

# Femtobox

FEMTOBOX is Galileo's new Plug-and-Play CNG compressor-package, specifically designed for small NGV fleets and very small CNG filling-stations. This equipment provides a convenient and attractive solution for the needs of this market. The package integrates compression, storage and CNG dispenser in a single unit.

FEMTOBOX is Galileo's answer to very small scale, simplicity and cost effectiveness requirements.

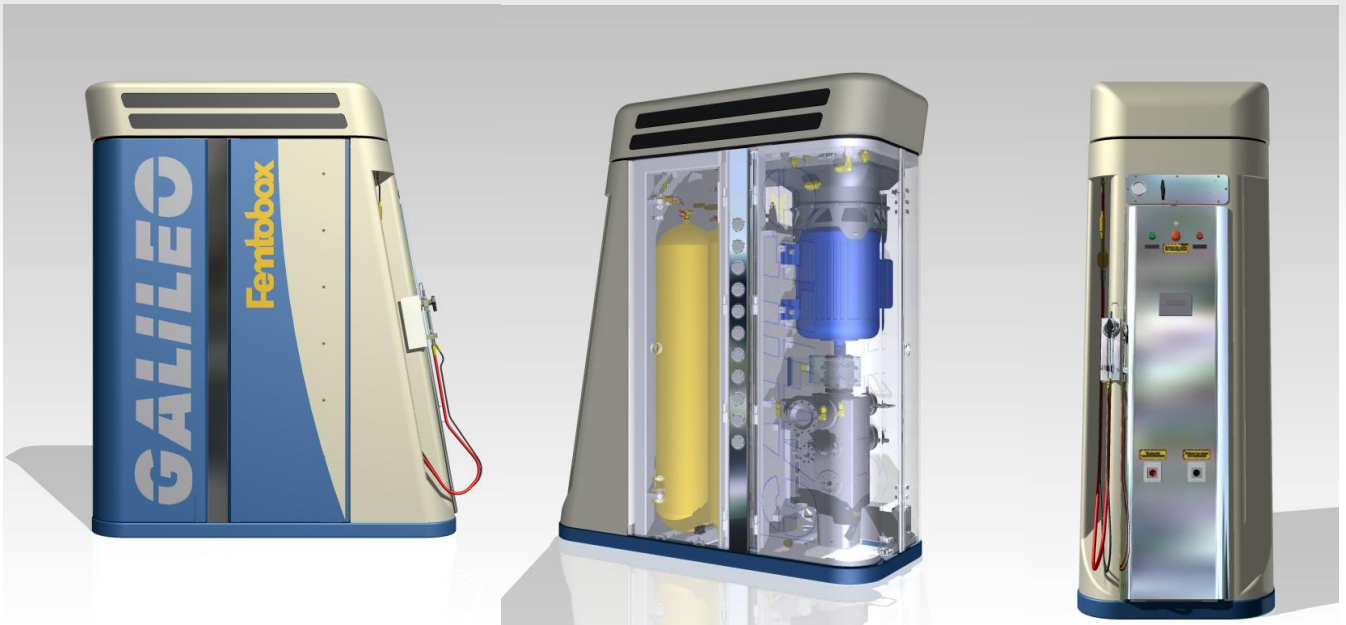
Like all our products, Galileo's FEMTOBOX is an integral solution. Applying original innovations an efficient refill is achieved with a compact unit of low cost of installation and operation.



FEMTOBOX contains all the components necessary to compress natural gas, refuel NGV vehicles safely, efficiently, reliably—and report all data anywhere.

## Advantages of FEMTOBOX:

- High return on Investment
- Fast, easy and low cost installation.
- Minimum space requirement.
- Simple, low cost, preventive maintenance.
- Safe and reliable operation
- Simple to operate and control.
- Refill of 20 to 150 vehicles per day
- Register and internet-transmission of commercial, technical and audit data.



