

CallithyaCO₂

Revolutionising
CO₂ Capture
and Purification

Capture the Future with CallithyiaCO₂

CallithyiaCO₂, io consulting's state-of-the-art cryogenic CO₂ purification process, has been specifically engineered to meet the rigorous demands of CO₂ capture from oxy-combustion processes. Our design integrates io's open art cryogenic process to deliver the CO₂ purity and efficiency you require, optimised for the transportation and sequestration requirements of your application. We understand that one size doesn't fit all; we bring our whole project, systems thinking approach to integrate our CPU design with your oxy combustion process to optimise the CO₂ purity and recovery required, hence minimising capex and opex.

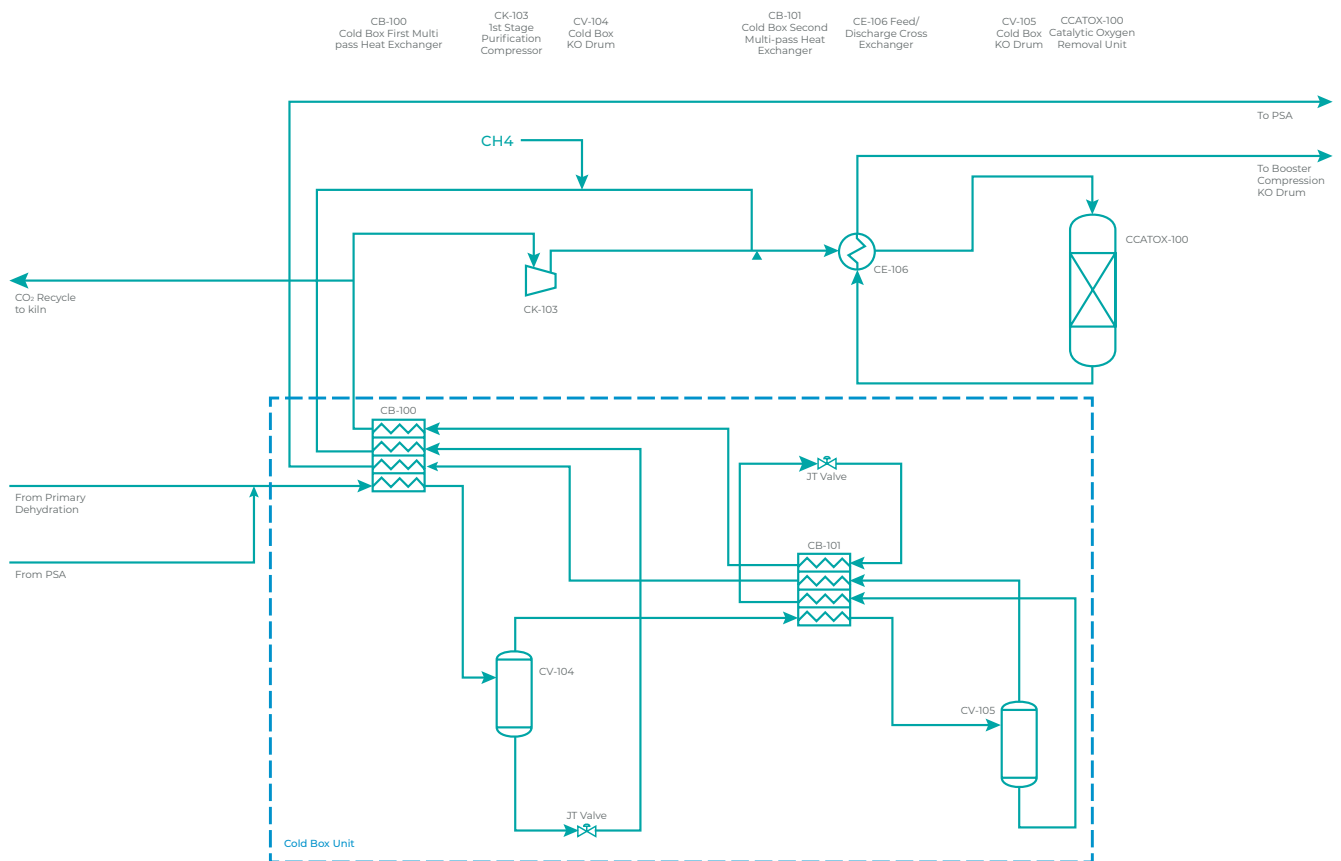
Key Features of CallithyiaCO₂

- **Advanced Cryogenic Processing:** CallithyiaCO₂ utilises a combination of cold box and cryogenic liquefaction technologies, developed and optimised for high-purity CO₂ production. This dual approach ensures the bulk separation of CO₂ and nitrogen is performed efficiently, with final purification (if required) relying on an external refrigerant system.
- **Exceptional Purity Levels:** Achieve dense phase or liquid CO₂ purity levels up to 99% (or lower if the transportation application allows), a fit for purpose purity to suit bulk transportation by road, rail car, ship or pipeline. Our system effectively removes contaminants, ensuring the CO₂ produced is of quality demanded.
- **Innovative Cooling and Dehydration:** io's process incorporates a Direct Contact Cooler (DCC) and secondary dehydration units, CallithyiaCO₂ cools and purifies the flue gas upstream, conditioning the CO₂ to maximise the efficiency of cryogenic separation and liquefaction (if required).
- **Scalable Storage and Transportation:** Designed for seamless integration with liquid CO₂ storage and rail, road or ship transportation or if by pipeline the liquefier is eliminated and dense phase (pumped or compressed) CO₂ is produced instead. io's liquefied CO₂ process includes robust, proven storage solutions from CB&I, a world leader in storage.

