

GE Oil & Gas



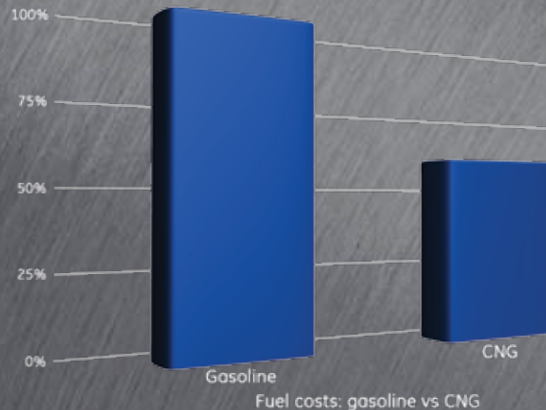
CNG In A Box™ system

The cheaper, faster,
convenient fuel solution
for natural gas vehicles



CNG_{vs.} gasoline

cheaper CNG is 40-50% cheaper than gasoline

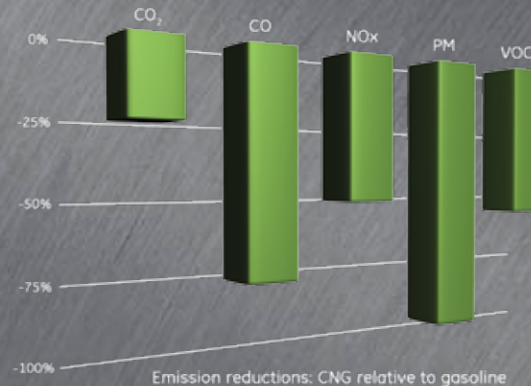


Gasoline: \$3.49/gal or \$0.92/L

CNG: \$2.10/gal

efficient

CNG has dramatically lower emissions



Source: U.S. DOE, Argonne Laboratories

Market-driven efficiency

Natural gas is an abundant, reliable and cleaner-burning fuel than both gasoline and diesel for consumer and commercial vehicles. For fleet owners in particular (including everything from taxis and transit buses to long-haul semi trailers), CNG presents an opportunity to dramatically reduce fuel costs and make an immediate, direct, positive impact on the bottom line.

GE's CNG In A Box™ system makes it faster, easier and cheaper for fleet operators to fuel up their natural gas vehicles (NGVs). It also enables regional gas companies to better serve NGV owners – including individual consumers and organizations alike.

We designed the compact, turnkey solution with technical specifications and scope of supply to optimize end-user CAPEX and OPEX.

Advanced engineering

GE Oil & Gas has brought together the breadth and depth of its engineering experience in multiple areas to create this fully integrated turnkey CNG fueling system.

The CNG In A Box system is designed and packaged with our own advanced technologies – from the critical core compressor through to valves, pumps, monitoring, control, electronics and dispensers. The result is a highly compact configuration that is incredibly easy to order, install, operate and maintain.

ecomaginationSM



The CNG In A Box system has passed GE's strict ecomagination qualification process, meaning it delivers both business and environmental benefits.

- CNG can reduce fuel cost by 40-50%, or more than \$2,200 per vehicle annually.*
- CNG combustion is also immensely better for the environment. The much cleaner-burning fuel reduces CO₂ emissions by 24% (2.2 metric tons per vehicle, per year as compared with gasoline*) – and its CO, NOx, PM and VOC reduction benefits are even greater.