## Principal components of Femtobox:

- 4-stage compressor to cover a wide range of inlet pressure.
- 1 bank storage.
- 1 filling-hose ( 2 optional) .
- Mass measurement system for each filling port. (optional)
- Explosion proof engine.
- Star-Delta starter.
- Interstage air refrigerated gas coolers.
- Fire and explosion proof protection cabin.
- Computerized control and management.
- Automatic vehicle identification and administration of individual and total fleet consumption (optional).

## Femtobox compression system options

POWER RATING	22	22	22	22	22	22
COMPRESSION STAGES	4	4	4	4	4	4
INLET PRESSURE	1.5	4	8	15	20	30
MAXIMUM FLOW RATE*	68	89	119	160	190	190

\*+/- 10%

## Simple Instalation

Femtobox has no special installation requirements. A simple base-plate gives sufficient support. Because of the low power required and incorporated electric panel, no special electrical installation, nor power transformers, nor external panels are required , and no noise and vibrations are produced by the unit.

## Connect to any gas line

Femtobox is supplied in different versions, according to the available natural gas line-pressure. The wide range inlet pressures covered is from 1.5 bar to 30 bars.

The connection to high-pressure gas-lines requires no special installations.

Naturally, like any other compressor, higher inlet pressures result in lower power consumptions.

## Fleet Management

For the administration and control of CNG consumption, the owner, the outsourcer or service-operator may require diverse control reports, including data on individual vehicles by date and report period.

FEMTOBOX may be equipped with an exclusive system which automatically reads individual vehicle-TAGS and registers occasion and amount of refill. This data is stored for later recall via Internet connection.

The TAG also permits restricting refueling to previously authorized vehicles.

## Internet Ready

Femtobox electronics incorporate an exclusive Internet server, which permits visualization of all kinds of commercial and technical information, from any location, anywhere:

- Refueling volumes and sales.
- Fleet Management data.
- Readout of performance and operative data of the unit.
- Maintenance reports, records of preventive maintenance compliance.
- Fault detection and alarms.
- Access to programs and restrictions guiding all aspects of the Femtobox.

The access and visualization of this information can be subject to four hierarchical levels of authorization.

## Telemaintenance

The CPU and its communications programs allow maintenance personnel to access the read-out of operating parameters while the unit operates.

Also, compliance with Preventive Maintenance schedules can be checked, previous maintenance records recalled, and new reports filed. Assured maintenance for minimum down-time can thus be achieved.

All information about the equipment is accessible via Internet, facilitating an audit program of operations, performance and maintenance of the unit.

## Data Sheet

Capacity / External Dimensions		Driver	
Instant Peak Flow Capacity	10 Nm <sup>3</sup> /min	Driver	Electric Motor
Instant Hourly Flow Capacity	150Nm <sup>3</sup> /hour	Load Speed	1500/1800 RPM
Length	2000 mm	Frequency	50/60 Hz
Width	880mm	Voltage	380/440 V
Height	2435mm	Starter	Star-Delta
Total Weight	2800 Kg	Coupling	Direct Coupling
Compressor		Dispenser	
Manufacturer	Galileo	Hoses	1 hose
Compressor type.	Non-lubricated pistons. Without connecting rods	Peak refilling capacity	10 nm <sup>3</sup> /min
Stages	2 , 3 or 4 stages depending on inlet pressure	Refilling method	1 bank system
Installed power	22 kW	Valves system	Galileo rotating valves
Operating speed	1500/1800 RPM	Refilling nozzle	NGV 1/plug
Starter system	By-pass system	Refilling hoses	¼ ID-3.5m long CNG hose
Cooling system	Air cooler, auto-operated	Vehicle identification	Incorporated RF system (optional)
Inlet pressure	1.5 to 30 Bar	Control unit	
Maximum working pressure	250 Bar	CPU	25.8 MHz
Gas Storage		Memory	8 Mb RAM
Storage Volume	350 liters	Back up battery	yes
Useful Storage Capacity	10 to 15 Nm <sup>3</sup>	Display	5.6 inch graphic display
Operating Pressure	250 Bar	Resolution	320x240 blue/white ¼ VGA
Loading Technology	1 bank system	Data Transmission	
		Standard network port	Ethernet