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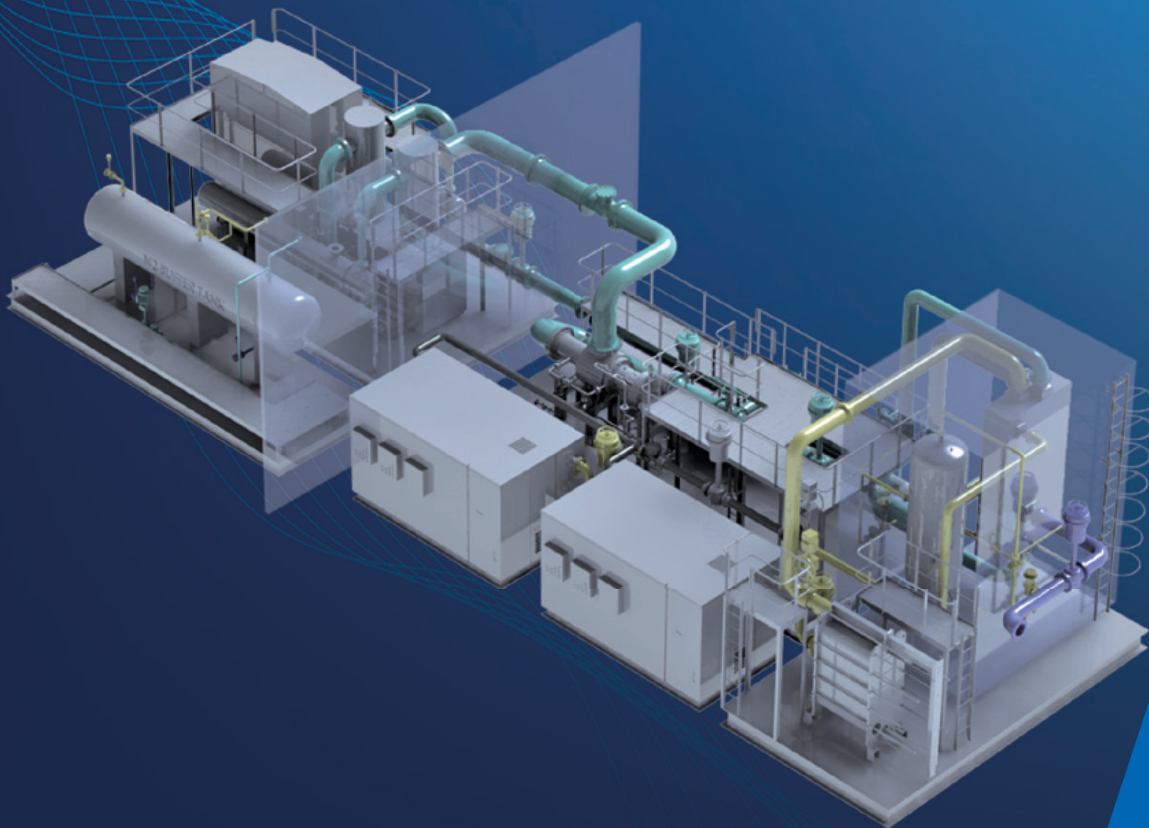


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DH-Reli

BOG Reliquefaction System with N2 reverse Brayton cycle



DongHwa Entec

DH-Reli

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BOG Re-liquefaction system ?

BOG Re-liquefaction system is the process to re-liquefy the BOG for LNG carrier to treat the boil off gas and control LNG cargo tank pressure especially during laden voyage.

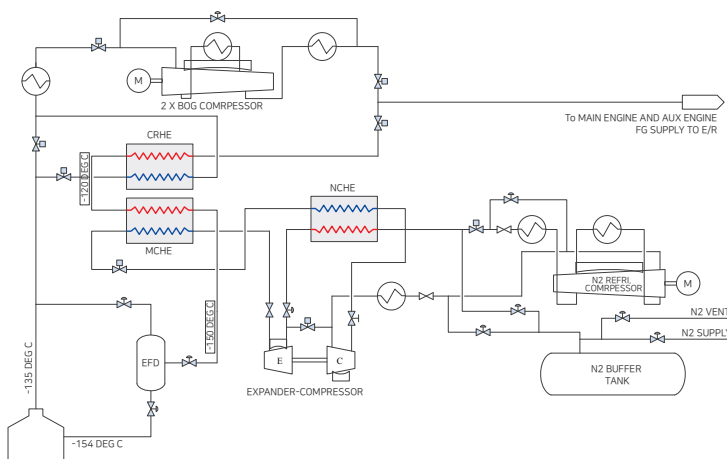
The process has a reverse Brayton cycle using the Nitrogen as refrigerant, which will be used for re-liquefying BOG.

During the voyage, the BOG compressor will pressurize the BOG to required pressure to supply BOG as FG to the main engine.

As per the pressure control scheme of LNG tank, some amount of FG will be recycled to the re-liquefaction system to be re-liquefied by exchanging with the N2 refrigerant cold heat. The N2 refri. Compressor will pressurize and recirculate N2 through the NCHE and MCHE to get BOG sub-cooled temperature.

The compressed N2 which is precooled by NCHE will be expanded by the expander compressor and the cold NCHE for precooling of pressurized N2 prior to the expander.

The shaft connected compressor of expander will boost the pressure of returned N2 from the NCHE to recover the kinematic energy of expander increasing the process efficiency.



- Pilot plant – Development of 2ton/day BOG re-liquefaction
 - Equipment of LNG propulsion vessel using high-density heat exchanger
- Development of BOG treatment system of LNG fuel tank for gas propulsion ship
 - Design of Reverse Brayton-Cycle using N2
 - Risk avoidance design and risk response design
 - Implementation of integrated system including control and measurement
 - Authentication/verification through performance evaluation
- Optimization of BOG processing system process for LNG
 - Re-liquefaction equipment process optimization
 - Thermal performance review and economic evaluation through performance evaluation
- Compact size with high density heat exchanger
 - Development of proprietary model of PCHE shape
 - Development of PCHE commercialization process
- Automatic Control System
 - PLC based controller(Low cost)
 - Fail safe redundant system design Dual CPU, UPS
 - Automatic control with manual control override
 - Designed with safety function

Safety factors: Icing, tube fracture, gas leakage

We hope that you will not miss good opportunity with your wise choice. If you need more information or specific data for DH-Reli, Don't hesitate contact me anytime.

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