



# GPC (CO<sub>2</sub>/R744) FREEZE DRYER RANGE COMPARISON CHART

GPC Rev 6.1 2024

Specification:		FD100		FD600		FD1200		FD1800	
		m	ft	m	ft	m	ft	m	ft
Chamber - Over all dimensions (AISI 304 S/S)	L	3.44	11.30	6.81	22.34	5.12	16.80	7.20	23.62
	W	1.40	4.60	2.53	8.30	2.80	9.18	2.80	9.18
	H	1.94	6.37	3.10	10.17	2.58	8.46	2.58	8.46
Performance Ice Trap Capacity (18hr)		100 kg / 220 lbs**		600 kg / 1323 lbs		1200 kg / 2645 lbs		1800 kg / 3968 lbs	
Useable Product Shelves		9		19		19		19	
Heat Plate Modules		2		2		4		6	
Useable Tray Area (m <sup>2</sup> )		9.1m <sup>2</sup> / 98 ft <sup>2</sup>		56.8m <sup>2</sup> / 611 ft <sup>2</sup>		113.7m <sup>2</sup> / 1224 ft <sup>2</sup>		170.5m <sup>2</sup> / 1835 ft <sup>2</sup>	
Product Trays: Anodized Aluminium 2 sets supplied		18 per load 36 total		112 per load 224 total		224 per load 448 total		336 per load 672 total	
Tray Trolleys Supplied		2 x Single Fronted		4 x Double Fronted 2 x Single Fronted		10 x Double Fronted		14 x Double Fronted 2 x Single Fronted	
Tray Size		495mm x 1025mm x 20mm / 19.48in x 40.35in x 0.78in (max loading depth 20mm / 3/4 in)							
Shelf Spacing (mm)		35mm / 1.38in working height							
Shelf Temperature		-20°C to 70°C / -4°F to 158°F (upgrade available for lower shelf temperature of -35°C/-37°F)							
Shelf Heating Rate (average)		15K / hr		10K / hr					
Ice Coil temperature*		-40°C / -40°F							
Heating / Cooling medium		Heat Transfer Fluid (HTF)							
Estimated Typical Operational Power Consumption (Dry mode)		5.4 kW		55 kW		82 kW		110 kW	
Typical Power Usage - 18 hr cycle		150 kWh**		1,015 kWh		1,840 kWh		2,670 kWh	
Estimated Energy Consumption		1.5 kWh/kg		1.7 kWh/kg		1.5 kWh/kg		1.5 kWh/kg	
Potential Heat Energy Recovered		N/A		70 kW		110 kW		140 kW	
Peak Power Requirement		7.5 kW		85 kW		150 kW		214 kW	
Weight (Chamber) (TBC)		2,500 kg / 5511 lbs		11,900 kg / 26,235 lbs		18,200 kg / 40,124 lbs		33,500 kg / 73,855 lbs	

Disclaimer: Every effort is made to provide information that is accurate, however this may change at any time.

Power numbers are calculated and may differ during operation due to different products and recipes.

\* Low Temperature R507 model available. Ice coil temperature -55°C / -67°F. Ice Test based on 24hrs.

\*\* Performance Ice Trap Capacity for FD100GP is 100kg in 24hrs

## The Cuddon GPC (CO<sub>2</sub>/R744) freeze dryer at a glance:

Designed specifically for use with the environmentally compliant refrigerant gas Carbon Dioxide (CO<sub>2</sub>), also referred to as R744, the new GPC range of Cuddon Freeze Dryers is designed with environmental sustainability, high performance, consistency of results, reduced maintenance and whole of life costs at the very core. The most advanced commercial freeze dryers on the market, manufactured by a freeze dry manufacturer with nearly 60 years of experience in the Freeze Dry and commercial refrigeration field, Cuddon Freeze Dry continues to deliver excellence in sublimation technology.

The Cuddon Freeze Dryer is a batch style conductive commercial scale freeze dryer, delivering consistent high quality lyophilization processing. The liquid filled shelves ensures fine control of sublimation temperature with minimal heat; an energy saving measure as well as risk mitigation against scorching or burning of the product that can be associated with radiant freeze dryers. Batch freeze drying on specially designed anodized aluminium food grade trays enables absolute flexibility of use for different product types and unrivalled quality control of product batches.

Manufactured to the very highest standards, the product chamber is manufactured from grade 304 stainless steel & product contact is limited to the product trays; sanitation and hygiene compliance are assured when combined with a robust cleaning and quality regimes within your facility.

Designed to run with minimal maintenance hence optimizing operational availability, the Cuddon Freeze Dryer GPC range minimizes the environmental footprint of your freeze dry operations, while also delivering significant Whole of Life Cost (WOLC) savings against previous models without any loss in performance or drying quality.



### **Environmental Design Features:**

- Environmentally neutral Carbon Dioxide (CO<sub>2</sub> / R744) refrigerant, with a Global Warming Potential (GWP) of just '1'.
- Hard wearing and long lasting stainless steel product chamber and modules can be re-engineered as required in the future and are ultimately recyclable.
- Aluminium product trays have superior heat transfer properties to steel, delivering lower peak power draw and shorter cycle times; reduced energy costs per cycle & improved product capacity per annum.
- Excess heat may be recovered from plant & equipment for use elsewhere in the factory through the Excess Heat Recovery optional upgrade; reducing energy consumption costs (FD600 & above).
- Elimination of oil disposal costs during maintenance through the use of a vacuum dry pump as standard.
- Plant and equipment selected for efficiency and performance.

### **Performance Design Features:**

- Optimized for sublimation performance, ease of operation, flexibility of use and commercial scalability delivering the very best commercial scale freeze dry output.
- Designed specifically for CO<sub>2</sub>/R744 refrigerant, the high performance of the previous Cuddon Freeze Dry GP (R507) range has been at least matched and in many criteria significantly improved through multiple design improvements.
- Freeze dry recipes developed in other Cuddon Freeze Dryers are transferable to alternate size models, meaning ease of commercial scale up and flexibility of use.
- All models utilize a common tray size, enabling pre-processing to be optimized regardless of size of commercial freeze dryer and the option of using the Cuddon product trays throughout your production line, reducing complexity of your production line.
- Includes Freeze in Place function – negating the need for a separate freezer for Start Up companies, or minimizing the risk of double handling for high value products due to external freezing.
- Food grade product trays are the only contact surface for the product, meaning less cleaning burden and reduced risk of cross-product contamination. Especially designed with curved edges, this eliminates product traps and ensures easier product removal when dry.
- Control system is optimized to ensure all systems work efficiently in harmony, with an intuitive HMI touchscreen with remote operations and monitoring facilitated via VPN.



**Cuddon Freeze Dry, the environmental choice for quality & performance.**

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