

NEW TECHNOLOGY FOR HEAT PUMP AND COMPRESSOR

MAYEKAWA MFG. CO., LTD



REFRIGERATION COMPRESSOR



FREEZER AND FOOD PROCESSING



REFRIGERATION ENGINEERING

“CO2 Heat Pump = Eco-Cute”

unimo



Eco-Cute “unimo A/W”

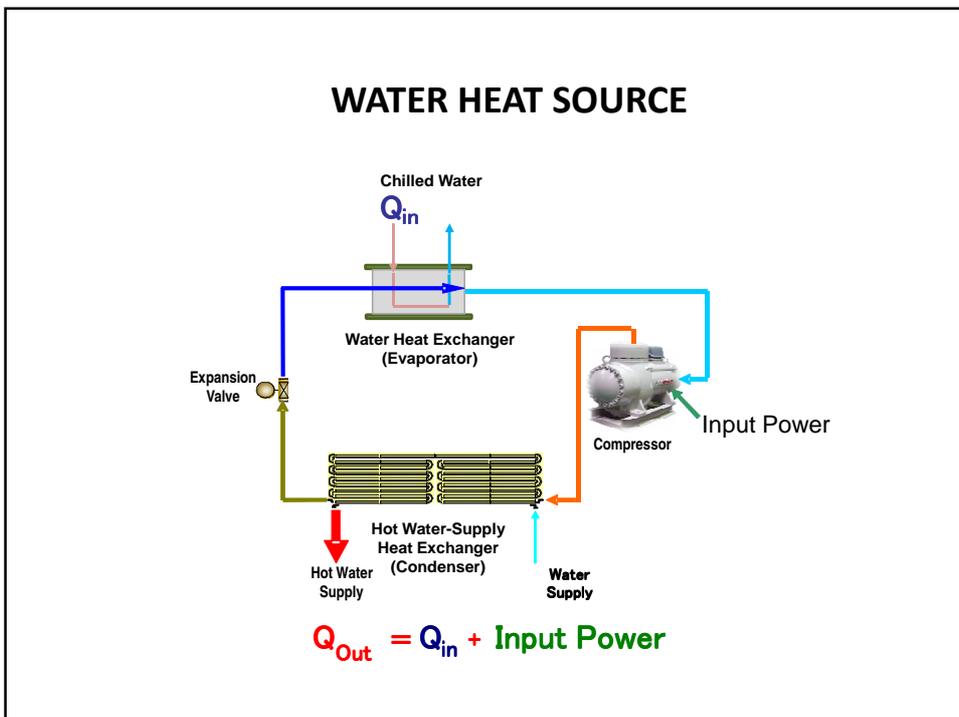
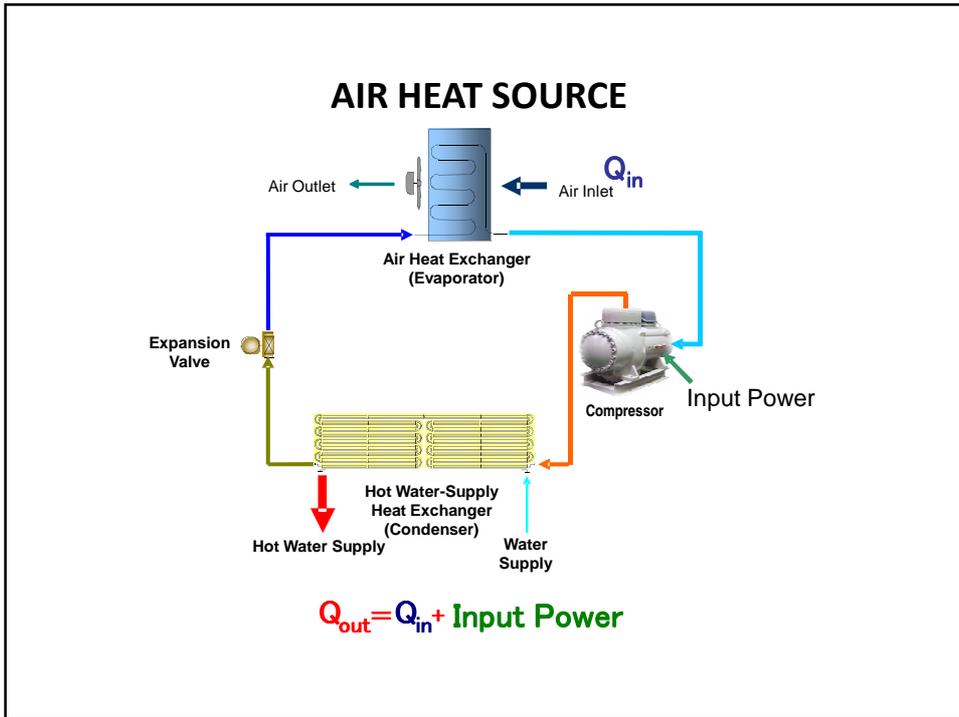
Eco-Cute “unimo W/W”



