



GREENCOOL CO₂ PACKAGED UNIT

CO₂ Subcritical and Transcritical Systems



R744

CO₂ GU.2605.V1.1E

Compliance with the Pressure Equipment Directive (PED, 2014/68/EU)

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JOIN THE GREEN REVOLUTION!



With GreenCool CO₂ Subcritical and Transcritical Systems, you're not only embracing state-of-the-art technology, but also taking a meaningful step towards reducing your carbon footprint and protecting the environment for future generations.

Carbon Dioxide (CO₂) is a natural refrigerant that offers outstanding environmental benefits and energy efficiency, making it a game-changing solution for reducing carbon footprints. Its superior thermodynamic properties result in an excellent heat transfer coefficient, enabling higher efficiency compared to traditional refrigerants. This combination of performance and sustainability makes CO₂ an ideal choice for a wide range of refrigeration applications.



Eco-Friendly

CO₂ is a natural refrigerant with a Global Warming Potential (GWP = 1) and Ozone Depletion Potential (ODP = 0), making it one of the most sustainable solutions.



Energy Efficiency

Designed to optimize performance, especially in colder climates, CO₂ systems reduce energy consumption and lower operational costs.



Versatile Applications

CO₂ Subcritical and Transcritical Systems deliver reliable and efficient performance across a wide range of industries, such as supermarkets, cold storage, and pharmaceutical sectors.



Future-Proof Technology

As regulations tighten on Freon-based refrigerants, CO₂ systems offer a compliant, sustainable solution that ensures long-term operational viability.



Quiet Operation

CO₂ systems operate with smoother pressure profiles, reducing vibration and mechanical noise from compressors and piping, making them ideal for noise-sensitive environments.



Safe and Reliable Operation

CO₂ is non-flammable, non-toxic, and chemically stable, making it a safe choice for both personnel and equipment. Its low mass volume also enables the use of compact and space-saving system designs.

High-Efficiency Gas Cooler with EC Fans

Dual Sided Water Mist Spray

CO₂ Liquid Receiver**

Inverter-Driven Compressors

Air-Cooled Desuperheater

Oil Management System**



Intelligent Modular Control System

Pressure Gauges Valve Station

Stainless Steel Piping System

Frequency Inverters

Electronic Oil Level Controller

** Compliance with the Pressure Equipment Directive (PED, 2014/68/EU)

FEATURES & BENEFITS

Inverter-Driven Compressors

Inverter-Driven Compressors precisely match cooling output to demand by adjusting their operating frequency, ensuring superior energy efficiency.

High Efficiency Gas Cooler with EC Fans

EC fan technology improves gas cooler performance by delivering precise airflow, enhancing heat transfer efficiency and stabilising the gas cooler outlet temperature. In Transcritical CO₂ systems, it boosts heat rejection by 10 to 15% compared to AC fans while reducing power consumption.

Dual Sided Water Mist Spray

Spraying water mist on a CO₂ gas cooler improves its efficiency by using evaporative cooling (pre-cooling the air before it reaches the gas cooler), which lowers the temperature of the gas more effectively than dry air cooling. This action is triggered automatically under high ambient temperature conditions and increases the system's performance and resulting energy savings.

Intelligent Modular Control System

Equipped with programmable presets, the system enables adaptive temperature regulation through dynamic parameter inputs.

Plug & Play, Easy and Flexible Installation

This all-in-one solution includes a factory assembled condensing unit, preset controller, electronic expansion valve, essential sensors, and clear instructions for fast, hassle-free setup. Its streamlined design also allows for easier maintenance and servicing.

Reliable Oil Management System

The oil separator designed for CO₂ applications is Coupled with an electronic oil level controller, it ensures precise compressor performance and system stability. The high efficiency oil separator achieves up to 99% separation for enhanced operational reliability.

Enhanced Subcooling with CO₂ Liquid Receiver

CO₂ liquid receiver for the GCL series is equipped with an internal heat exchanger to enhance refrigerant subcooling and optimise suction superheat management. It is also Compliant with the Pressure Equipment Directive (PED, 2014/68/EU).

Secure Operation Under High Pressure

Smart pressure control enables safe and efficient operation in high temperature conditions, supporting pressures up to 120 bar.

OPTIONS

Water Cooled Application
CO₂ water cooled condensing units offer stable, energy efficient, and quiet operation by cooling the refrigerant effectively in high ambient or indoor environments, supporting sustainable and future-proof refrigeration.

Hot Water Heat Recovery
CO₂ condensing units recover waste heat from the refrigeration cycle to heat water, supplementing existing boilers, thereby reducing overall energy consumption and enhancing system efficiency.

