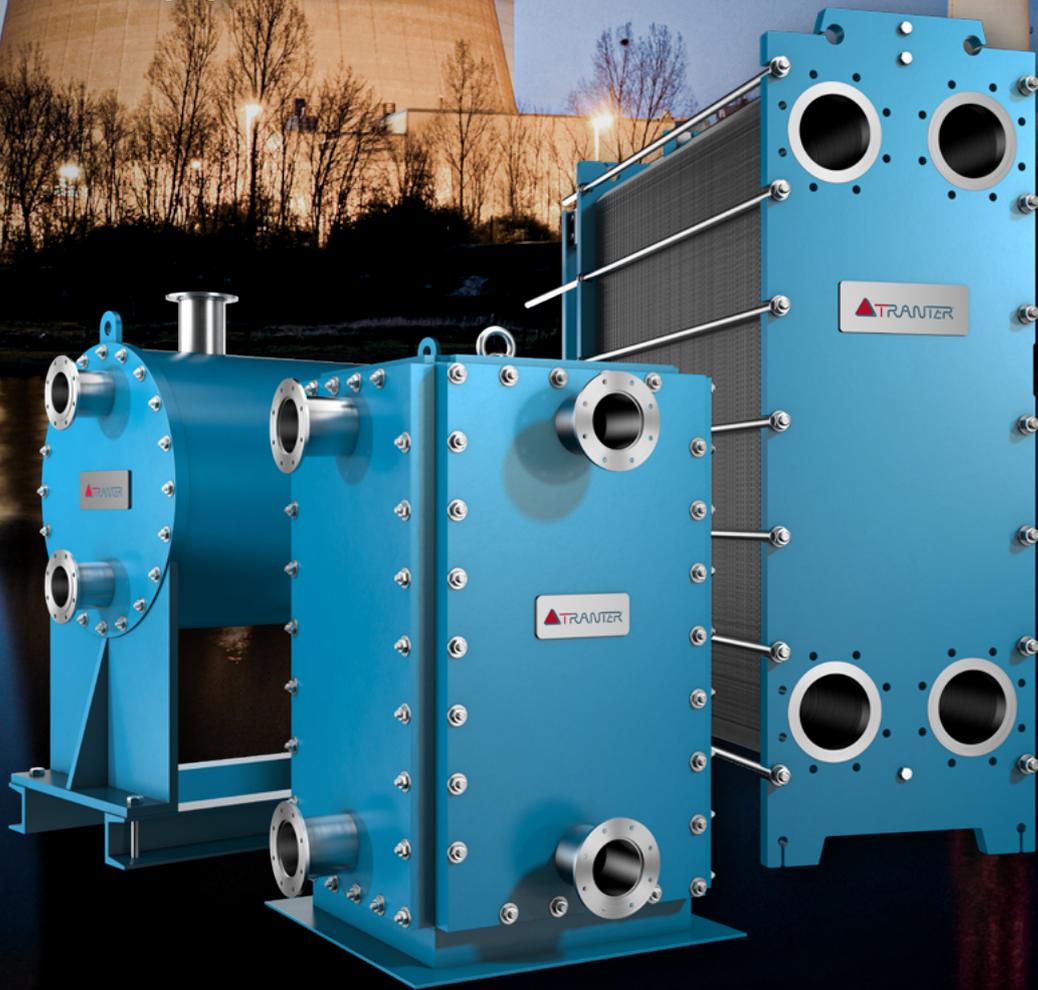


Heat exchangers for
post combustion

CARBON CAPTURE

applications

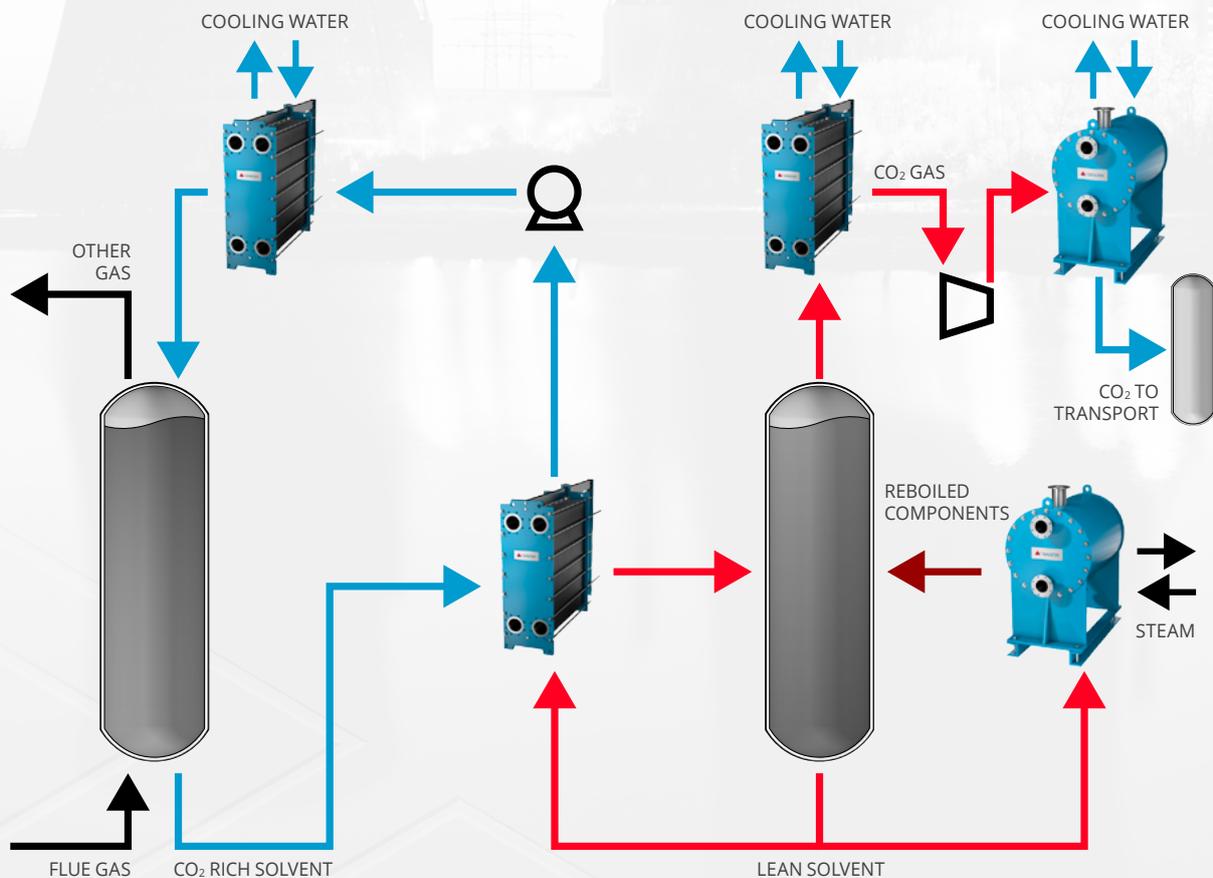


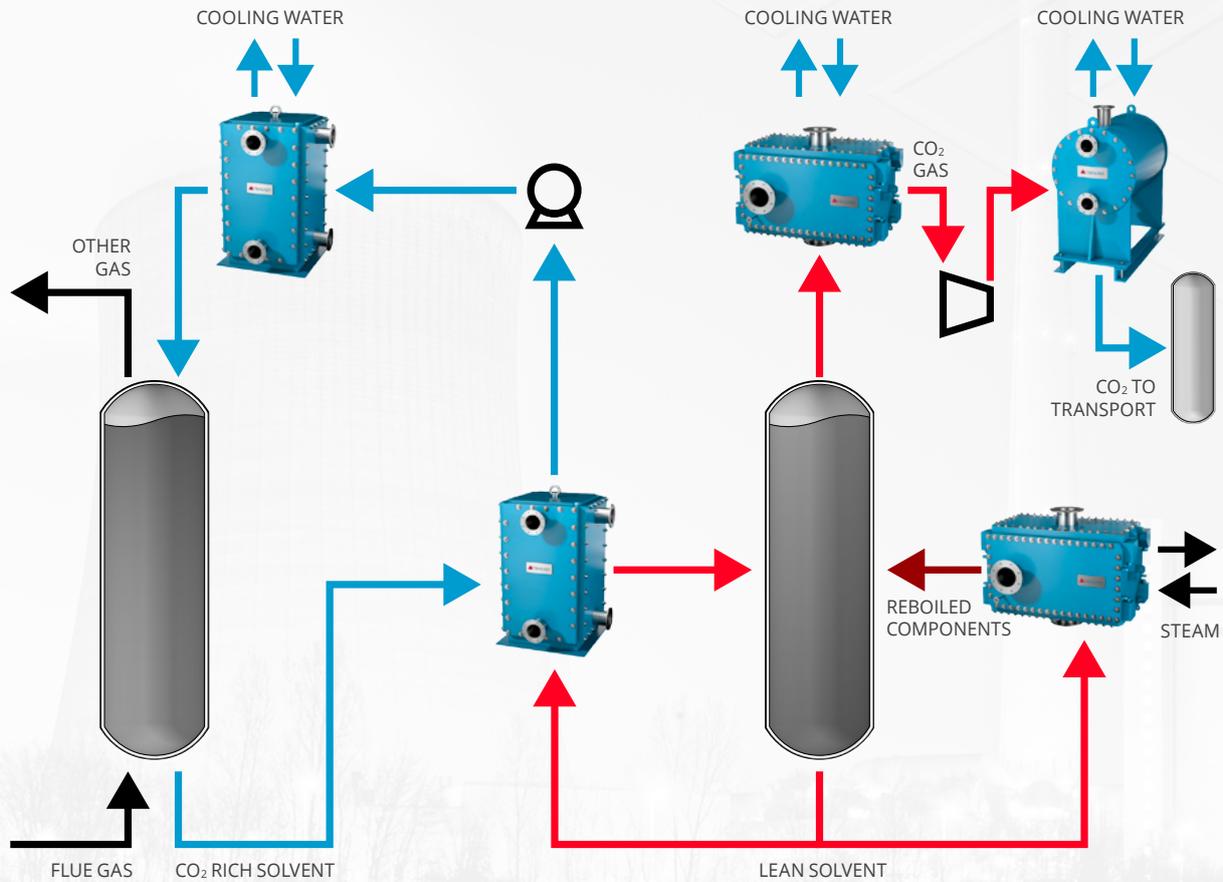
TRANTER'S HEAT EXCHANGERS HAVE VARIOUS APPLICATIONS ACROSS MANY DIFFERENT MARKETS. LET'S TAKE A LOOK AT HOW PLATE AND FRAME HEAT EXCHANGERS CAN BE USED IN CO₂ CAPTURE APPLICATIONS TO IMPROVE THE TOTAL ECONOMY OF THE PLANT.