What is Heat Pump? What is Eco-Cute?

- ✓ A Heat pump is a device or a system that transfer thermal energy from heat source using refrigeration cycle.
- ✓ We are calling Heat Pump Device using CO2 “Eco-Cute” in Japan.
- ✓ **unimo** is Mayekawa’s CO2 heat pump brand.





Capacity of UNIMO (CO2 Heat Pump)

Air Heat Source Type

Model : HWA-2HTC

Heating Capacity : 70kW (1 m³/h, 30°C→90°C)

Motor power consumption : 22kW

COP : 70kW/22kW = 3.18

Advantage :

- 90°C hot water supply
- No chimney
- No fuel tank
- Easy installation
- Stable heat source in Vietnam



Capacity of UNIMO (CO2 Heat Pump)

Water Heat Source Type

Model : HWW-2HTC

Heating Capacity : 80kW (1.1 m³/h, 30°C→90°C)

Cooling Capacity : 57kW (9.6 m³/h, 22°C→17°C)

Motor power consumption : 25kW

COP : (80kW+57kW)/25kW = 5.48

Advantage :

- 90°C hot water supply
- Available chilled water also (max.7°C)
- No Chimney & No Fuel tank
- Higher COP



CO2 as NATURAL REFRIGERANT

Refrigerant Groups	Banned Freon (CFC)		Limited Freon (HCFC)	Alternative Freon (HFC)				Natural Refrigerants (Natural Five)		
	R11	R12	R22	R134a	R404A	R407C	R410A	R717 NH ₃	R744 CO ₂	R600a Iso-Butan
ODP	1.0	1.0	0.055	0	0	0	0	0	0	0
GWP	4750	10900	1810	1430	3922	1650	2088	>1	1	4
Characteristics	<ul style="list-style-type: none"> • ODP is high • Used as refrigerant for car air conditioning • banned in 1995 		<ul style="list-style-type: none"> • Limited use • Banned in 2010 	<ul style="list-style-type: none"> • Instable gas • Ozone depletion potential is zero. • Specified as GDP gas by Kyoto Protocol • Anticipated to be regulated by authority 				<ul style="list-style-type: none"> • Exist in the natural environment • Ammonia, CO₂, Water, Air, Hydrocarbon 		