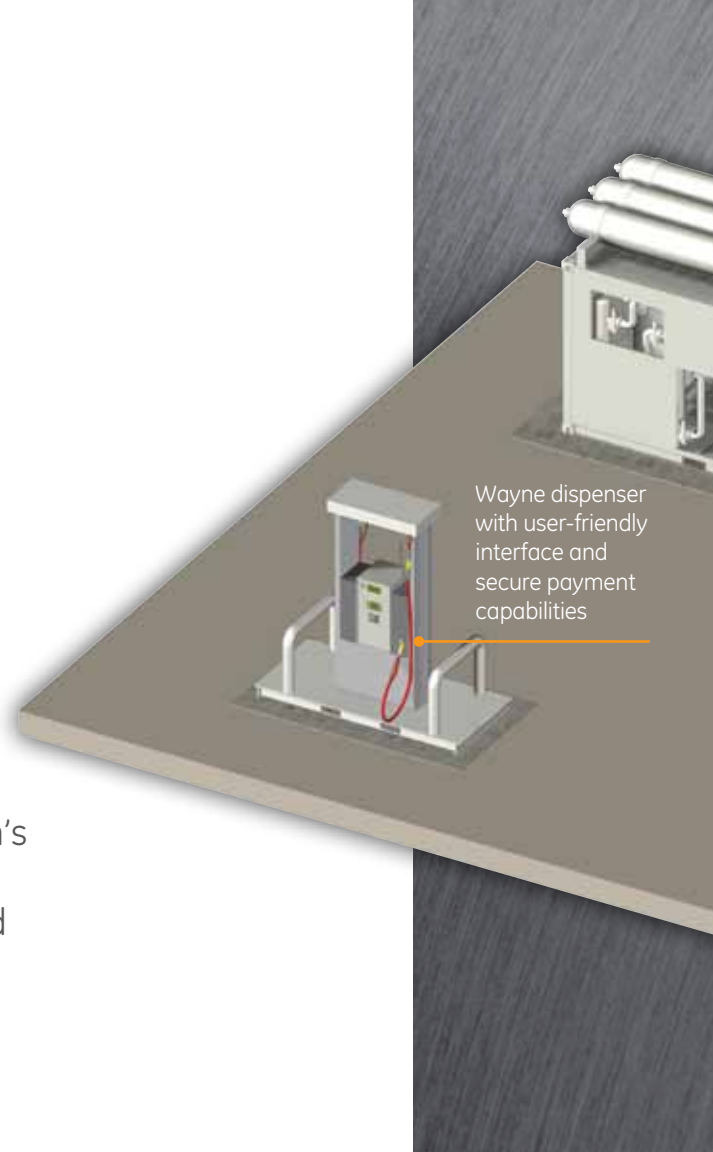
* Assuming average light-duty vehicles travel 27,400 miles/year at 17 mpg, with \$3.49/gal gasoline and \$2.10/gal CNG per gasoline gallon equivalent.

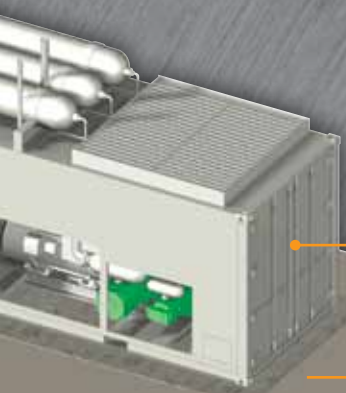
Turnkey roadside solution

The CNG In A Box system is an innovative solution that includes everything needed for final operation – preconfigured in a modified 8' x 20' ISO shipping container and ready for installation.

Designed for safety & efficiency

GE's CNG In A Box system is built in accordance with NFPA 52, the National Fire Protection Association's Standard for Vehicular Gaseous Fuel Systems Code. ASME, ANSI, ISO, API and other standards are followed in the design process.





