CO2
CARBON CAPTURE

Utilisation & Storage
A safe solution, covering the entire
CCUS transport Chain

ELAFLEX
Group

CARBON CAPTURE, UTILISATION & STORAGE – CCUS

CO_2 emissions can be permanently reduced by capturing and storing or utilising carbon dioxide (CCUS – Carbon Capture, Utilisation & Storage). This can be achieved through cryogenic separation. The main challenge is not the medium itself, but the combination of low temperatures and low pressures, which poses the greatest difficulty for safe, spill-free transfer from CO_2 capture to utilisation and storage.
As a globally leading specialist for the transfer of gases and fluids the ELAFLEX Group has aligned the core competencies of its member companies to address this challenge and developed reliable solutions for the entire CCUS transport chain.

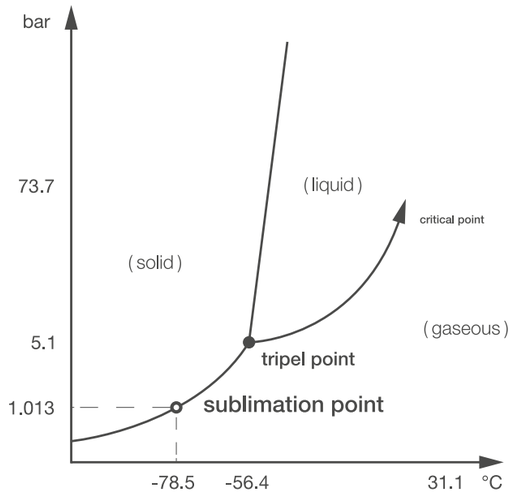
Online configurator:
manntekconfigurator.elaflex.de

DRY CRYOGENIC COUPLINGS – DCC

MannTek Dry Cryogenic Couplings are designed for use in cryogenic applications and media such as liquefied CO_2 (LCO_2), LNG, nitrogen, oxygen, argon, ethylene, and other liquefied gases. They enable quick and safe connection of hoses and loading arms under pressure with minimised product loss (e.g. truck and ship bunkering). During the cool-down phase, no retightening of the connection is required, unlike flanged or threaded connections. Available in sizes up to 8" with various connection options. Temperature range: -196 °C to +85 °C, operating pressure: 25 bar (2.5 MPa). MannTek DCCs comply with ISO 21593 or ISO/TS 18683.

CO_2 PHASE DIAGRAM

Compared to other gases and other liquefied gases, the physical properties of CO_2 and LCO_2 cause a significant temperature decrease during rapid pressure drops. During loading and transport, the temperature should remain above -56.4 °C and 8–9 bar to keep CO_2 in the liquid phase. Otherwise, solid CO_2, also known as 'dry ice' can form. This highlights the importance of well-designed valves to minimise pressure drop. MannTek Dry Cryogenic Couplings are the preferred choice, combining safe, quick handling with reduced internal pressure drop for time-efficient and operator-friendly LCO_2 transfer.



CRYOGENIC BREAKAWAY COUPLINGS – CBC

Cryogenic Breakaway Couplings prevent spillage and damage caused by accidental drive-away or pull-away incidents during loading and unloading between mobile and stationary units. The breaking force of the MannTek CBC is defined by the weakest component of the hose line or loading arm, ensuring controlled disconnection of the supply line. The couplings are reusable and suitable for cryogenic liquefied gases such as liquefied CO_2 (LCO_2), LNG, nitrogen, oxygen, argon, and ethylene down to -196 °C. Available in breaking pin (marine and industrial) and cable release version. MannTek CBCs are available in sizes up to 8" with various connection options. Temperature range: -196 °C to +85 °C, operating pressure: 25 bar (2.5 MPa).

Online configurator:
manntekconfigurator.elaflex.de

COMPOSITE HOSES FOR CRYOGENIC CO_2 DANCHEM PA SS

Dantec liquefied CO_2 (LCO_2) composite hoses Type Danchem PA SS Cryogenic CO_2 are multi-layer thermoplastic hoses with internal and external helix, are a versatile solution, but not exclusively the choice for ship-to-ship, ship-to-shore, truck-to-ship, and terminal operations. According to EN 13766:2018 for suction and delivery operations. Deliverable size range DN from DN 25 (1") to DN 250 (10"), PN 25 bar, PB > 125 bar, with a temperature range from -104 °C to -80 °C. Delivered assembled and tested with a variety of flange or threaded fittings to customer requirements.

Online configurator:
configurator.dantec.com

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