R-454C

CZ HT High Temperature Commercial Heat Pump

EWYE-CZ

High temperature & low carbon solution
for heating decarbonisation

HIGH TEMPERATURE COMMERCIAL HEAT PUMP

High temperature and low carbon solution

High temperature heat pump

Heat Pump Version

Introducing our high temperature commercial heat pump, with one or two independent refrigerant circuits. Delivering an optimised and compact design with options from one to four fans.

Capacity range and layout

19-25 kW | 32-35 kW | 50-60 kW | 70 kW

Installation flexibility

The new CZ-HT R454C high temperature commercial heat pump comes in four different layouts, all providing a very compact footprint. This makes the series a great solution for projects where space is a premium, such as: residential buildings, hotels and hospitals. There is no need for extra safety countermeasures due to the fact that the R-454C is an A2L refrigerant.

Product overview

The most complete solution on the market for decarbonisation. CZ-HT reaches **70 °C** heating water temperature even in extreme ambient conditions. For example, during the winter season in Nordic countries (low ambient temperature) and even in summer when domestic hot water production would still be required. Additionally, CZ-HT can work in high delta T conditions allowing the supply of heating water to different heating applications in the installation space.

CZ-HT is available in nine sizes from 19 to 83kW capacity, all equipped with Daikin inverter scroll compressors and Daikin designed EC fans. A full inverter pump can be specified within the unit cabinet saving further plant space.

All units in the range can be configured in reduced noise mode. This makes it particularly suitable for noise-sensitive applications as: residential buildings, schools and hotels. Comfort heating can be supplied in many different applications. CZ-HT allows domestic hot water production, including anti-legionella control function for the external storage tank.

Operating range

	Min	Max
Heating water	20°C	70°C
Ambient temperature OAT	-25°C	35°C

Outdoor installation

Daikin Tubes and fins (Cu/Al coil)

Daikin VFD scroll

Daikin EC Fans

Integrated VFD Pump

R-454C

Refrigerant

Product benefits

Daikin core technology

Daikin scroll compressors benefit from inverter technology that increases this series' efficiency performance. Meanwhile, the vapour injection with economiser guarantees the series capacity steps and extended operating heating envelope.

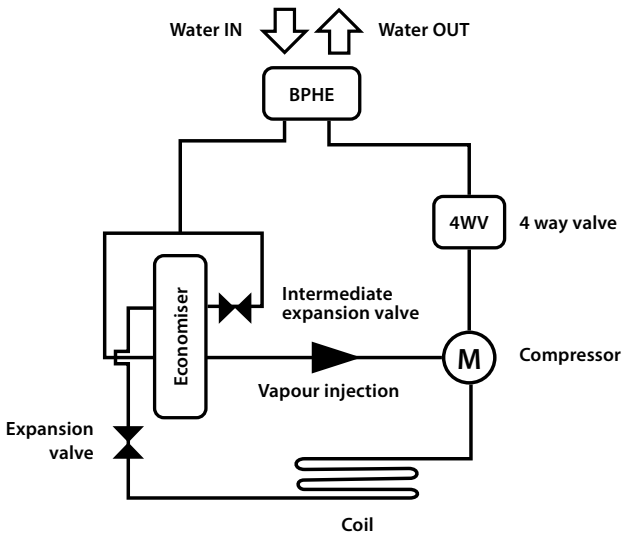
Great energy efficiency levels are also granted by the **Daikin inverter driven fans**, with high efficiency design glass reinforced resin maximise performances.

Daikin tube & fins (Cu/Al) heat exchanger: The reversible heat exchangers is optimised for most extreme heating operation. Aluminum fins are covered by acrylic layer to ease flowing of condensate moisture and provide resistance to corrosion and protection from UV.

