CO_2 ZEAS

Refrigeration condensing units

For commercial and industrial applications

Food retail, horeca, logistic & distribution center and more.

CO_2 ZEAS condensing units

the smart choice for medium and low temperature refrigeration featuring proven ZEAS technology

› Perfect solution for all cooling and freezing applications with variable load conditions and high energy efficiency requirements. Particularly for use in supermarkets, cold storage, blast coolers and freezers, process etc.
› BLDC inverter swing compressor with onboard 2 stage technology with intercooler
› Reduced CO_2 emissions thanks to the use of natural refrigerant (CO_2) and low energy consumption
› Factory tested and pre-programmed for quick and easy installation and commissioning
› Increased installation flexibility thanks to limited dimensions
› Low sound level including "night mode" operation

High energy savings potential

- ☑ Highly efficient operation
- ☑ Cuts energy consumption compared to traditional refrigeration equipment
- ☑ Advanced Daikin BLCD inverter swing compressor technology precisely adapts to the system's needs, protected by 4 patents
- ☑ Eco-design compliant

Intelligent control

- ☑ Can be connected to a third party monitoring system
- ☑ Refrigeration unit can be controlled remotely through a powerful interface
- ☑ Remote control of target evaporation temperature, reset errors and other functions

Comfort

- ☑ Quiet operation, unobtrusive for customers and neighbours
  - › High grade sound insulation on compressors
  - › Condenser fans designed to limit noise
  - › Two low noise operation settings including night mode
- ☑ Wide temperature range (-40°C to +5°C) allows multiple cabinet, freezer and cold room combinations
- ☑ Unified model for freezing, cooling and/or refrigerating applications

Reliable operation

- ☑ CO_2 ZEAS condensing units are rigorously tested on the assembly line
- ☑ Proven inverter swing technology
- ☑ Anti-corrosion treatment on the housing ensures long life even in extreme conditions
- ☑ Daikin condensing units are at the heart of refrigeration applications such as food retail, food processing, logistic center, pharmaceutical and more

Smart refrigeration

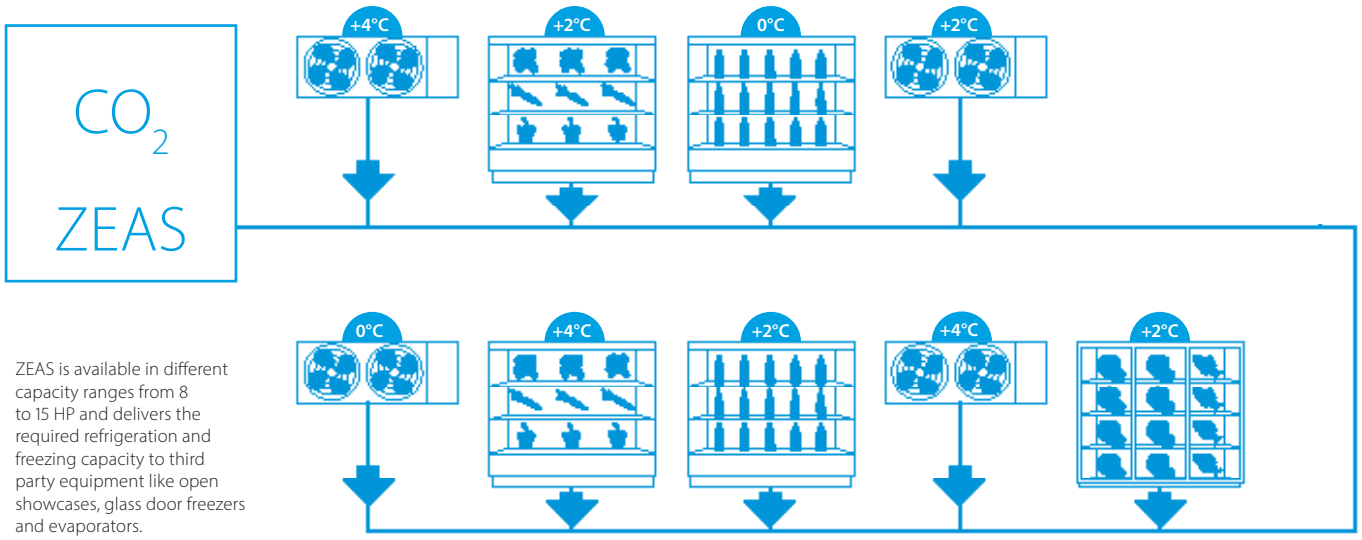
with additional advantages

Small footprint
- Extremely compact design
- Best surface to capacity ratio on the market
- Easy to install in the smallest spaces
- Indoor installation possible
- Minimal space required between units in multi-unit installations

