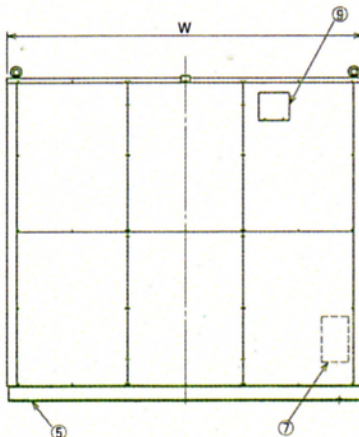
- A : Hot water outlet Rc3/4(20A)(A' plug set + cover)
B : Water inlet Rc3/4(20A)(B' plug set + cover)
C : Anchor bolt set hole 4- ϕ 15mm holes
D : Air heat exchanger Room Drain Rc1(25A)
E : Cable Connection
F : Outside Signal Connection
G : Power supply intake hole
H : Water drain during operation Rc3/4 (20A)
I : Operation check window (Front)
J : Control panel position (Front)
K : Low Pressure gauge
L : High Pressure gauge



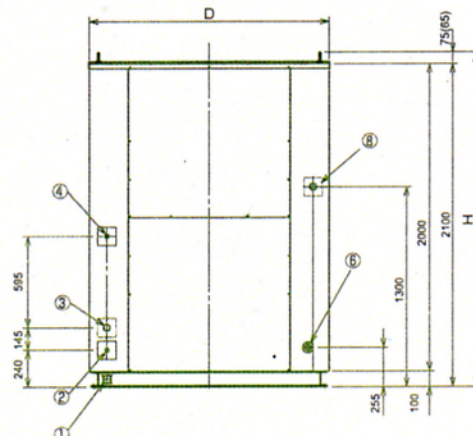
Storage tank

※ The below drawing is for 3,000L tanks.

- ① : Tank Drainage
② : Supply water Rc3/4 (20A) (to Heat source unit)
③ : Supply water connection
④ : Hot water inlet Rc3/4 (20A) (from Heat source unit)
⑤ : Anchor bolt setting hole 6- ϕ 22mm holes
⑥ : Temperature sensor connection line inlet
⑦ : Temperature sensor connection box
⑧ : Hot water connection
⑨ : Reducing valve Check Window



Capacity (L)	Sizes (mm)			Piping connection	
	W	D	H	③/⑧	①
3,000	2,310	1,560	2,175	Rc1 1/4	Rc1 1/4
2,500	2,310	1,560	2,175		
2,000	1,560	1,560	2,175	Rc1	Rc1
1,500	2,310	920	2,165		
1,000	1,560	920	2,165		
500	920	920	2,165		



Production specification

Power source		3φ 200V 50Hz
Storage Capacity		Standard Specification: 3,000L
		Option Specification: 2,500 / 2,000 / 1,500 / 1,000 / 500 (L)
External dimensions (3,000L)		Heat Pump Unit: 1,814mm (H) × 1,312mm (W) × 842mm (L)
		Storage tank: 2,175mm (H) × 2,310mm (W) × 1,560mm (L)
Unit weight/Operation weight		Heat Pump unit: 620kg / 640kg
		Storage tank: 830kg / 3,850kg
Installation		Outdoor
Set up Temperature		90°C
Refrigerant design pressure		High pressure side 15MPa / Low pressure side 8MPa
Reducing valve		150kPa
Pressure relief valve		170kPa
Compressor	Type	Half closed reciprocating compressor
	Motor type	3φ inducing motor
	Rated output	8.4kW
Crank case heater		100W
Fan		Propeller fan 110W × 2units
Pump		Seal less AC200V-100W
Air heat exchanger		Forced convection Cross fin
Hot water heat exchanger		Forced circulation dual tubes
Protection devices		High pressure switch, Low pressure switch, Compressor bursting board
		Over current relay (Compressor, Fan, Pump)
Refrigerant		CO ₂
Piping connection (Storage tank)	water/hot water supply	Rc1 1/4(32A)
	Drainage	G32A
Painting		Ivory white

Performance specification

	A	B
Heating ability	21.3kW	26.3kW
Water volume	3.8L / min.	7.8L / min
Power consumption	7.1kW	6.9kW
Operation current	25.2A	24.7A
Biggest starting current	207A	
Noise	54dB (1m apart from the unit and 1.5m high)	

A: outdoor temp DB=7°C WB=6°C hot water inlet=9°C / outlet=90°C

B: outdoor temp DB=16°C WB=12°C hot water inlet=17°C / outlet=65°C