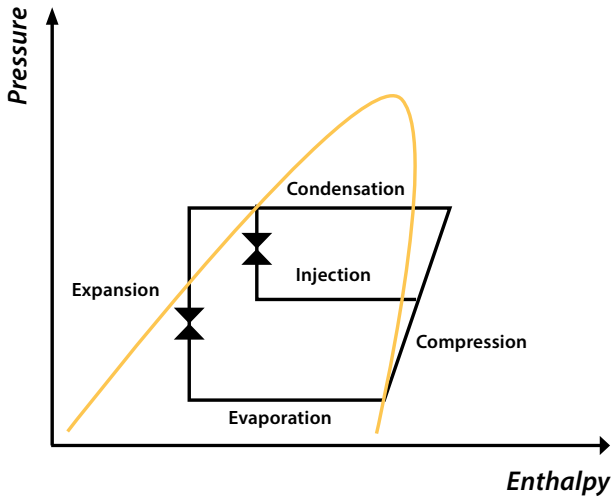
The system uses many Daikin-manufactured products. This means there is a single point of supply, backed by Daikin's years of research and high quality, reliable products.

New compressor technology with vapour injection

Refrigerant piping diagram with economiser for vapour injection



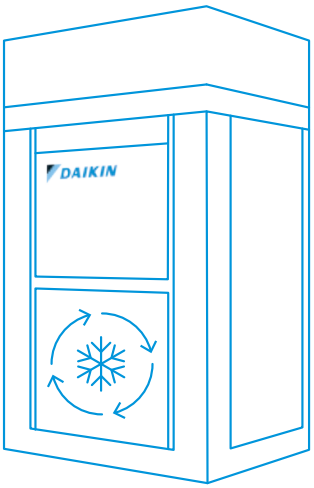
Refrigerant cycle with vapour injection

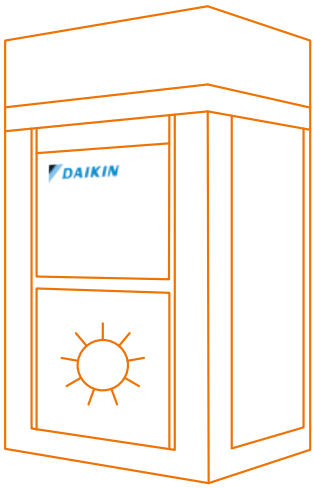


Optimised defrost management

Integrated defrost logic ensures that multiple units have sequenced defrost cycles ensuring no more than one unit in a group will defrost. Up to four units can be optimised providing:

- Less plant water content
- Higher customer comfort due to minimised defrost effect
- Heating load uniformity over time





Low operating costs

Full inverter design enables this unit to closely follow the cooling and heating load profile of the building. This is particularly important as it ensures low operating costs for the HVAC system at part load conditions, which represents the majority of the operating time.

Contribution to green building

The system assists with adherence to popular green building protocols, such as BREEAM and LEED. CZ-HT can contribute to project's credits when evaluating energy efficiency of the hydronic system, thanks to inverter driven compressors. The limited GWP of R-454C also results in a possible contribution when evaluating the impact of refrigerants. In addition, the Smart Grid accessory allows control of the heat pump maximising consumption when renewable energy is produced. This potentially results in credits under BREEAM and LEED protocols, as the carbon footprint will be reduced.

F-Gas ready solution

The new small inverter heat pump provides low direct and indirect CO_2 emissions levels. This makes it an environmentally friendly series. The system utilises R454-C refrigerant, an A2L-classified refrigerant known for its mild flammability, low toxicity, and reduced global warming potential. By using R454-C, the unit can achieve higher water temperatures. With a GWP of just 148, it falls below the 150 GWP threshold established by the new F-Gas regulations, making it a future-ready option in line with upcoming regulatory standards. Incorporating R454-C will help lower the system's overall embodied carbon, with EPD documentation coming soon.

BREEAM®

LEED
LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

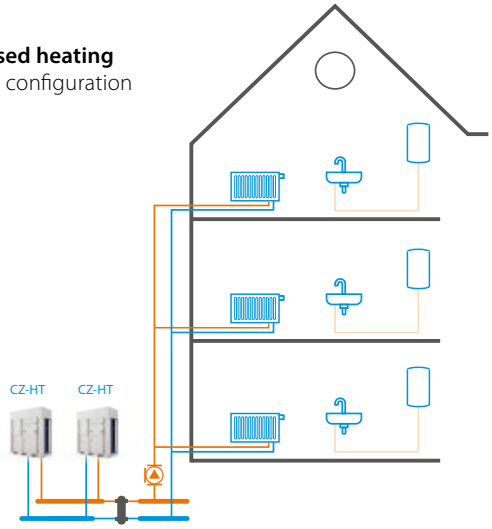
Product applications

High temperature heating for boiler replacement and Domestic Hot Water (DHW)