Fully packaged
- Component selection risk reduced to zero
- Leak testing and run test in factory
- Built-in controls ensure optimum operation and unit safety

Wide temperature range
- Precise evaporating temperatures from -40°C to +5°C depending on the application

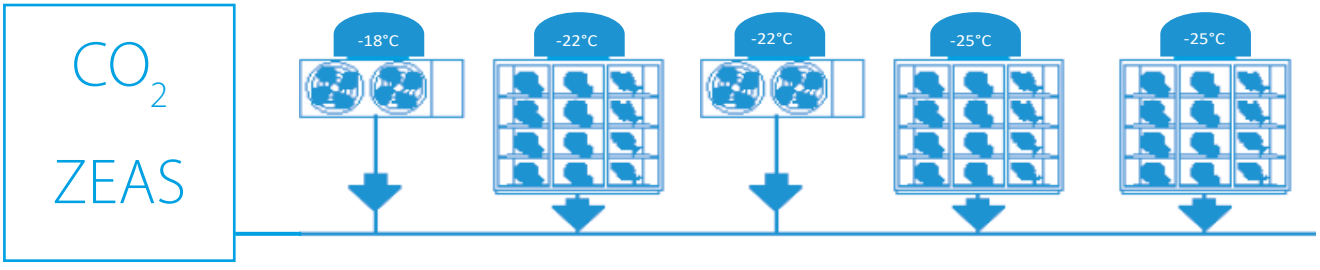
Comprehensive support
- Daikin provides comprehensive service and maintenance tools



ZEAS is available in different capacity ranges from 8 to 15 HP and delivers the required refrigeration and freezing capacity to third party equipment like open showcases, glass door freezers and evaporators.

Operating range
Ambient temperatures: -20°C to +43 °C
Evaporating temperatures: -40°C to +5°C

* Te= -35°C, Tc = -10°C, 10 K SH, Tamb = 32°C



Technical specifications CO_2 ZEAS range

LREN-A7Y1B					LREN8A7Y1B	LREN10A7Y1B	LREN12A7Y1B	LREN12A7Y1B + LRNUN5A7Y1
Capacity range				HP	8	10	12	15
Refrigerating capacity	Low temp.	Nom. @3		kW	11,2	13,5	15,5	17,3
	Medium temp.	Nom. @4		kW	19,8	23,1	26,3	31,7
Power Input	Low temp.	Nom. @3		kW	11,6	14,1	16,9	18,6
	Medium temp.	Nom. @4		kW	10,7	13,2	15,5	20,1
COP	Low temp.	Nom. @3			0,97	0,96	0,92	0,93
	Medium temp.	Nom. @4			1,86	1,75	1,69	1,58
Annual electricity consumption Q	CO2	Te = -10°C		kWh/a	33.068	41.161	49.383	61.738
		Te = -35°C		kWh/a	48.504	61.084	73.883	85.048
Seasonal energy performance ratio SEPR	CO2	Te = -10°C			3,68	3,45	3,27	3,16
		Te = -35°C			1,72	1,64	1,59	1,54
Parameters at full load and ambient temp. 32°C (Point A)	CO2	Te = -10°C	Cooling capacity (PA)	kW	19,8	23,1	26,3	31,7
			Rated power input (DA)	kW	10,7	13,2	15,5	20,1
			Rated COP (COP A)		1,86	1,75	1,69	1,58
		Te = -35°C	Cooling capacity (PA)	kW	11,2	13,5	15,5	17,3
			Rated power input (DA)	kW	11,6	14,1	16,9	18,6
			Rated COP (COP A)		0,97	0,96	0,92	0,93
Parameters at full load and ambient temp. 43°C	CO2	Te = -10°C	Cooling capacity (P3)	kW	15,8	17,5	19	24,3
			Rated power input (D3)	kW	12,9	14,8	15,1	23,8
			Rated COP (COP3)		1,23	1,18	1,26	1,02
		Te = -35°C	Cooling capacity (P3)	kW	9	10,6	12,2	13,2
			Rated power input (D3)	kW	12,8	15,6	17,6	23,2
			Rated COP (COP3)		0,7	0,68	0,69	0,57
Dimensions	Unit	Height		mm	1680			
		Width		mm	1930			2565 (1930 + 635)
		Depth		mm	765			
Weight	Unit			kg	547			720
Compressor	Type				Hermetically sealed swing compressor			Hermetically sealed swing compressor
	Modulation speed	max		rps	90			90
		min		rps	20			20
	Output			W	4600			4600
	Piston displacement			m³/h	6,16			6,16
	Motor	Cranckcase heater	output	W	32			32
Compressor 2	Type				Hermetically sealed swing compressor			Hermetically sealed swing compressor
	Output			W	4600			4600
	Piston displacement			m³/h	6,16			6,16
	Starting method				Direct on line (Inverter driven)			Direct on line (Inverter driven)
Compressor 3	Type				Hermetically sealed swing compressor			Hermetically sealed swing compressor
	Output			W	4600			4600
	Piston displacement			m³/h	6,16			6,16
	Starting method				Direct on line (Inverter driven)			Direct on line (Inverter driven)
Q-up compressor	Type				-			Hermetically sealed swing compressor
	Modulation speed	max		rps	-			90
		min		rps	-			20
	Output			W	-			4600
	Piston displacement			m³/h	-			6,16
	Starting method				-			Direct on line (Inverter driven)