NOMENCLATURE

GCL-G25P.E633

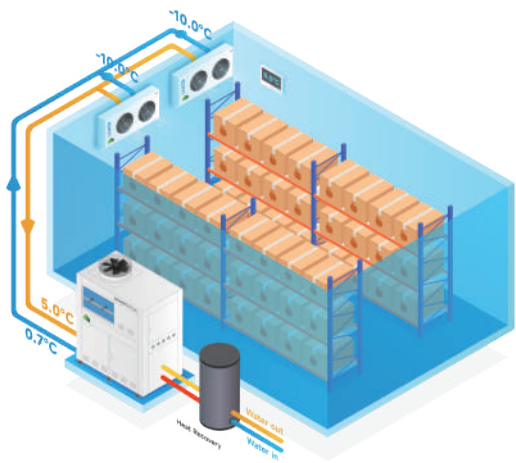
GC GreenCool Unit	L Application L – Low Temperature M – Medium Temperature D – Dual Temperature*	G Gas Cooler Type G – Separated Desuperheater W – Water Cooled System
25 Platform	P Gas Cooler Configuration P – Packaged R – Remote	E EC Fan
63 Fan Size – 630mm	3 No. of Fans 1 – 1 Fan 2 – 2 Fans 3 – 3 Fans	

*Dual Temperature series are available in certain system configurations. Our GreenCool technical specialists would be pleased to evaluate your specific requirements and provide optimized solutions.

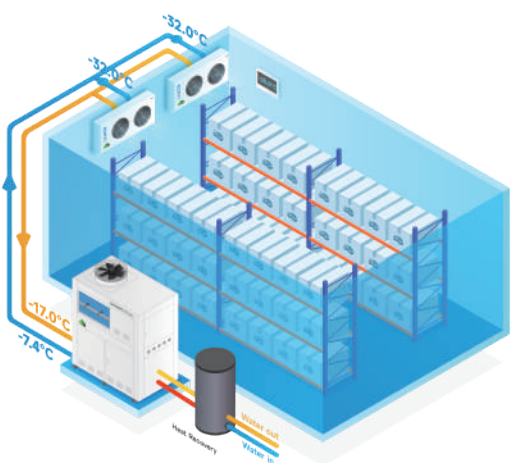
APPLICATION

The GreenCool Subcritical and Transcritical System represents an advanced and eco friendly refrigeration solution designed for a wide range of temperature requirements, including medium-temperature chillers, low-temperature freezers, and dual-temperature* applications.

Chiller Applications
Room Temperature: -10°C to +5°C

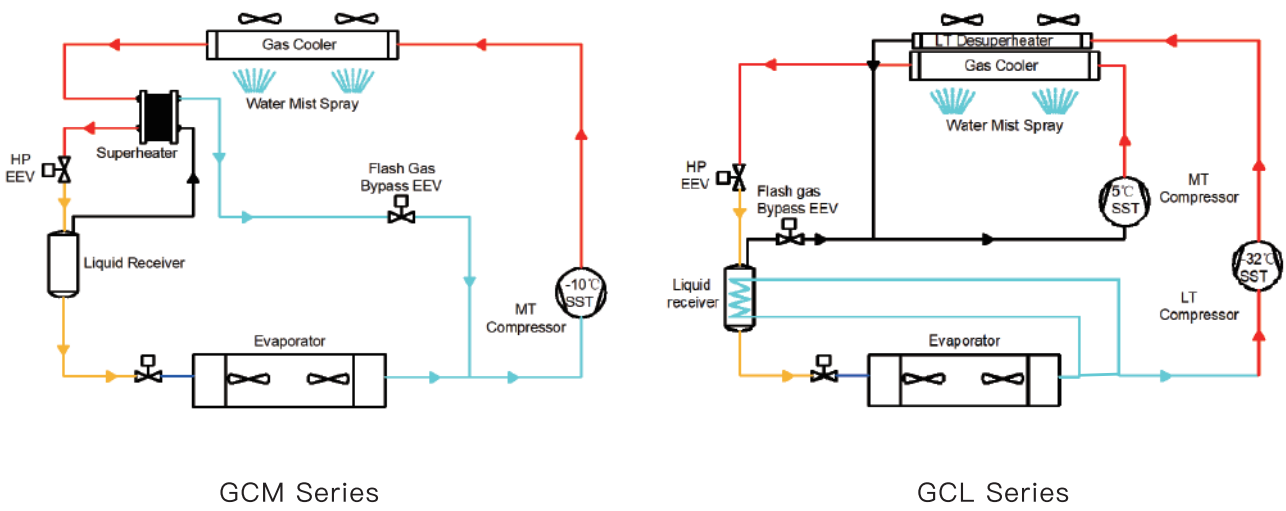


Freezer Applications
Room Temperature: -35°C to -18°C



* Dual Temperature series are available in certain system configurations.. Our GreenCool technical specialists would be pleased to evaluate your specific requirements and provide optimized solutions.