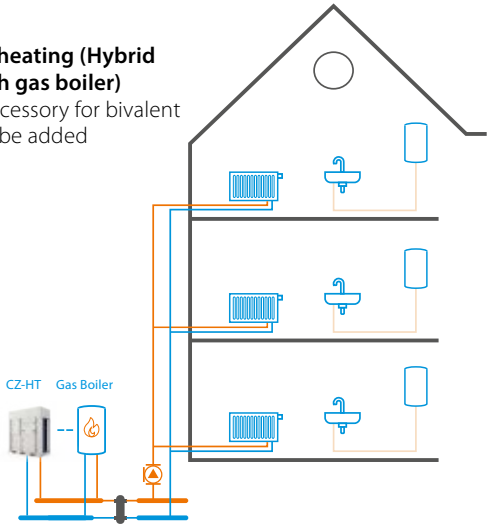
Space heating + DHW configurations

- Centralised heating in combination with gas boilers. DHW supply managed via integration with centralised heating, or independent DHW supply. Groups of units can be managed in master / slave up to four per single master
- Applications: residential, light commerical, hospitals, hotels, schools, gyms, leisure and retail centres.
- Installation: replacement and new building
- Possible terminals are:
  - Existing radiators (70 °C)
  - Heating floor (30-35 °C)
  - Fan coils (40-45 °C)

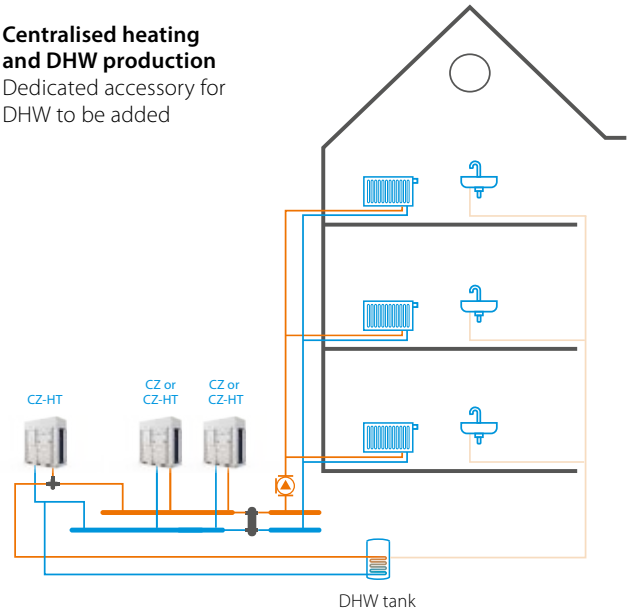
Centralised heating
Standard configuration



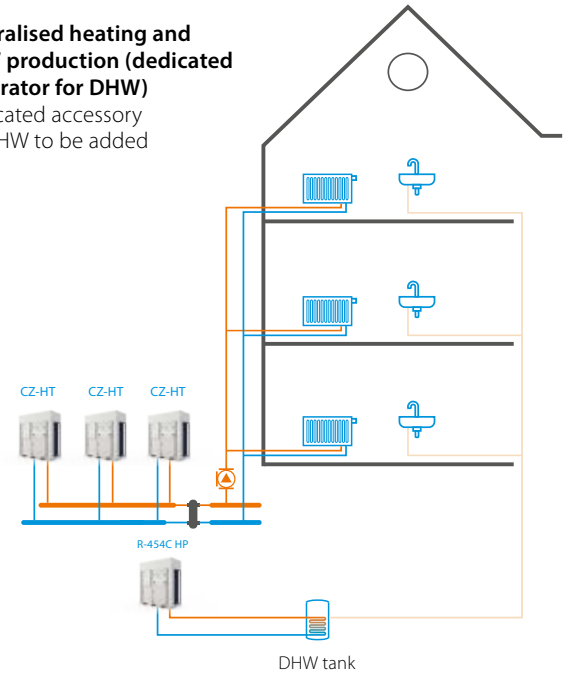
Centralised heating (Hybrid solution with gas boiler)
Dedicated accessory for bivalent operation to be added



Centralised heating and DHW production
Dedicated accessory for DHW to be added



Centralised heating and DHW production (dedicated generator for DHW)
Dedicated accessory for DHW to be added



