



**Largest Type 3 Cylinders in the World !**

# Type 3 Cylinder Fast Fill Superiority

37% Greater Fill Rate

based on:

**Comparison Study to Type 4 Design by Powertech Labs Inc.**

# table of content.

1. Material & Construction Comparison.

---

2. Study by Powertech Labs Inc.

---

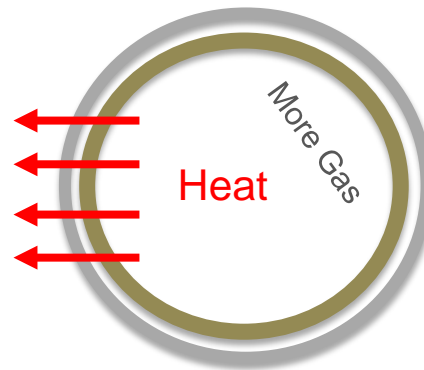
3. Comparative Calculations.

---

# 1. The aluminium liner (Type 3) has better thermal conductivity.

## Liner Type 3

Forged Aluminium (AL6061)

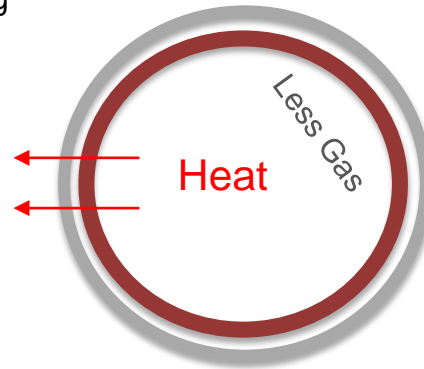


## Same Wrap

Carbon Fiber Full Body Wrapping

## Liner Type 4

Composite Plastic



### Study Setup

The pressurization of cylinders with CNG during filling increases the gas temperature within the cylinder due to the heat of compression and expands the volume of the gas.

The cylinders are filled up to the maximum filling pressure (usually 4,175 psi). When the gas temperature cools to the ambient temperature, the tank pressure will correspondingly drop.

Because the aluminium liner dissipates the heat, more gas flows into the Type 3 before the maximum pressure of 4,175 psi is reached.