What's inside

- GE compressor
- GE motor
- Inlet gas dryer
- Gas blow-down tank, gas-recovery system
- 3-bank buffer system
- Priority panel
- Process gas cooler
- Oil cooler and heater
- Locally mounted control panel (with PLC, HMI)
- Instrumentation for pressure, temperature
- Fire detector and gas leak detection
- Pressure relief valves
- Product filtration, piping, tubing, electrical wiring with rigid conduit

Remote power panel

- GE soft starter
- Main power disconnects
- Uninterruptible power supply

Options

- Remote monitoring and diagnostics
- Dryer regeneration system
- Cold weather option
- Higher inlet pressure solutions

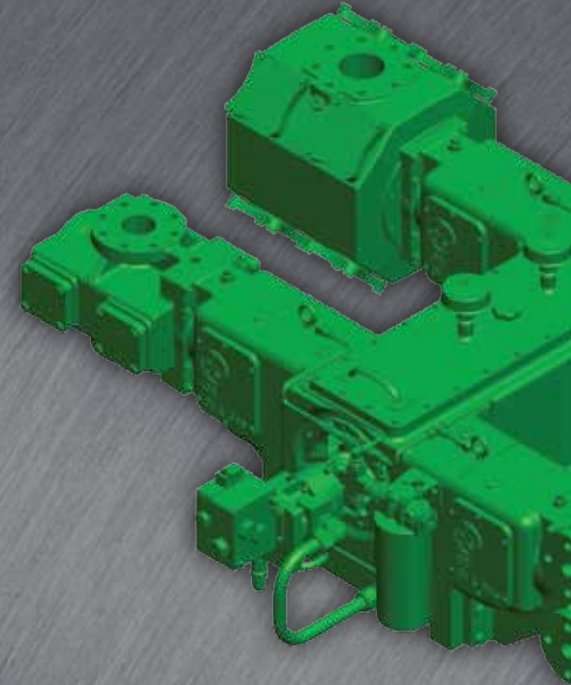
Control system features

- Industrial-grade programmable logic controller (PLC) for all logic and control functions
- Controls interface with industrial-grade human machine interface (HMI)
- Start-up, shut-down and emergency stop sequencing
- Machine monitoring and protection on items such as:
 - Compressor temperature, pressure and vibration
 - Compressor lube oil pressure and temperature
 - Enclosure fire, gas leak detection and ventilation
 - Integrated inlet gas dew point monitoring
- Remote monitoring capability
- Maintenance trending
- Uninterruptible power supply (UPS) for unit control panel and dispenser during minor power outages and fluctuations
- Soft start for main electric motor ramp-up located in a remote power panel

World-class compression at the core

GE Oil & Gas designs and manufactures advanced compression technologies, with a global installed fleet of over 18,000 high-speed reciprocating compressors ranging from 60 to 7,200 hp. Our field-proven compressors deliver maximum flexibility and minimum maintenance cost in all types of gas compression applications.

The compressor is the largest and most complex element of the CNG In A Box system. It is designed for maximum availability and efficiency – ensuring continuous, reliable unmanned operation; long intervals between maintenance; and an easy, cost-effective maintenance regimen.



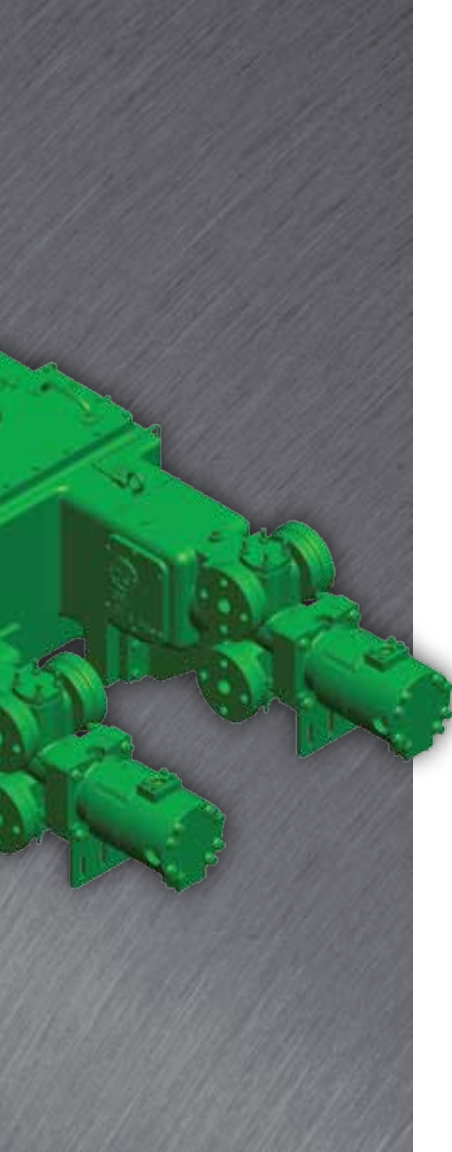
- Cylinder liners for quick reconfigurations
- Common XYZ flange connections for reduced costs
- Large variable-volume clearance pockets
- Upgraded VVCPs, pistons and connecting rods