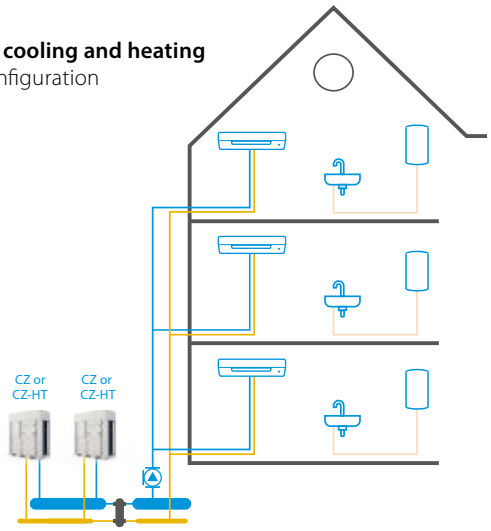
Product applications

Seasonal comfort heating and cooling + Domestic Hot Water (DHW)

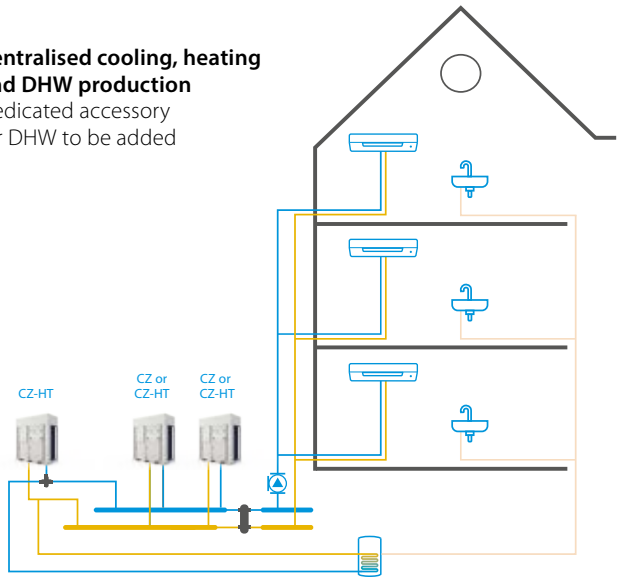
Comfort cooling & heating

- Centralised comfort heating and cooling. DHW managed via three way valves (priority on DHW demand) or independent DHW supply.
- Groups of units can be managed in master / slave up to four per single master
- Applications: residential, light commerical, hospitals, hotels, schools, gyms, leisure and retail centres.
- Installation: replacement and new building
- Possible terminals are:
  - Cooling (12-7°C) and heating floor (30-35°C)
  - Heating and cooling fan coils

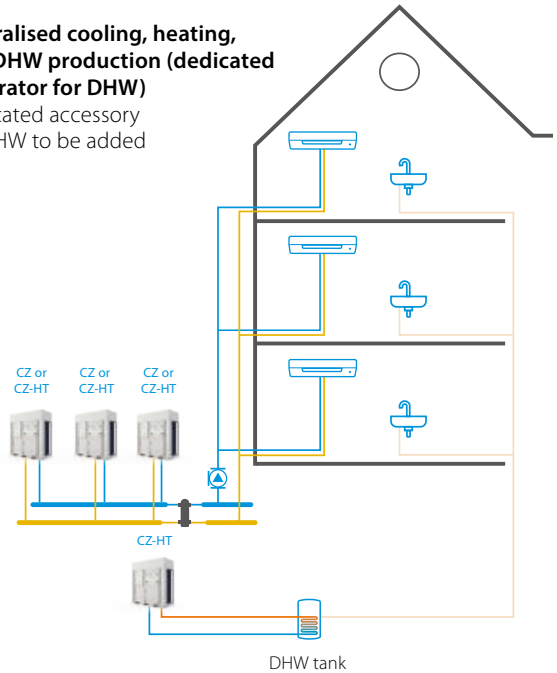
Centralised cooling and heating
Standard configuration



Centralised cooling, heating and DHW production
Dedicated accessory for DHW to be added



Centralised cooling, heating, and DHW production (dedicated generator for DHW)
Dedicated accessory for DHW to be added



Product options and accessories

Hydronic kit

Description

The small inverter heat pump is equipped with an inverter pump on board with electrical protection as standard.
It also possible to order the unit without the pump.

