Natural Gas Liquefiers... Simple, Efficient, Reliable

C osmodyne's standard natural gas liquefiers use a closed loop gaseous nitrogen expansion refrigeration cycle (reverse Brayton cycle) for simple, safe, and efficient operation. This is the same process cycle and technology that's been provided by Cosmodyne to our customers since 1958 with over 400 plants word wide.

The simplicity of Cosmodyne's natural gas liquefier design allows for the equipment to be skid mounted and modularized for easy site erection, installation, and even relocation. Furthermore, the environmentally friendly nitrogen gas allows for simpler site permitting, eliminates the need for hydrocarbon refrigerant storage, and easier maintenance procedures (no in and out purging required). The nitrogen cycle is easy to operate and control since the nitrogen cycle is less sensitive to changes to feed gas composition and ambient conditions. The complexity of changing the mixture of several hydrocarbons to match the changing gas composition or ambient conditions to maintain optimal efficiency is eliminated. The energy available from near isentropic expansion of the nitrogen refrigerant is efficiently recovered for high efficiency performance. The nitrogen cycle has an operating range of 100% to 25% with proportionate energy savings. This operability range is important since most LNG plants have a steep ramp up period. The process further allows the operator the flexibility to easily change the sub-cool LNG product temperature setting when needed. Cosmodyne's natural gas liquefier can be fitted with fractionation step(s) to control the LNG product specification to meet vehicle grade LNG or other product requirements. The fractionation step(s) moreover can also recover other natural gas liquids such has HD-5 propane.

Cosmodyne also offers engineered cycles to meet specific customer requirements such as open loop nitrogen for smaller capacity plants and single mixed refrigeration process cycles for larger capacity plants.

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