- Advanced crankshaft quality inspection
- Single-piece crankshaft with integral counter weights
- Interior coating for high-temperature oil resistance



- Working pressure up to 6,500 psig
- Robust bushing design
- Acid gas and sour gas compatible design
- 3X valve materials
- Application-specific valves for increased durability



Key design features

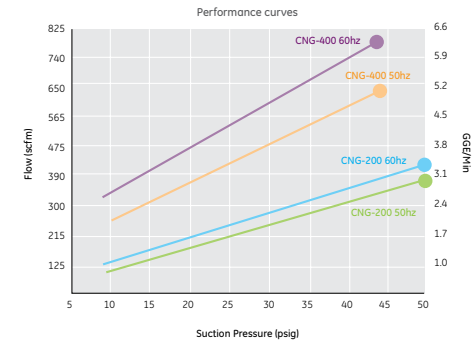
- Proven field technology for high strength and longer life – operating 24 hours a day, seven days a week
- Balanced opposed design minimizes vibration by equalizing the opposing reciprocating forces on the crankshaft
- Flexible cylinder configurations for field replicable cylinder solutions to maximize suction pressure inputs to system for increased efficiency
- Patented roller bearing technology to accommodate fluctuations in inlet gas pressures and temperatures. Most flexible solution to meet demands in the field

Estimated CNG In A Box™ system performance – 60hz models

Model ¹	Min/Max Motor Power HP (kW)	Suction range psi (bar)	Flow range SCFM (m ³ /h)	GGE/ Min range
CNG-200	80 (60) – 200 (149)	8 (0.5) – 50 (3.4)	125 (213) – 400 (680)	1.0 – 3.2
CNG-400	190 (142) – 400 (298)	8 (0.5) – 43 (2.9)	313 (532) – 788 (1,340)	2.5 – 6.3

Notes:

1. Estimated flow/suction based on approximately 4,700 psi (324 bar) compressor discharge
2. Flow/power based on 1,780 rpm with SG of 0.65 and K-value of 1.24 (@ STP)
3. 1 SCFM = 1.7 m³/h, 1 psi = .068 bar, 1 HP = 0.746 kW
4. Suction pressures indicated are at compressor package inlet
5. GGE (gallon of gasoline equivalent) = SCF/125
6. 1,780 rpm = 60 Hz; 1,480 rpm = 50 Hz (flow and power decrease ~20% from 60hz model)
7. Notes and chart apply to corresponding graphs



Fast & safe fuel access

The CNG In A Box system includes the reliability and speed of Wayne fuel dispensers. The standard configuration includes one dispenser with two hoses, while additional units can be ordered as options. All our dispensers are designed for both high and standard flow rates, and are therefore capable of fueling all NGV types such as cars, vans, buses and trucks.

Dispensers can be equipped with credit card readers and POS interfaces for resale applications, or without them for fleet-specific installations. In either case, a helpful LED indicator informs the user of incremental filling progress based on automatic calculation of gas volume in the vehicle tank.