P&ID DIAGRAM



PERFORMANCE DATA

GreenCool **Medium** Temperature Series

Capacity (kW)

R744

Model	Compressor Model	Ambient Temperature (°C)		60 Hz				
				Cooling Capacity Qo (kW) / Compressor Power Input Pe (kW)				
				Evaporating Temperature (°C)				
				-15	-10	-7	-5	-0
GCM-G10P.E631	4MTE-10K	37	Qo	8.66	10.70	12.04	12.99	15.58
			Pe	9.02	9.44	9.60	9.66	9.69
		35	Qo	10.54	13.03	14.67	15.84	19.03
			Pe	9.02	9.44	9.60	9.66	9.69
		32	Qo	12.32	15.23	17.16	18.53	22.30
			Pe	9.02	9.44	9.60	9.66	9.69
		29	Qo	13.53	16.72	18.84	20.30	24.50
			Pe	9.02	9.44	9.60	9.66	9.69
GCM-G15P.E632	4JTE-15K	37	Qo	13.49	16.39	18.35	19.73	23.50
			Pe	12.83	13.36	13.58	13.69	13.81
		35	Qo	16.42	19.96	22.40	24.10	28.70
			Pe	12.83	13.36	13.58	13.69	13.81
		32	Qo	19.19	23.30	26.10	28.10	33.60
			Pe	12.83	13.36	13.58	13.69	13.81
		29	Qo	21.10	25.60	28.70	30.90	36.90
			Pe	12.83	13.36	13.58	13.69	13.81
GCM-G20P.E632	4HTE-20K	37	Qo	17.08	20.70	23.10	24.90	29.70
			Pe	16.11	16.74	16.99	17.11	17.23
		35	Qo	20.80	25.20	28.20	30.30	36.20
			Pe	16.11	16.74	16.99	17.11	17.23
		32	Qo	24.30	29.50	33.00	35.50	42.40
			Pe	16.11	16.74	16.99	17.11	17.23
		29	Qo	26.70	32.30	36.20	39.00	46.60
			Pe	16.11	16.74	16.99	17.11	17.23
GCM-G25P.E633	4FTE-30K	37	Qo	26.20	31.50	35.10	37.50	44.30
			Pe	23.50	24.60	25.10	25.30	25.60
		35	Qo	31.80	38.40	42.70	45.80	54.10
			Pe	23.50	24.60	25.10	25.30	25.60
		32	Qo	37.20	44.90	50.00	53.50	63.40
			Pe	23.50	24.60	25.10	25.30	25.60
		29	Qo	40.80	49.30	54.90	58.80	69.60
			Pe	23.50	24.60	25.10	25.30	25.60

PERFORMANCE DATA

GreenCool **Low** Temperature Series

Capacity (kW)

R744

Model	Compressor (Model Stage)	Ambient Temperature (°C)		60 Hz				
				Cooling Capacity Qo (kW) / Compressor Power Input Pe (kW)				
				Evaporating Temperature (°C)				
				-40	-35	-32	-30	-25
GCL-G10P.E631	2KTE-7K (High) 2EME-4K (Low)	37	Qo	10.25	13.08	15.02	16.42	-
			Pe	10.13	11.57	12.49	13.21	-
		35	Qo	10.25	13.08	15.02	16.42	20.30
			Pe	9.65	11.02	11.90	12.45	13.89
		32	Qo	10.25	13.08	15.02	16.42	20.30
			Pe	8.95	10.21	10.90	11.41	12.72
		29	Qo	10.25	13.08	15.02	16.42	20.30
			Pe	8.37	9.33	10.05	10.40	11.47
GCL-G15P.E632	4KTE-12K (High) 4FME-7K (Low)	37	Qo	15.72	20.10	23.00	25.10	31.00
			Pe	15.86	17.79	18.90	19.98	22.40
		35	Qo	15.72	20.10	23.00	25.10	31.00
			Pe	15.04	16.86	18.14	18.93	21.21
		32	Qo	15.72	20.10	23.00	25.10	31.00
			Pe	14.05	15.72	16.68	17.39	19.24
		29	Qo	15.72	20.10	23.00	25.10	31.00
			Pe	13.25	14.41	15.26	15.90	17.54
GCL-G20P.E632	4KTE-12K (High) 4EME-10K (Low)	37	Qo	19.91	25.40	29.10	31.80	-
			Pe	19.48	22.08	23.54	24.94	-
		35	Qo	19.91	25.40	29.10	31.80	-
			Pe	18.55	20.78	22.39	23.47	-
		32	Qo	19.91	25.40	29.10	31.80	39.20
			Pe	17.41	19.24	20.71	21.47	24.10
		29	Qo	19.91	25.40	29.10	31.80	39.20
			Pe	16.10	17.94	18.87	19.75	21.69
GCL-G25P.E633	4HTE-20K (High) 4DME-10K (Low)	37	Qo	23.60	30.20	34.60	37.80	46.50
			Pe	23.05	25.91	28.03	29.42	33.22
		35	Qo	23.60	30.20	34.60	37.80	46.50
			Pe	21.89	24.59	26.58	27.59	31.17
		32	Qo	23.60	30.20	34.60	37.80	46.50
			Pe	20.48	22.95	24.49	25.41	28.36
		29	Qo	23.60	30.20	34.60	37.80	46.50
			Pe	19.12	21.12	22.26	23.31	25.69