The post combustion CO₂ capture process is the removal of CO₂ from a gas stream and is carried out by absorption in a continuous process with regenerable solvents.

The flue gas containing the CO₂ is first cooled down in a direct contact cooler. A plate and frame heat exchanger can be used to cool down the wash water for the direct contact cooler. Once the flue gas is cooled to the correct working temperature it enters the absorber where it meets the lean solvent that absorbs the CO₂.

- **Lean / Rich Solvent interchanger** – The rich solvent containing the absorbed CO₂ is heated by lean solvent regenerated from the desorber column. Tranter's gasketed plate and frame heat exchanger plate provides high shear stress on each side, thus minimizes plate fouling and offers a compact footprint, easy maintenance, and future expansion capacity.
- **Lean solvent trim cooler** – Before re-entering the absorber, the lean solvent needs to be cooled to the appropriate absorption temperature. A gasketed plate and frame heat exchanger trim cooler is easily maintained and provides precise temperature control.
- **Desorber reboiler** – absorbed components are evaporated in the reboiler. The short flow path and highly efficient plate makes the shell and plate heat exchanger an excellent choice for reboiler duties and can be designed as thermosiphon reboiler or with forced circulation.
- **Desorber overhead condenser** - Condensable gases are partially condensed at the top of the stripper column. Tranter plate and frame heat exchanger is used as a desorber overhead condenser to condense back any evaporated solvent into the column.
- **The separated CO₂ gas is compressed for transportation**, where Tranter shell and plate heat exchangers, capable of handling high pressures, can be used as compressed CO₂ gas coolers, providing reliable operation and a compact footprint.





- If the CO₂ capture plant is for a refinery or petrochemical plant that outputs flue gas containing high levels of H₂S and aliphatic hydrocarbon carry-over, the NovusBloc welded plate heat exchanger is a good alternative for the lean/rich solvent exchanger.

- NovusBloc offers a gasket-free design with mechanical cleaning ability on both the hot and cold sides.
- The NovusBloc heat exchanger is a good alternative for the reboiler, providing low pressure drop and if full mechanical cleaning possibility is desired.

Tranter is an early-runner for heat exchangers in post combustion carbon capture applications and have several references in early stage pilot plants. With our proven track-record and global service network, Tranter is the first choice provided of heat exchangers for safe and reliable operation of your carbon capture plant.

AT THE FOREFRONT OF HEAT EXCHANGER TECHNOLOGY FOR MORE THAN 90 YEARS

Tranter is an American based global manufacturer of gasketed and welded plate heat exchangers and a full-service aftermarket provider for the plate heat exchanger industry. Significant manufacturing, research, design engineering and product development activities are based in the USA, Brazil, Sweden, China, India and Korea and enable responsiveness to local demands. Tranter is represented globally by a network of our own sales companies, licensees and agents.



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