# **CRYOBOX**<sup>TM</sup> LNG Production Station





CRYOBOX TRAILER





### Overview

Cryobox<sup>™</sup> delivers all the capabilities of a large-scale LNG plant in a compact, transportable module, which shares the off-the-shelf components and main features of Galileo's compressor packages, namely: modularity, low weight, economies in transport and ease of installation. You can be a leader in the LNG revolution by implementing the widely proven technology of Galileo.

**1000** Installed Cryobox Stations and operating worldwide.\* +9

Years of ininterrupted production.\*

\*Last updated: NOV/28/2024.

The specifications expressed in this catalog are generic and may vary according to the requirements of each market.







### **Main Features**

### Portability

Each Cryobox is similar in size to a 40-foot container. This allows an easy transportation on a trailer and multiple relocations in the small areas of a plant.

### **Boil-Off Free**

The automatic boil-off recovery system provides emissionfree LNG storage and loading. This feature avoids natural gas waste, ensuring safe operations in compliance with environmental regulations. The Cryobox reliquifies the BOG of any storage.

### **Plug-And-Play**

Focused on the rapid availability of LNG, the Cryobox installation and commissioning takes only 6 months, simply through a concrete platform as a base and the access to electric power, compressed air and Internet.

### **High Availability**

The reduced amount of dynamic components ensures an autonomous operation rate over 95%. This is especially important for the operation in remote areas, such as hydrocarbon fields.

### **Proprietary Technology**

Its multi-stage liquefaction cycle removes any inert gas and is powered by a 450 kW motor connected to a Galileo MX 400 compressor.

### **Fast and Easy Filling**

The transfer of LNG to the storage tanks does not require the use of pumps. Thanks to its LNG Management system the liquefied gas can also be transferred from these tanks to the distribution trailers or to other vehicles or industrial equipment for immediate consumption.







40 Cryobox units at the Eneva LNG production facility in Campo do Azulão, Manaos, Brazil.

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4 Cryobox Trailer units at Los Cavaos well, Vaca Muerta, Argentina.

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Cryobox LNG Station | 5

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3 Cryobox Trailer units in Marcellus basin, Pennsylvania, USA.



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Cryobox LNG Station | 6

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## Ways to deliver LNG production

**1.** Direct load: positive pressure displacement to fixed isotanks.

**2.** Direct load: positive pressure displacement to mobile isotanks.

**3.** Through LNG transfer.

**4.** Through Unloading Bay with a BOG management module.





Cryobox LNG Station | 7



### Tracked under Galileo Global Link Scada System

We don't just sell technology; we provide a service. We will be with you 24/7, monitoring key parameters through our **Galileo Global Link Scada System**\* and providing on-the-ground support to keep your uptime as high as possible.

Up to 99% Methane Recovery, easily tracked through a single integrated system.

Key variables from production, transportation and delivery to end user can be tracked on-line, remotely and in real time in our proprietary SCADA system.

Our integrated solution not only favors efficient troubleshooting and resolution, but it also provides a single control system for the complete operation, from inlet, to gas upgrading, to the outlet of the Virtual Pipeline.

\*This is an additional service and is contracted separately.





## Datasheet

		CRYOBOX	CRYOBOX TRAILER	
Electric Installed Power	KW	497kW - Main motor voltage 0.44kV/4.16kV		
	HP	666	-	
Gas Engine		-	CAT OR WAUKESHA	
Nominal Consumption*	kWh/kg	up to 0.54*	-	
Gas characteristics		Inlet	Outlet	
Pressure (min/max)	barg	10 to 15	1 to 3	
	psig	145 to 217.5	14.5 to 43.5	
Temperature (min/max)	°C	10 to 50	-156 to -141	
	°F	50 to 122	-249 to -222	
LNG Production	kg/h	up to 620*		
	ton/d	15*		
Water Content	H <sub>2</sub> O	up to 1 ppm		
Carbon Dioxide	CO <sub>2</sub>	up to 150 ppm (0.015%)		
Hydrogen Sulfide	H <sub>2</sub> S	up to 5 ppm		
Nitrogen	N <sub>2</sub>	up to 15%**	<2%**	
Methane	CH <sub>4</sub>	more than 80%		
Heavy Hydrocarbons	C <sub>6</sub> +	less than 0.2%		
Oxygen	O <sub>2</sub>	less than 0.5%		

\*Considering a gas of 0,65 specific gravity, ambient temperature of 22°C and  $N_2$  content lower than 0,5%. For other conditions, check on derating curves. / \*\* With a derrate in the LNG production of the unit. Depending on the  $N_2$  purge stream.





## Datasheet

		CRYOBOX	CRYOBOX TRAILER	
Utilities Consumption	Lube Oil	< 1.5 L/day (Glygoyle 220 or similar) / ~0.26 gal/day of oil (Glygoyle 220 or similar) depending on the operation & maintenance of the unit		
	Propane	90 kg/month / 195 lb/month		
	Air	0.20 to 0.25 Nm3/h @ 7bar (ISO-8573-1 Type [2;2;2] or higher quality) 0.12 to 0.16 SCFM @ 101.52psig (ISO-8573-1 Type [2;2;2] or higher quality)		
Dimensions		14.3m length x 2.25m wide x 2.8m height	20.02m length x 2.73m width x 3.65m height	
Weight		32 ton	44 ton	
Features				
		Use of dry rings oil free, in compression stages.		
Boil-off free*		Yes. The unit is capable to absorb and process BOG from storage and auxiliaries.		
Transportable		No	Yes	
Intrinsecally safe		Yes	Yes	
Monitoring		Yes, 24/7 through our Galileo Global Link Scada System		
Modularity		Yes	Yes	
Plug & Play		Yes	Yes	
Start up	System cold	2 min for 100% of the load		
	System hot	10 min for the 100% of the load		
		No limitation in start cycles		
Scalability		Yes. On micro, small, and medium scale.		

\*Considering a gas of 0,65 specific gravity, ambient temperature of 22°C and  $N_2$  content lower than 0,5%. For other conditions, check on derating curves.







## Datasheet

	<b>—</b>
Electrical parameters*	
Main compressor start system	Soft-starter / V
Maintenance	Pi
Regulations	

\*Considering a gas of 0,65 specific gravity, ambient temperature of 22°C and  $N_2$  content lower than 0,5%. For other conditions, check on derating curves.



### CRYOBOX

### **CRYOBOX TRAILER**

VFD under requirement

Preventive Maintenance schedule every 1500 operating hours

Area clasification: Class 2 Div 1 according to NFPA 59

Reciprocating compressor under API 618

Vessels under ASME VIII div I

ASME U-Stamping on request

Welding under ASME IX

NEC (NFPA 70) - IECEX

Heat exchangers under ASME VIII div I



Cryobox LNG Station | 11

### Some succes cases

### **1.** Buquebus

Total units: 7 Application: Produce LNG as a clean fuel for international transportation ship (Francisco Ship). Location: Buenos Aires, Argentina.

### 3. Canacol

Total units: 4 Application: increase natural gas production reaching new markets with virtual LNG pipelines, substituting heavy fuels. Location: Departamento de Córdoba, Colombia.

### 2. Eneva

Total units: 40 Application: Non-connected gas monetization in the middle of the Amazonian Forest (reservoir-to-wire). Location: Manaos, Brazil.

### 4. Edge

Total units: 20 Application: Monetization of Flared Gas and fuel supply to end users. Location: United States of America (USA).







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