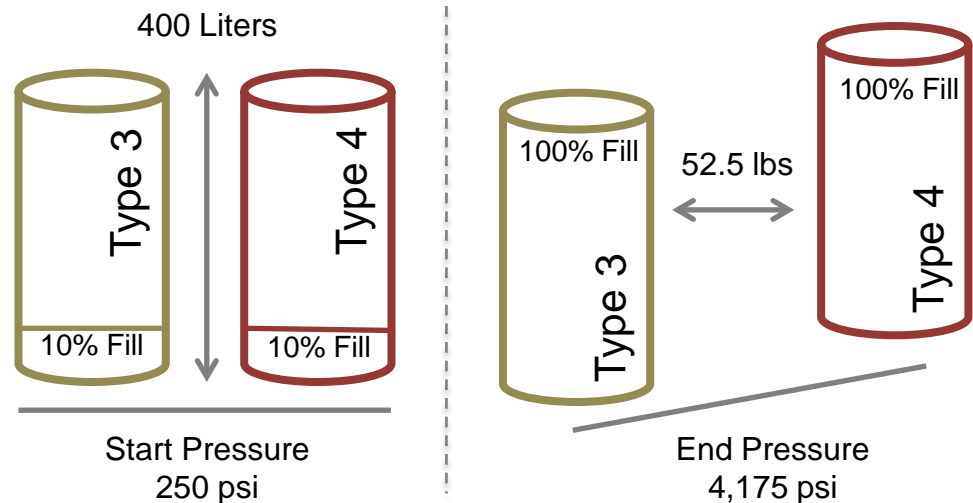
**More CNG in same tank size.**

## 2. The Type 3 reaches 37% more CNG after fast-fill.

### Study Setup

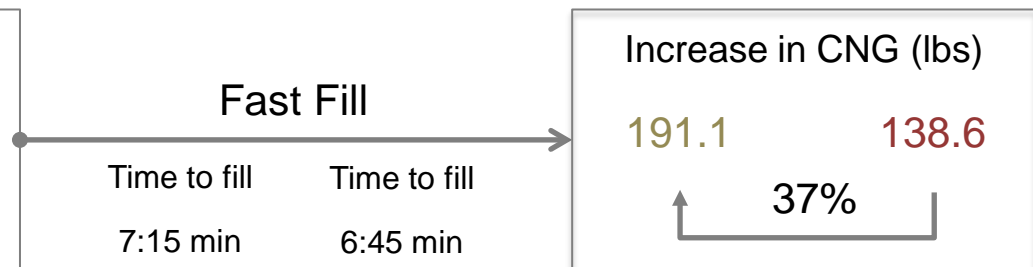
The study by renowned Powertech Labs Inc. has compared the 400 Liter Type 3 cylinder from CNGci with a Type 4 design of the same size.

Both cylinders were weighed at 10% fill condition, then Fast-Filled to 4,175 psi and weighed again. The increase in weight is the increase in CNG.

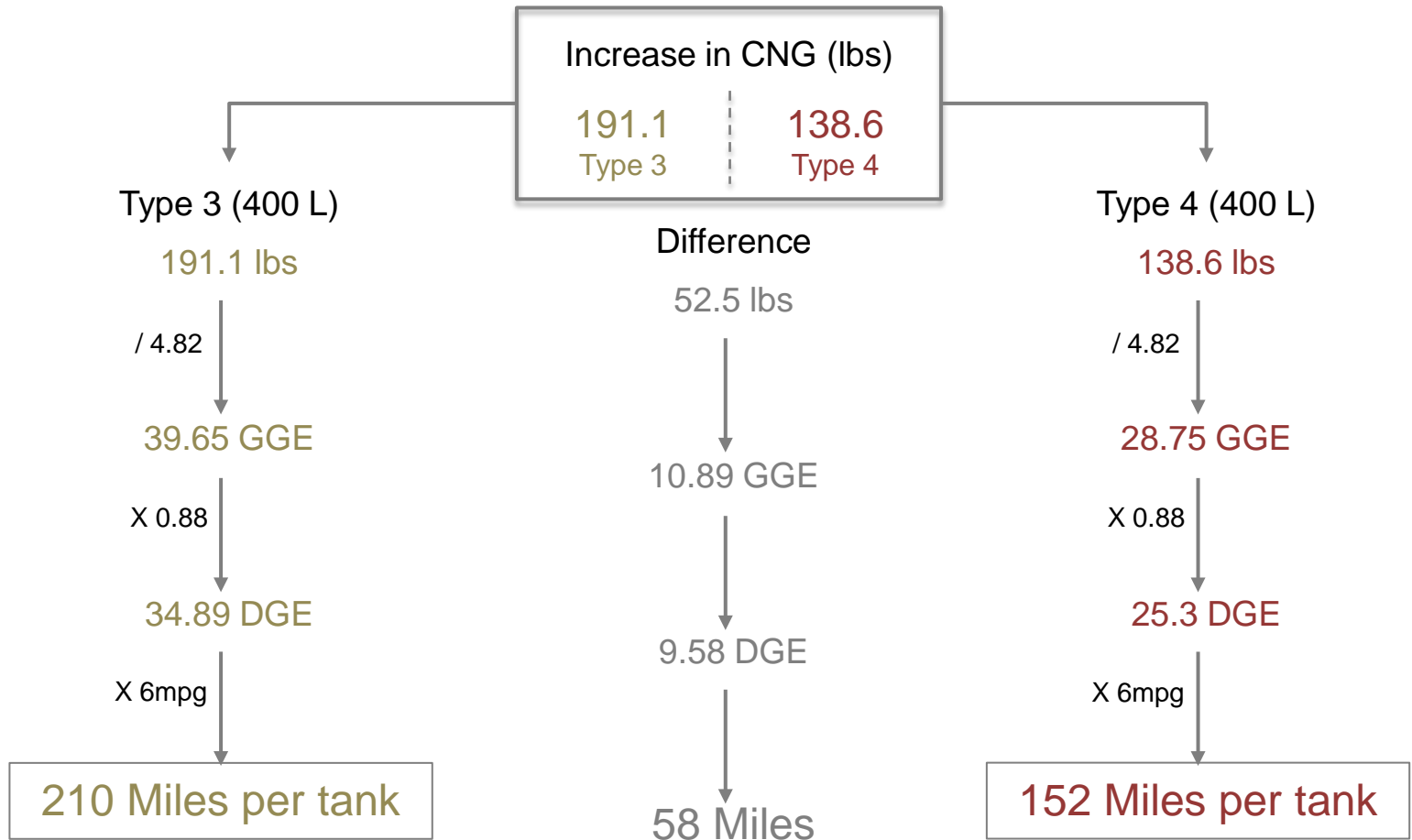


The study concludes that the Type 3 cylinder had 52.5 lbs more CNG after fast fill.

