

The Hydrocarbon Recovery Unit...

- ... reduces the carbon footprint of your plant
- ... allows the recovery of 95 % of the flare-gas during start-up, maintenance or product changeover
- ... creates significant cost savings
- ... is ready to use as an easy plug and play solution

**It is developed by TGE, your competent and flexible partner.
Right at your service.**

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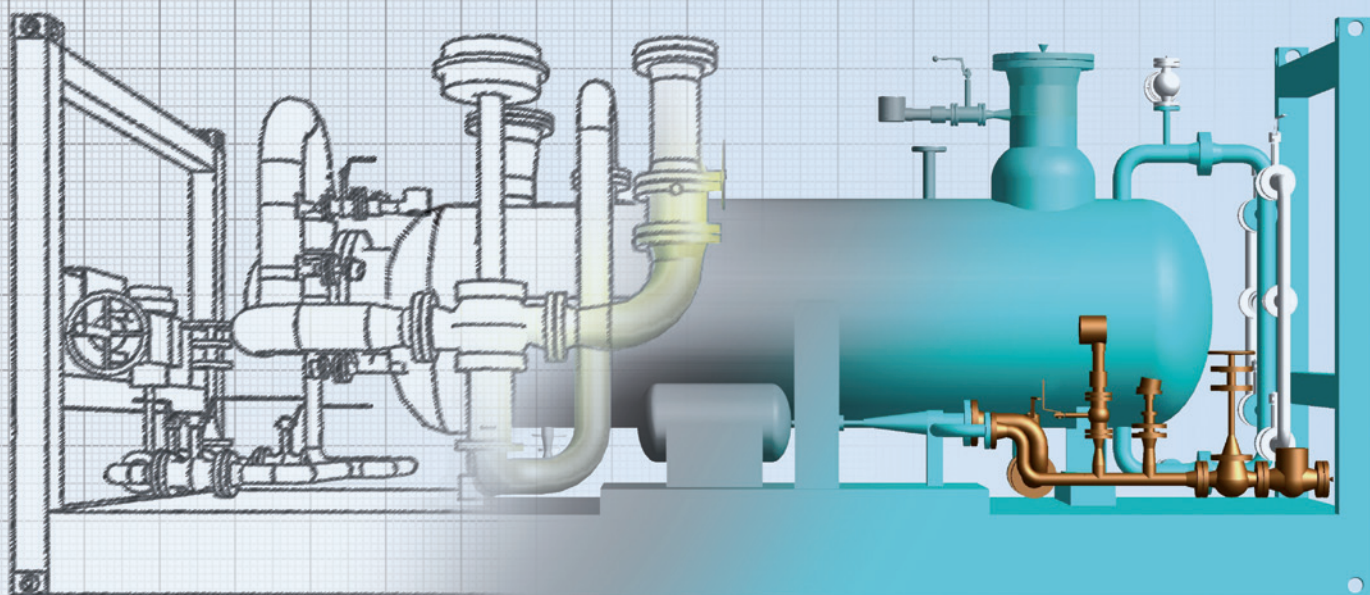
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Hydrocarbon Recovery Unit

