DCE

R744

NATURAL REFRIGERANT

GWP=1

ODP=0

Model:
DCE 125kW

Specially designed for the production of very high temperature water using **R744** natural refrigerant gas (CO2). Can reach hot water temperatures **up to 194°F** with an external air temperature range of **-4°F to 109°F**.

DCE RANGE

Heating Capacity (Ambient Air 59°F; Outgoing Water 140°F)
DCE 125kW (427.8MBH) with a COP of 4.7

High water temperature output and free air conditioning

CO2 Compressor Inverter®

Safe and Reliable

Wide Range of Applications

DCE AIR/WATER - TECHNICAL DATA

Parameters	Model		DCE 125kW
Standard temperature condition	Heating capacity	MBH	428
	Hot water capacity	GPM	10.55
	Heating power input	kW	26.6
	COP	W/W	4.7
Low temperature condition	Heating capacity	MBH	324.1
	Hot water capacity	GPM	7.05
	Heating power input	kW	24.3
	COP	W/W	3.9
Ultra-Low temperature condition	Heating capacity	MBH	266.2
	Hot water capacity	GPM	5.79
	Heating power input	kW	26.0
	COP	W/W	3.0
Power supply		V/Ph/Hz	480V/3 ph/60Hz
Heating type			Direct
Rated output water temperature		°C	45 (113°F)
Maximum output water temperature		°C	90 (194°F)
Work ambient temperature		°C	(-)25-43 (-13-109°F)
Compressor	Type		Dorin (Italy)
Circulation water pump	Brand		Wilo (Inverter)
	Power	kW	0.55
Defrosting type			
Water connection pipe size		mm	DN20
Water side heat exchanger	Type		Tube-Tube type
Air side heat exchanger	Type		High efficiency copper tube (Interior Screw) nested in aluminium fin
Refrigerant	Type		R744
Controller	Brand		CAREL (Italy)
Dimensions	Length	ft	8.1
	Width	ft	4.62
	Height	ft	8.22
Unit noise level		dB(A)	65
Net weight		lbs	2976.2

A. Standard working conditions: water inlet temperature 15°C (59°F), water outlet temperature 60°C (140°F), ambient temperature 20°C (68°F).

B. Low temperature conditions: water inlet temperature 15°C (59°F), water outlet temperature 60°C (140°F), ambient temperature 7°C (44.6°F).

C. Ultra-low temperature condition: water inlet temperature 15°C (59°F), water outlet temperature 60°C (140°F) ambient temperature -7°C (19.4°F).

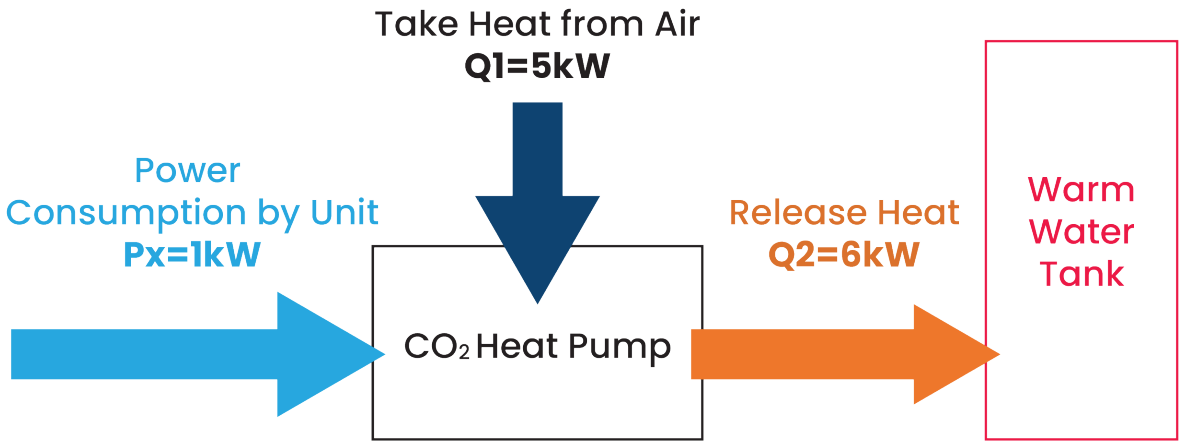
FREE COOLING FEATURE

The CO2 air source heat pump efficiently generates high-temperature hot water while simultaneously providing free cooling or cold water. This dual-function capability allows the system to offer both heating and cooling, achieving a COP of up to 7.0 for optimal energy efficiency in various conditions.

WORKING PRINCIPLE

Special thermo-physical property of working fluid (carbon dioxide) in the closed loop, through Lorentz Cycle, heat exchanger (evaporator) is used to absorb heat energy from air and release heat energy into water. In this process, the compressor consumes electric energy, so that the heat absorption and exothermic process of working substance goes on continuously (i.e. heating cycle), and the heat energy in the air is also continuously transmitted to the water.

As the compressor consumes one share of electric energy, it can promote the transfer of 2-6 share of thermal energy of working substance, so it is more than in the traditional. Electric water heaters, gas water heaters, fluorine machines and other energy-efficient, while overcoming the shortcomings of traditional solar products in rainy weather, can't work in the night. The air source water heater has the advantages of simple installation and flexible use, and can meet the practical needs of more projects.



- ★ The unit consumes power P, and the driving cycle continues
- ★ The evaporation of the working mass absorbs heat energy Q1 from the air
- ★ Thermal energy is released into water to obtain thermal energy Q2
- ★ According to the law of conservation of energy, Q2 = Q1 + P
- ★ The performance coefficient COP = Q2/P = 6, that is, it consumes 1 kW of electricity to obtain 6 kW of heat energy

DCE heat pumps can produce hot water at a constant temperature at a specified set point. Installing a water tank or several water tanks in a series will be necessary once the temperature probes are installed in order to manage the unit's on/off cycles. For more information, connect with our product managers.