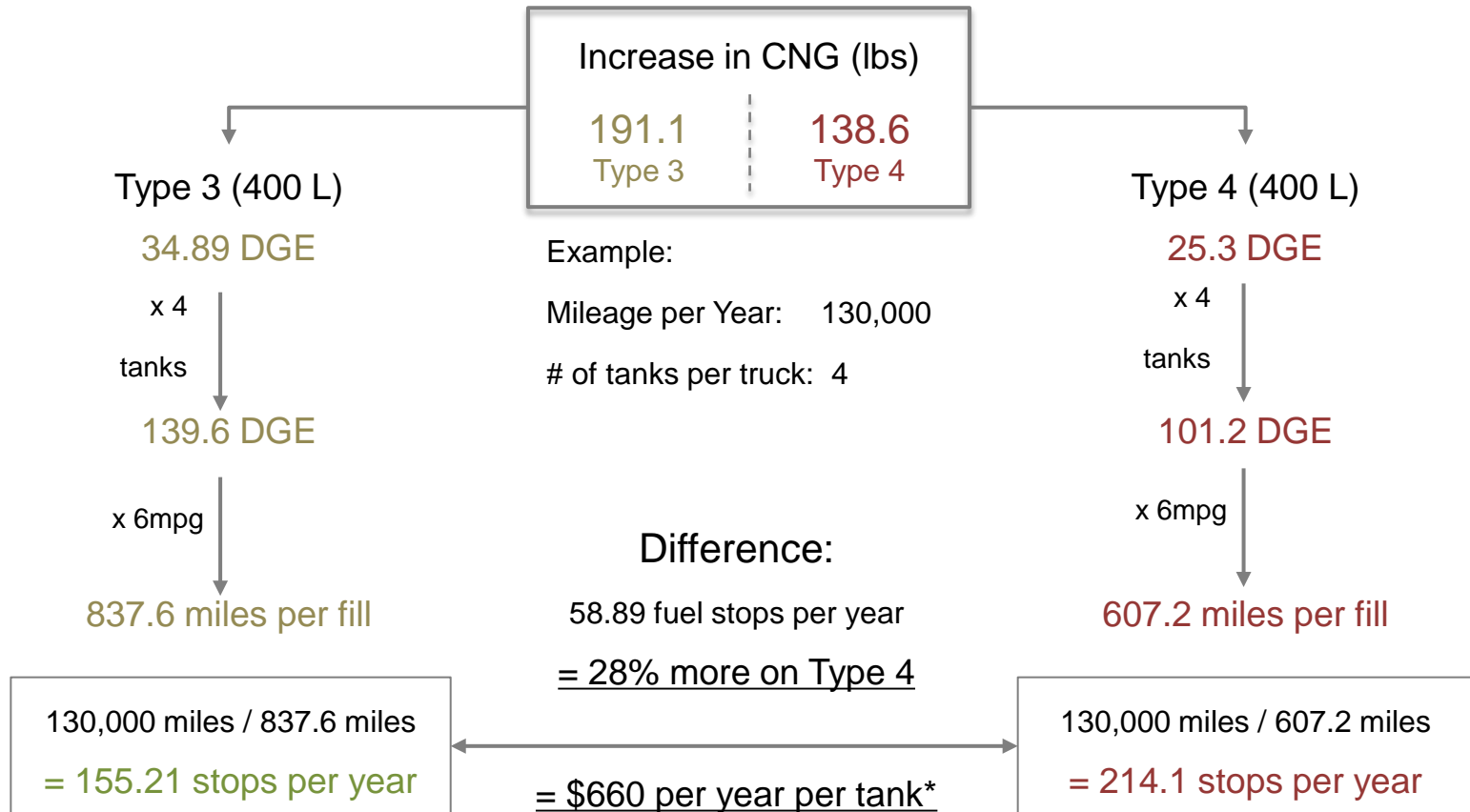
That is a difference of 37%.