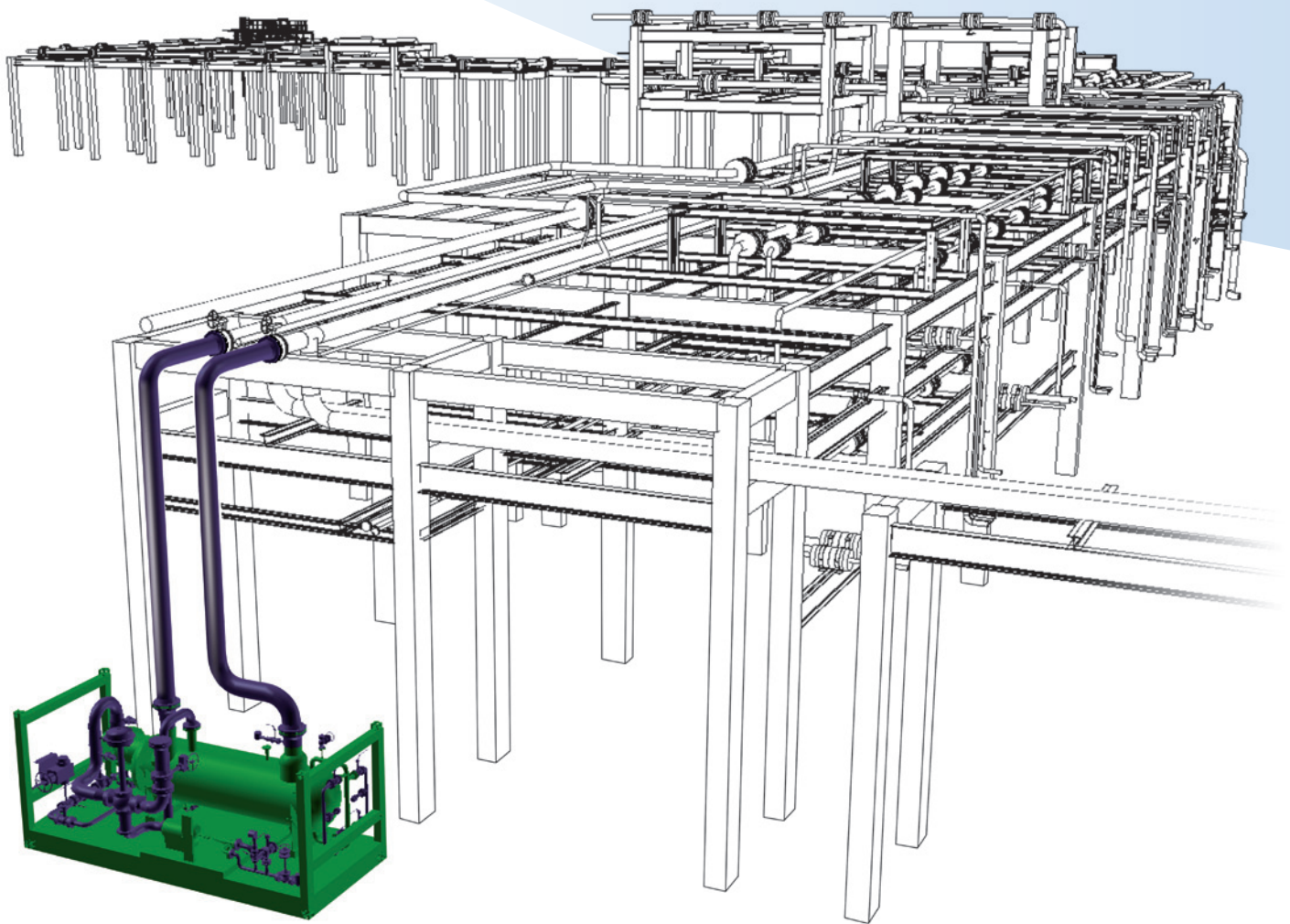
A new technology for cryogenic gas terminals



TGE has more than 30 years of experience in design, procurement and construction of cryogenic storage facilities and terminals for liquefied gases.

TGE provides services in liquefied gas storage tank design by utilizing state of the art design tools and has broad experience in providing EPC service for storage tanks. TGE has experience in the design and construction of relevant tank concepts including:

- Cryogenic storage tanks for import, export, buffering or distribution of LNG, LPG, Ethane, Ethylene, Propane, Propylene, Butane, Butadiene, Ammonia and other liquefied gases
- Earth covered tanks (ECT) for pressurized storage of liquefied gases
- Horizontal bullet tanks and spheres for pressurized or semi-pressurized storage of liquefied gases