LREN-A7Y1B						LREN8A7Y1B	LREN10A7Y1B	LREN12A7Y1B	LREN12A7Y1B + LRNUN5A7Y1
Fan	Type					Propeller fan			
	Diameter				mm	541			
	Quantity					3			1
	Air flow rate	Cooling	Nom.		m^3/min	285 @6		315 @6	417 @6
Fan motor	Output				W	750 @7			750 & 350 @7
	Drive					Direct drive			
Operation range	Evaporating temp.	Min.			°C	-40			-20
		Max.			°C	5			0
	Ambient temp.	Min.			°CDB	-20			
		Max.			°CDB	43			
Refrigerant	Type					R744 (CO2)			
	GWP					1			
	Charge				kg	0 @8			
	Control					Electronic expansion valve			
Piping connections	Refrigeration	gas		OD	mm	19,1		22,2	
		liquid		OD	mm	15,9			
	Level difference	OU - IU	Indoor unit in highest position		m	10			
			Outdoor unit in highest position		m	35			
	Suction	Superheat			K	10 K or more			
	Maximum piping length	MT			m	130			
		LT			m	100			
Design pressure	HP side				bar	120			
	Liquid line connection				bar	90			
	Receiver				bar	90			
	Suction line connection				bar	90			
Sound pressure level	Nom.				dB(A)	61	62	64	65

notes

1 Minimum load of each individual refrigeration indoor unit: 3 kW (for Medium Temperature Operation)
2 Minimum load of each individual refrigeration indoor unit: 3 kW (for Low Temperature Operation)
3 Rated conditions: saturation temperature equivalent to suction pressure: -35°C (LT), outdoor temp. 32°C, suction SH 10 K
4 Rated conditions for chilled side: saturation temperature equivalent to suction pressure: -10°C (MT), outdoor temp. 32°C, suction SH 10 K
5 Every compressor equipped with 1 accumulator of 0,909 liters
6 Outdoor Unit Total Airflow
7 Output (maximum rating) of one fan motor if winding temperature is 120°C or less (main fans & Q-up fan)
8 A small amount of refrigerant could be left in the unit
9 Compressor 1
10 Compressor 2
11 Compressor 3
12 Factory charge of the unit

Acting ahead of legislation

Staying ahead of increasingly tough legislation and regulations around the world is one of the driving forces behind our investment in refrigeration technology. It is also what makes Daikin a leader in innovation.

F-gas regulation

The new F-gas regulations, which focus on direct emissions, came into force at the beginning of 2015. Daikin ZEAS condensing units meet all the legislative requirements for end-of-life emissions, as well as for emissions during a unit's lifecycle.

Ecodesign Directive

The EU's Ecodesign Directive 2009/125/EC is designed to encourage the market to use more efficient products. It also helps manufacturers to agree a better definition of efficiency for remote condensing units. Since 01/07/2016 refrigeration units also need to comply to this system of minimum efficiency requirements.