### 3. The Type 3 cylinder (400 L) gives you 58 miles more per tank.

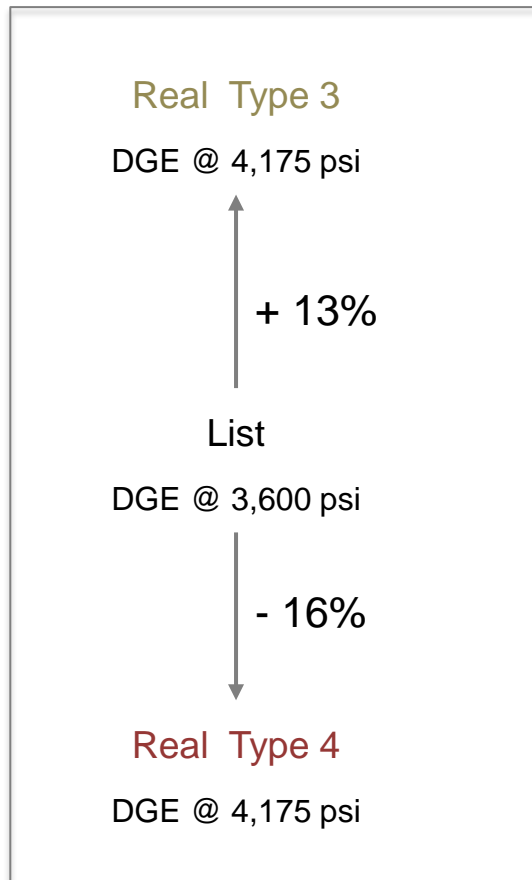


### 3. With a Type 3 you will need 28% less fuel stops (\$660 per year).

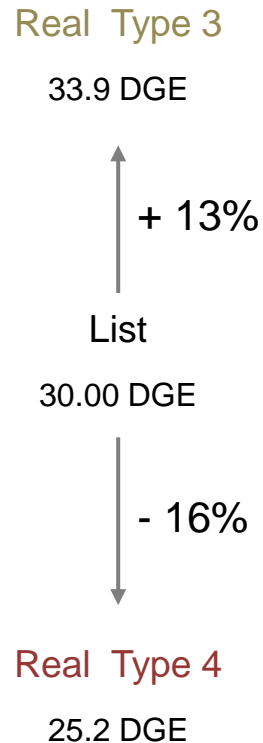


\*(7min/tank+20min detour+20min wait-time) x \$39.50/hour (IA) = \$ 44.82/stop x 59 stops = \$ 2630 / 4 tanks = \$ 660

### 3. The Real Fast-Fill DGE numbers favor the Type 3 considerably.



#### Example



8.7 DGE  
=  
52.2 miles

#### DGE Equivalent

Type 3  
400 Liter  
30.8 DGE + 13% =  
**34.8 Usable DGE**  
Fast-Fill  
≅

Type 4  
534 Liter  
41.2 DGE - 16% =  
**34.6 Usable DGE**  
Fast-Fill

# We look forward to your business.

---

CNG cylinders international  
2331 Sturgis Road  
Oxnard CA 93030 . USA

Ph: (805) 278-8060

Fx: (805) 278-8090

[info@cng.us.com](mailto:info@cng.us.com)

[www.cng.us.com](http://www.cng.us.com)

The information contained in this presentation is provided in good faith, and every reasonable effort is made to ensure that it is accurate and up to date.

CNG cylinders international LP shall not be responsible for any errors or omissions contained in this presentation. You rely on the information contained in this presentation at your own risk. The information in this presentation is supplied on condition that any person accessing or using the information will make his or her own determination as to the accuracy and usefulness of the information.

CNG cylinders international LP shall not be liable for any damages whatsoever (including special, indirect, consequential, or incidental damages or damages for loss of profits, revenue, or loss of use) arising out of or relating to this presentation or the information contained therein or the products it supplies whether such damages arise in contract, in tort, in equity, under statute, at law or otherwise.