

## Liquefin™

Dual mixed refrigerant technology for mid to large scale LNG plants (from 1 to 5+ Mtpy)



### Why Liquefin™ ?

#### Minimized environmental impact

- Lower CO<sub>2</sub> emissions
- Lower inventory of hazardous material

#### Low operating costs

- The most efficient technology for LNG baseload from 1 to 5+ Mtpy
- Optimized with brazed aluminium plate fin heat exchangers

#### Low capital costs

- Compact and modular design of the cold box
- Balanced refrigeration power allowing identical drivers

#### Low construction risk

- Cold box manufactured off-site and pre-tested before delivery
- A single lift design for plug and play installation
- Fit for multi-train approach.

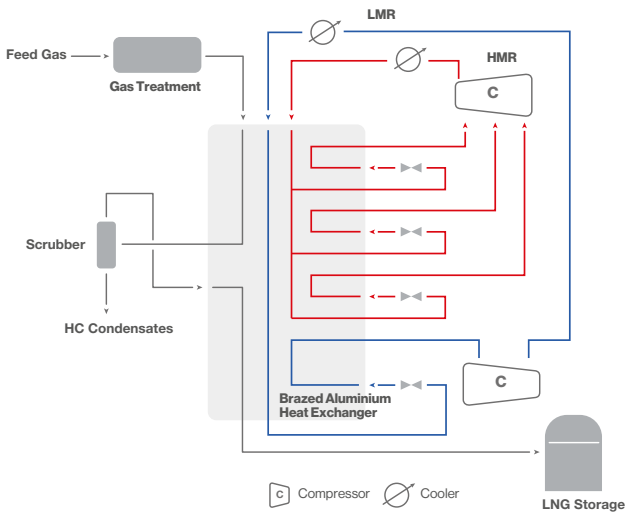
### Brought to you by the leader in cryogenics

Air Liquide's cryogenic technologies have been at the heart of the company for more than 110 years, including 50+ years of experience in LNG (pioneering base load in Algeria).

#### We offer:

- Operational know how, through vast experience our company has with 400 large scale plants.
- A full range of cryogenic expertise from design and manufacturing of the equipment to start-up and operation.
- Unique manufacturing competencies through our own world class manufacturing centers for lean cold box fabrication.
- Global sourcing capabilities, including purchasing, quality management, logistics.
- A complete range of services throughout the lifetime of the plant: spare parts, site services, production support, engineering services and long-term service agreements.

# Technical snapshot



- Two refrigeration cycles, each using dedicated mixed refrigerant.
- Optimized with plate fin heat exchangers, made of brazed aluminum.
- A compact cold box for natural gas pre-cooling, liquefaction and sub-cooling.

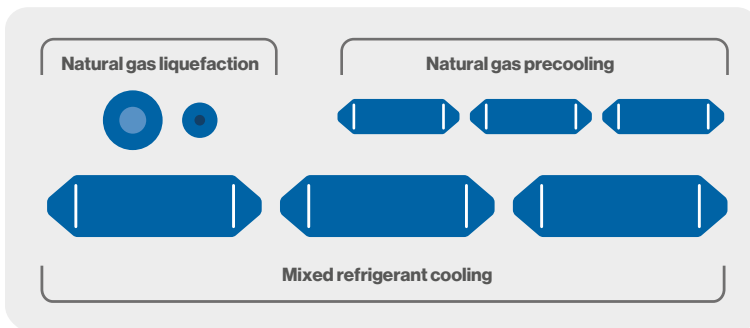


## Proven Technology: Brazed aluminium plate fin heat exchangers

A robust technology that delivers higher efficiency and lower costs compared to traditional coil-wound heat exchangers technology

	Brazed aluminium plate fin heat exchangers	Coil-wound heat exchangers
<b>Compactness</b>	++	--
<b>Robustness</b>	+	+
<b>Cooling Surface</b>	2000 m <sup>2</sup> /m <sup>3</sup>	150 m <sup>2</sup> /m <sup>3</sup>
<b>Pressure Losses</b>	Low (enhancing efficiency)	High (increasing operating costs)
<b>References</b>	++ LNG, Ethylene, Oxygen, CO ...	+ Mainly LNG
<b>Competitiveness</b>	++	-
<b>Suppliers</b>	++ About 10	- 2 only
<b>Lead Time</b>	++ About 10 Months	- Typical > 16 Months

## Liquefin: the solution for minimizing site costs



Traditional configuration using coil-wound heat exchanger

**25 to 50%  
smaller footprint**



Liquefin™: a single and compact cold box

Contact us

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**Air Liquide**  
ENGINEERING & CONSTRUCTION