

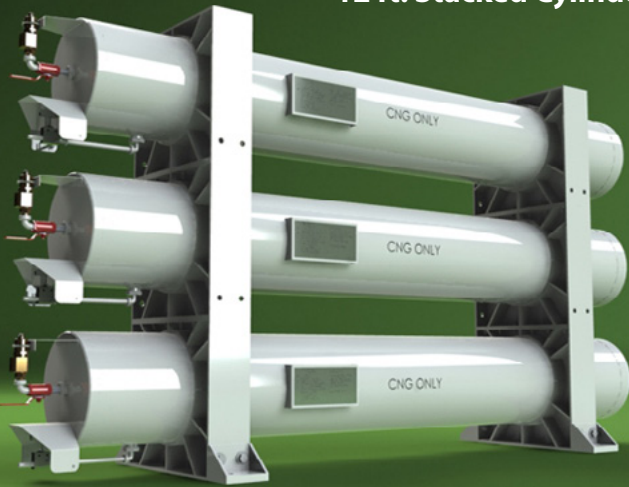


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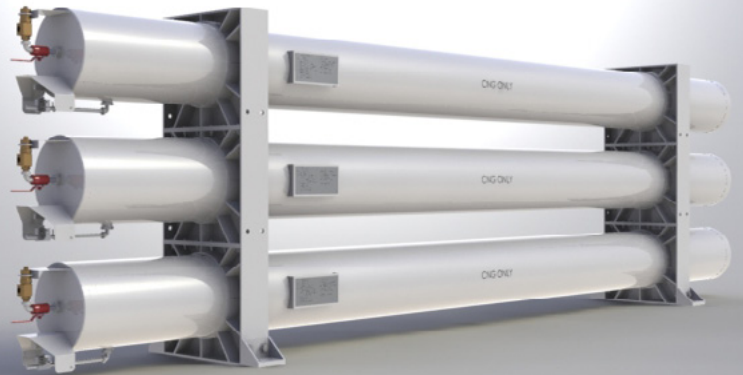
# Compressed Natural Gas Storage Vessels

Stacked Cylinder Design

**12 ft. Stacked Cylinders**



**24 ft. Stacked Cylinders**



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# Compressed Natural Gas Storage Vessels

## Stacked Cylinder Design

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The 20-inch outside diameter, cylindrical CNG storage vessels are for the commercial dispensing of compressed natural gas to motor vehicles at CNG fuel stations. The vessels can supply CNG at up to 5,500 psi to a fill-up nozzle. Typical commercial systems supply CNG to the customer vehicles' fuel tanks at ~3,600 to 3,000 psi.

The vessel assembly is custom designed for the end users, and is designed using the specifications and requirements from ASME Section VIII, Division 2, for National Board registration.

The vessels overall length may be customer specified up to 24-ft. long. The footprint width is 42-inches (1.067 m). The height of the unit, with 3 vessels oriented horizontally and stacked vertically, one on top of the next, is 85 inches (2.159 m) tall.

The empty 24-ft. 3-tank assembly weighs 31,225-lbs. and 32,630-lbs. fully loaded with CNG.

The pressure vessel design employs a thick walled cylindrical shell, and specially designed 1/2 and 3/4 inch NPT attachments.

The vessel has a saddle-type support structure, designed to allow stacking of the vessels in a variety of fashions.

A drain line with a high pressure needle valve is located at the bottom of each vessel for easy maintenance cleanout.

An optionally provided high pressure "lock out" valve can be used to close off the vessel's relief nozzle during scheduled maintenance operations. This valve's use in design and practice are prescribed in ASME Section VIII, Division 2.

### **SPECIFICATIONS**

- Capacity: three (3) 12-ft. vessels is 17,650 - SCF at 5,500 psi
- Capacity: three (3) 24-ft. vessels is 36,340 - SCF at 5,500 psi
- Maximum allowable working pressure of 5,500 psi, at 120° F
- Minimum design metal temperature of -20° F at 5,500 psi.
- Analysis of cyclic pressure loadings between 4,500 and 3,000 psi yields a vessel life of 90 years.
- Design also incorporates strength requirements for maximum wind and seismic loads.



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