PRODUCT DATASHEET

CO_2 Dehydration Unit (Molecular Sieve)

Two-tower molecular-sieve CO_2 dryer, 150–600 t/day





DETAIL – ADSORBER TOWERS

OVERVIEW

The Tech Inc. CO_2 Dehydration Unit (Molecular Sieve), model TI-CDH-M-500, dries captured CO_2 before it enters a shared carbon capture, utilisation and storage (CCUS) pipeline. Two towers of molecular-sieve beads adsorb the water: while one dries, the other regenerates, and drying never stops. The unit handles typical flows of 150–600 tonnes of CO_2 a day at a capture source or tie-in.

MODELS AND CONFIGURATIONS

- **TI-CDH-M-500** – two-tower molecular-sieve dryer for 150–600 tonnes a day.
- **Regeneration options** – a heated slip-stream of dried CO_2, or regeneration gas to client specification.

TYPICAL DESIGN DATA

Capacity	Typically 150–600 tonnes of CO_2 a day, or to client specification
Drying	Two molecular-sieve towers with thermal-swing regeneration
Outlet water content	Down to ppm level, to the pipeline specification or client specification
Operating pressure	To suit the compression stage or tie-in, or to client specification
Materials	Stainless steel for wet CO_2 service, or to client specification
Vessels	Designed to ASME VIII or client specification
Controls	PLC with automatic tower switching, moisture monitoring and alarms

APPLICATIONS

CCUS source tie-ins and hubs, gas processing, hydrogen and ammonia plants, refinery and petrochemical capture units, capture at cement, steel and power plants, and CO_2 for enhanced oil recovery.

KEY ADVANTAGES

- **Continuous drying** – one tower on line while the other regenerates
- **Deep drying** – molecular sieve takes water down to ppm level
- **Pipeline protection** – dry CO_2 prevents corrosion and hydrate formation downstream
- **Automatic sequence** – the PLC switches towers and runs regeneration without operator action
- **Confirmed quality** – the moisture analyser checks the dried CO_2 before it leaves the unit

Designed and built by Tech Inc. · **Part of the Davey Group since 1990**

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