DIMENSIONS

Unit Model	Dimensional Details (mm)						[Weight] (kg)
	H	W	L	[H]	[W]	[L]	
GCM-G10P.E631	2500	1290	2200	2600	1390	2300	950
GCM-G15P.E632	2500	1290	2700	2600	1390	2800	1250
GCM-G20P.E632	2500	1290	3200	2600	1390	3300	1450
GCM-G25P.E633	2500	1290	3500	2600	1390	3600	1650
GCL-G10P.E631	2500	1290	2200	2600	1390	2300	1100
GCL-G15P.E632	2500	1290	2700	2600	1390	2800	1400
GCL-G20P.E632	2500	1290	3200	2600	1390	3300	1600
GCL-G25P.E633	2500	1290	3500	2600	1390	3600	1800

[Packed Dimensions / Estimated Weight]



TECHNICAL DATA

Unit Model	Compressor					Gas Cooler				Desuperheater			Liquid Receiver Volume (L)	Liquid Line (Copper) (Inch)	Suction Line (Copper) (Inch)
	Model	Stage	Nominal Input Rating	(V/Ph/Hz)	Max Operating Current	No. of EC Fans 630 mm	Fan Motor Rating	Fan Motor Current	Water Pipe Connection	No. of AC Fans 400 mm	Fan Motor Rating	Fan Motor Current			
			(HP)		(A)		(kW)	(A)	Inlet (mm)		(kW)	(A)			
GCM-G10P.E631	4MTE-10K	Single	10	380-420 V / Y-3 / 50Hz	21.9	1	1.25	2	φ25	-	-	-	50	φ 1/2	φ 7/8
GCM-G15P.E632	4JTE-15K	Single	15		32.0	2	2.50	4						φ 5/8	φ 1-1/8
GCM-G20P.E632	4HTE-20K	Single	20		39.6	2	2.50	4					80	φ 7/8	φ 1-1/8
GCM-G25P.E633	4FTE-30K	Single	30		59.6	3	3.75	6						φ 7/8	φ 1-1/8
GCL-G10P.E631	2KTE-7K	High	7		26.1	1	1.25	2		1	0.135	0.44	50	φ 1/2	φ 7/8
	2EME-4K	Low	4											φ 5/8	φ 1-1/8
GCL-G15P.E632	4KTE-12K	High	12		42.6	2	2.50	4					80	φ 5/8	φ 1-1/8
	4FME-7K	Low	7												
GCL-G20P.E632	4KTE-12K	High	12		50.7	2	2.50	4						φ 5/8	φ 1-1/8
	4EME-10K	Low	10												
GCL-G25P.E633	4HTE-20K	High	20		61.9	3	3.75	6						φ 5/8	φ 1-1/8
	4DME-10K	Low	10												

Disclaimer: All figures are subject to change without prior notice.



Eden CO₂ Unit Cooler Series

The Eden unit cooler is a high performance evaporator designed specifically for Transcritical CO₂ refrigeration systems. It delivers exceptional heat transfer efficiency while ensuring stable and reliable operation under demanding high pressure conditions.



	CAPACITY Medium Temperature: 5.14kW ~ 53.52kW Low Temperature: 3.62kW ~ 18.5kW Air Throw: 17.2m ~ 21.1m Fan Motor Size: Φ400mm
	CAPACITY Medium Temperature: 11.9kW ~ 77.9kW Low Temperature: 5.4kW ~ 33.0kW Air Throw: 24.1m ~ 30.9m Fan Motor Size: Φ500mm
	CAPACITY Medium Temperature: 22.5kW ~ 102.5kW Low Temperature: 9.6kW ~ 52.3kW Air Throw: 32m ~ 38m Fan Motor Size: Φ630mm