Interface features

- PCI 3.0-compliant encrypted softkey pad and magnetic pay-at-pump card reader per side
- Standard display includes total price, volume in gasoline gallon equivalent (GGE), unit price, filling status indicator
- Volume-only (no price) displays are available for fleet-only applications
- Vehicle tank-filling status indicator
- Current loop interface for communication with point-of-sale (POS) or fuel control system

Design standards

- NEC (NFPA 70) Class 1 Div. 1 Group D T4
- NFPA 52
- ANSI NGV4.1-1999
- ANSI B31.3
- U.S. Weights & Measures NTEP Certification of Compliance

Standard Specifications

GE Wayne G/V387DC/B3G/MQ1R2 fuel dispenser

Power	115-240 VAC +10 50/60 Hz
Ambient temp.	-40°F (-40°C) to 130°F (54°C)
Fill pressure	3,600 psi (248 bar G) per side
Inlets	1 to 3 inlets with filters and sequencing valves for cascade filling
Filters	Parker high-pressure J2SD coalescing filters with bleed-off valves (one per inlet)
Valves	One manual emergency shutoff valve per side
Activation	Lever on nozzle boot; lane orientation

With decades of engineering, manufacturing and in-field experience in material wear and customer demand patterns, our parts inventory system is designed to reflect and respond to the real needs in modern operating conditions. Parts and service can be easily ordered online or by phone.

GE's full support capabilities include:

- Start-up and commissioning supervision
- Overhaul and inspection
- 24/7 emergency response and technical support
- Upgrades and technology injections
- Portable diagnostics
- Customized service packages
- Rapid parts availability



Full service

for the entire package



Optimized support

There is no substitute for OEM expertise and parts. This is true for all electronics, pumps and valves, but even more so for the compressor, which is the mechanical workhorse of the CNG In A Box system and the critical element in terms of operating efficiency.

GE's extensive engineering capabilities and advanced diagnostic resources are complemented by expert teams of Field Service Engineers who can quickly mobilize to deliver the highest quality service whenever you need it. They draw from the same engineering knowledge base that went into designing the CNG In A Box system – so their technical fluency is second to none.

Financing powered by GE Capital

GE Capital's flexible financing solutions have helped over 300,000 businesses across North America – and more

worldwide – obtain the equipment they need. We understand the operational needs of fuel retailers and fleet operators. Our competitive rates and flexible payment options will make your CNG In A Box system acquisition easy to manage while contributing to your continued business growth.

With financing that's just as efficient as our technology, you can avoid large capital outlays and save credit lines for other operating expenses and for strategic use. By owning the CNG In A Box system from day one, you can realize all the potential depreciation, tax and investment benefits available to you. Our financing programs are designed around flexible terms and fixed-rate payments that fit your annual budget.

Added value for fleet operators

Through GE Capital Fleet Services we also provide commercial car and truck financing and integrated management services that help you save time and money over the entire fleet lifecycle. Our expert analysis services cover customized vehicle selection, environmental performance and fuel management strategies.





Competitive rates & flexible options

- Combine your entire equipment acquisition – including delivery, installation and maintenance – into a single monthly payment, eliminating the cost and time of paying multiple vendors
- Structure your payments according to your cash flow, with options such as deferred or stepped payments
- Make payments and view invoices online at any time with the GE Capital MyAccounts website



Proven technologies

Global support

Technology is the core of all GE Oil & Gas equipment and services, and it is the competitive advantage we offer our customers in all segments of the global industry. We employ rigorous engineering and testing procedures at every stage of development – with \$500 million in R&D just between 2009 and 2011 – and our solutions take full advantage of innovations from other GE businesses, such as Aviation, Healthcare, and Power & Water, to continually maximize performance and productivity.

All our products are fully supported by one of the industry's most comprehensive global networks of manufacturing, testing and service facilities. Through these sites and various strategic partnerships worldwide, we are able to be closer to our customers and contribute to local economies and skills development in the countries and communities where we operate.

Our goal is to strengthen every link of the value chain – continually breaking new ground for equipment performance, environmental safety and reliable energy supply.

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