When to apply it: Commissioning of a cryogenic gas tank

- During the gassing-up process of a cryogenic gas tank, hydrocarbon vapor is introduced into the tank to displace the nitrogen applied for tank-purging
- The target is to build up an oxygen- and nitrogen-free atmosphere to enable subsequent introduction of liquefied hydrocarbons (Ethylene, Propylene, etc.)
- Product changeover for Gas Carriers, if moored at terminal

How does it work: The Technology

- The Hydrocarbon Recovery Unit is a portable device that TGE designed for the recovery of hydrocarbons (HC) which become mixed with nitrogen (N₂) during tank commissioning
- Currently, this N₂-HC-mixture is usually flared
- Using the Hydrocarbon Recovery Unit, this gas can be reused for the start-up process. For this reason, the hydrocarbons are condensed, collected and reintroduced into the cryogenic plant
- As Fig. 1 illustrates, the Hydrocarbon Recovery Unit consists of a heat exchanger for condensation, a collection drum and a pump for the recirculation of the hydrocarbon product
- The Hydrocarbon Recovery Unit can be customized to satisfy your specific requirements

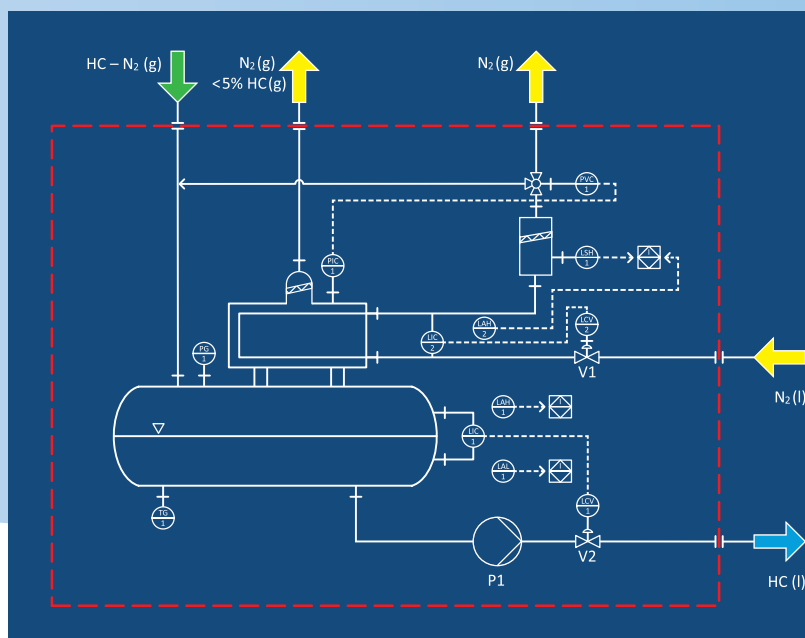


Fig. 1: Process and Instrumentation Diagram

How you benefit from the technology: The Advantages

- The Hydrocarbon Recovery Unit is mounted on a skid (standard 20 ft container frame) to allow easy transportation and shipping
- As Ethylene tank-volumes can reach up to 80.000 m³, the amount of gas recovered is considerable, with associated economic and environmental benefits
- The reduction in CO₂-emissions improves the overall cost-efficiency of the cryogenic gas plant
- This technology fits with your company's sustainability targets
- The example below highlights the advantages during commissioning of a 50.000 m³ ethylene tank*

	Use of a Hydrocarbon Recovery Unit during commissioning	No Hydrocarbon Recovery Unit
Savings of product	Savings up to 95% possible	Loss of 1.5–2 tank fillings of hydrocarbons during start-up, corresponding to 170t and 156.000 Euro
Environmental impact	Environmentally friendly, no gas release	Release of 555 t CO ₂ to surrounding area
Cost savings	Large amount of cost savings possible	No savings, loss of high-quality product

* Considering a 50.000 m³ Ethylene tank with an average price of 920 Euro/t (2012)