Plant management & connectivity

Master/Slave or Modbus RTU are standard to ensure a perfect plant connectivity.

Optional remote monitoring and system optimisation with Daikin proprietary cloud platform Daikin on Site.

- **Predictive maintenance** to prevent breakdowns
- **Visualise energy consumption** to reduce energy costs
- Monitor and control your building no matter where you are via the **Daikin On Site**
- **Remote diagnostic support** to increase your system lifetime
- Manage **multiple sites**

Dashboards

OPERATOR

Diagnostics

SERVICE

Remote software upgrade

DAIKIN

Master slave control

Description

The small inverter heat pump is able to operate in Master/Slave mode optimising the plant operation up to four units.
The master unit manages the slave units connected in parallel on the same hydraulic plant balancing the running hours and load of each unit and each compressor.

Technical data

			EWYE019CZ	EWYE022CZ	EWYE025CZ	EWYE030CZ	EWYE035CZ	EWYE050CZ	EWYE060CZ	EWYE070CZ
Nominal Cooling performance 12/7 35°C	Cooling Capacity	kW	14.9	16.4	18.2	22.4	25.7	42.1	46.9	59.6
	Power input	kW	5.4	6.0	6.6	7.4	8.9	15.7	17.9	22.4
	EER		2.76	2.73	2.746	3.04	2.88	2.68	2.63	2.67
Nominal Heating Performance 40/45 7°C	Heating Capacity	kW	18.2	20.3	23.9	29.7	34.4	49.9	59.6	73.3
	Power input	kW	5.9	6.5	7.7	8.9	10.6	16.4	20.3	24.4
	COP		3.11	3.11	3.13	3.33	3.25	3.05	2.93	3.00
Heating Performance 40/45 7°C (Boost Operation)	Heating Capacity	kW	21.2	24.8	28.3	34.7	39.5	59.3	68.9	82.6
	Power input	kW	6.9	8.3	9.6	11.0	12.7	20.6	24.7	29.0
	COP		3.05	3.00	2.96	3.17	3.11	2.89	2.79	2.85
Heating Performance */70 -5°C[1]	Heating Capacity	kW	14.1	16.1	19.9	19.6	24.5	34.2	53.9	54.6
	Power input	kW	8.9	9.1	10.0	14.9	12.4	26.4	31.7	33.1
	COP		1.59	1.77	1.99	1.32	1.97	1.30	1.70	1.65
Heating Performance */70 -15°C[1]	Heating Capacity	kW	14.8	17.0	17.6	16.6	20.5	32.4	35.9	46.6
	Power input	kW	11.1	11.9	9.6	14.4	9.7	26.4	31.7	32.9
	COP		1.32	1.43	1.83	1.16	2.11	1.23	1.13	1.42
Water flow rate	Nominal Cooling	l/s	0.7	0.8	0.9	1.1	1.2	2.0	2.2	2.8
	Nominal Heating	l/s	0.9	1.0	1.1	1.4	1.6	2.4	2.8	3.5
Capacity control	Method		Inverter Controlled							
Air heat exchanger	Type		Al Fins & Cu Tube							
Water heat exchanger	Type		Brazed Plate							
Fan	Type		Axial							
	Quantity		1	1	1	2	2	3	3	4
Sound Power Level, Lw[2]		db(A)	77	77	77	77	77	78	78	78
Dimensions	Height	mm	1878	1878	1878	1878	1878	1878	1878	1878
	Width	mm	1152	1152	1152	1752	1752	2906	2906	3506
	Depth	mm	802	802	802	802	802	814	814	814
Operating weight		kg	300	302	302	404	405	636	636	769
Refrigerant	Type/GWP		R454c/148							
	Quantity of circuits		1	1	1	1	1	2	2	2
Compressor	Type		Scroll - Vapour Injection							
	Quantity		1	1	1	1	1	2	2	2
	Economiser		1	1	1	1	1	2	2	2

Notes:

(1)Δt°C will be 8-9°C at this operating point.

(2)Sound condition Ecodesign and Energy label: Sound power in heating mode, measured according to the EN12102 and under test method following the ISO9614.

Daikin Airconditioning UK Limited The Heights Brooklands Weybridge Surrey KT13 0NY Tel: 01932 879000 daikin.co.uk

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