› **inverter swing capacity control**
We have incorporated inverter technology into our CO_2 ZEAS to give optimum control of fluctuating loads in refrigerated cabinets. This delivers lower energy losses than traditional refrigeration units.

› **Economiser function**
The economiser function in our refrigeration products delivers two main benefits. It increases the unit's capacity while less absorbed power is required. At the same time, it also decreases the discharge temperature, increasing the lifetime of the compressor.

› **Adaptable evaporation temperature**
To lower energy consumption, the configured evaporation temperature of CO_2 ZEAS can be increased through an external signal.

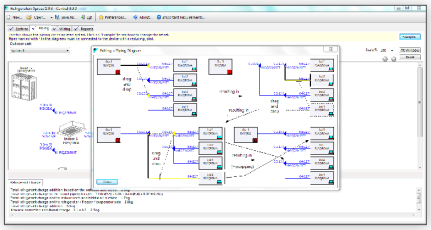
At closing time, night curtains are lowered, reducing the load to 1/3. This means that the evaporator coil is now oversized and there is a risk of freezing the goods. To avoid this, the evaporation temperature of CO_2 ZEAS can be increased.

Tools and platforms

Here are a few handy tools to help you to find the Daikin products you need and how to get the best out of them.

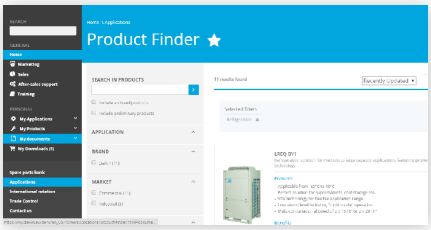
Refrigeration Xpress software

User-friendly, easy to understand design software for Conveni-Pack and ZEAS. Its detailed report includes a list of materials, piping and wiring diagrams, and device options.



Business portal: my.daikin.eu

› Experience our new extranet that thinks with you at **my.daikin.eu**.
› Find information in seconds via a powerful search
› Customise the options so you see only info relevant for you
› Access via mobile device or desktop



Daikin product finder

For an overview of refrigeration products or if you want to make a comparison, please refer to **www.daikineurope.com/commercial/products**

Troubleshooting and commissioning

Service checker

The service checker is a monitoring tool which keeps your system trouble-free and working with top efficiency.

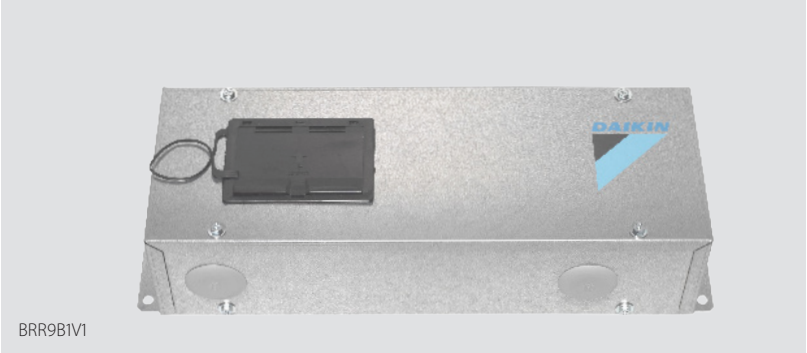
› Ideal for troubleshooting and commissioning
› Direct graphical parameter display

Modbus communication kit

BRR9B1V1

This Modbus communication interface lets you integrate ZEAS and Conveni-Pack systems fully with building control automation networks and other monitoring systems.

The interface allows you to read all the operational parameters and control important values using the Modbus protocol. In this way, refrigeration professionals can create reliable and energy-optimised shop concepts, including remote monitoring applications.



BRR9B1V1

Display values
› Model information and operating status
› Refrigerant operating pressure and temperatures
› Electrical operating data and temperatures for components
› Target values
› Fan stage and compressor frequency, operating hours
› Warning and error messages, as well as system safety functions

Control values
› Target evaporation temperature
› Forced stop
› Error messages can be cancelled remotely

CO2

WARM CLIMATE

FGAS FREE

KEEP COOL, SAVE MONEY

Daikin refrigeration products are designed to reduce environmental impact.
Daikin systems also set industry standards when it comes to energy efficiency.
Which enables you to save money while you help to save the planet.
Learn more at www.daikineurope.com/refrigeration

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