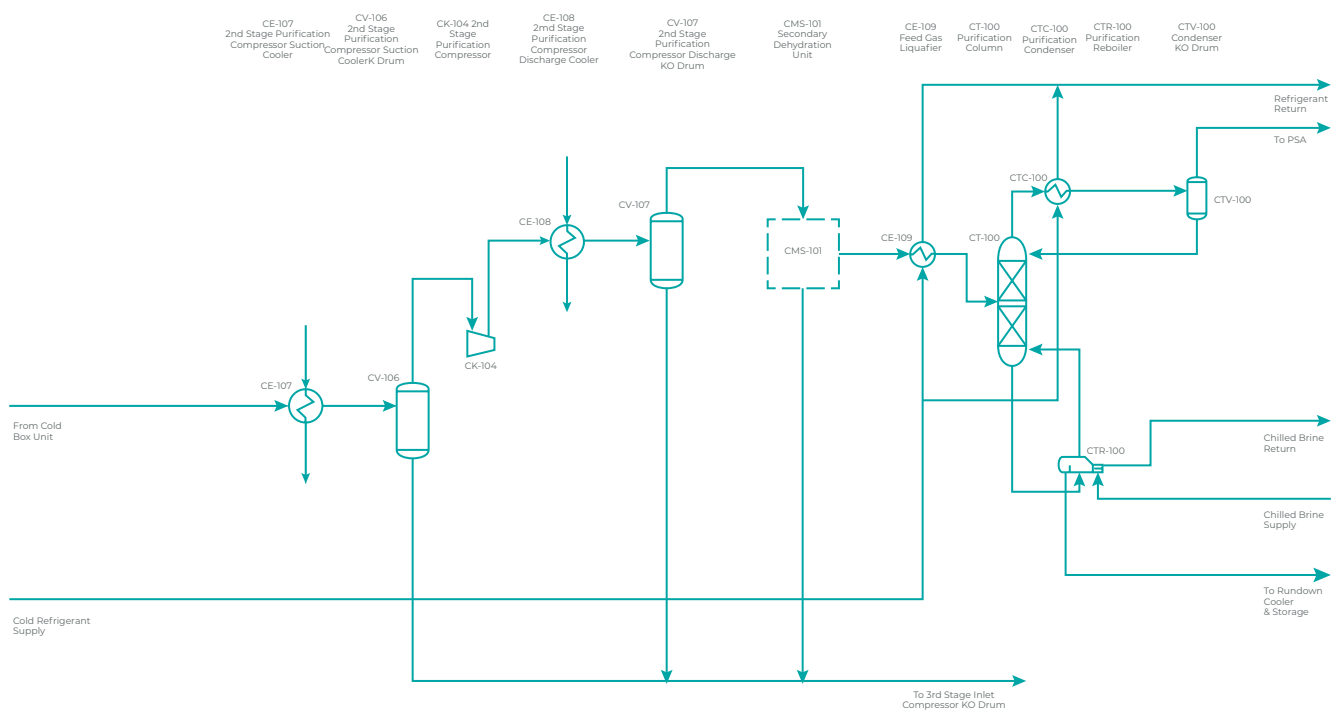
Why Choose CallithyiaCO₂?

- **Efficiency and Reliability:** Built on proven technologies and backed by extensive io process design experience, CallithyiaCO₂ offers reliable performance with minimal operational downtime.
- **Environmental Responsibility:** As part of the commitment to Zero Liquid Discharge (ZLD) and net-zero emissions, CallithyiaCO₂ supports sustainable industrial practices, reducing environmental impact while enhancing operational efficiency with a solution customisable to the purity required and no higher.
- **Future-Ready Design:** Adaptable for various industrial applications, CallithyiaCO₂ is not just a solution for today but a scalable, future-proof technology ready to meet evolving environmental regulations and industry needs.
- **Your Trusted Advisor:** Our comprehensive in-house project development services comprise feasibility studies to the delivery of a Basic Engineering Package, leveraging open art technology to ensure flexibility and competitive supply chain solutions.
- **We protect Value:** We are Front-End Loading (FEL) experts. Our world-class resources and state-of-the-art digital systems are dedicated to advancing your project to a successful sanction and beyond, with a focus on high quality technical definition, meticulous planning and execution preparedness.

Base Case CPU Configuration - Cold Box



Base Case CPU Configuration - Cryogenic Liquefaction





Join the Carbon Capture Revolution with **CallithyiaCO₂**

Empower your operations with the advanced capabilities of CallithyiaCO₂. Contact us today to learn how our cryogenic CO₂ purification unit can transform your carbon capture strategy, drive sustainability, and set new standards in environmental responsibility. io can support you on your decarbonisation journey from feasibility through FEED and as your owners engineer through execution. We can complete the integrated FEED or produce a process design package (PDP) for the CPU, liquefier and storage for others to integrate, your contracting strategy on your contract strategy.

CallithyiaCO₂ by io consulting: Capturing Tomorrow, Today.

About io consulting

io is an energy project architect and systems integrator that specialises in front end thinking to enable complex projects with greater embedded decision quality.

io is an established low carbon project development specialist in power to x, hydrogen, carbon capture, clean energy, energy storage, industrial decarbonisation and hydrocarbons and provides services from feasibility to final investment decision and beyond.

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