ODP: Ozone Depleting Potential

GWP: Global Warming Potential

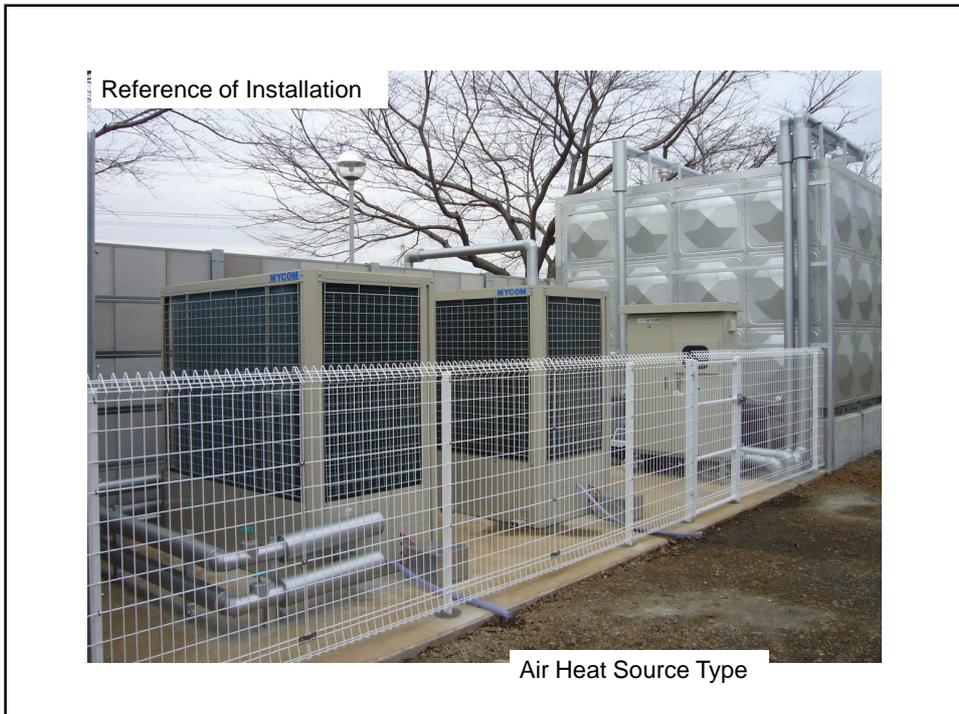
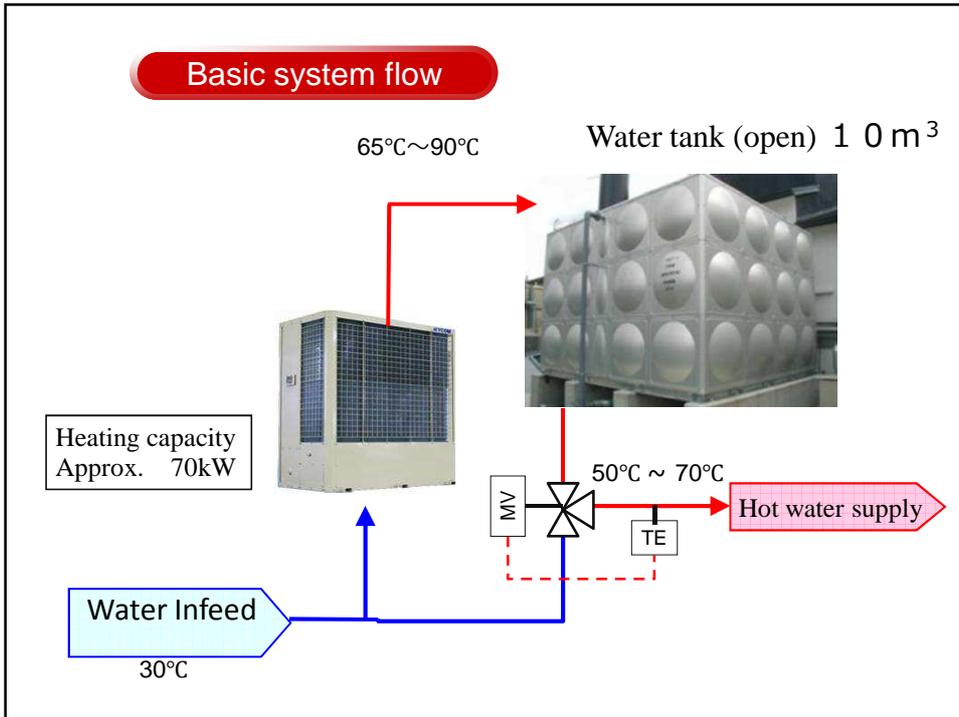
Small Impact on GWP

CO2 COMPRESSOR MYCOM C2HT

Model: C2HT

Type: Semi Hermetic Reciprocating Compressor





Reference of Installation



Reference of Installation



**Thank you very much for
your attention.**

MAYEKAWA
NATURE IS WHAT WE DESIGN FOR !



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