

# HHO Generators ( Electrolyzers )

## How do they rate, and What should I Buy??

To answer these questions, we must first discuss what HHO ( Browns Gas ) does in aiding our vehicle to achieve better fuel mileage. Contrary to popular belief, we are **NOT** using HHO as a fuel. We are using it as a catalyst to greatly enhance combustion and burn 95% to 99% of the fuel that is being supplied to your engine.

One very important thing to remember is that your vehicle in it's stock condition is not burning up to 50-60% of the fuel during the combustion process, that is being supplied to the engine. Most of your fuel is being sent out the exhaust to be burnt by our catalytic converter. The reason that HHO ( Browns Gas ) is so effective as a catalyst, is due to it's flame propagation. HHO has a flame speed roughly 1000 times faster than gasoline, and almost 1200 times faster than diesel fuel.

With the proper use of the Hydrogen Generator systems , you are able to reduce the amount of fuel being sent to the engine ( by up to 50% ) which is no longer needed because we are now only wasting 1 to 5% of the fuel. We are burning up to 99% of it during combustion, not in the catalytic converter.

There are literally hundreds of different designs of HHO Generators on the market today. Most of which are a total waste of your money. Many sellers will advertise their LPM ( liters per minute ) of output, but not tell you how much amperage draw it takes to produce this output. One not commonly know fact is that it takes approximately 17 horsepower from your vehicles engine to power a 90 amp alternator when it is fully engaged. Of Course larger alternator's need even more horsepower. It requires fuel to create this horsepower. There is NO FREE energy in a vehicle. This is why it is so very important to choose a Generator that will supply your vehicles HHO needs with the least amount of amperage draw possible. You should **NEVER** install a generator whose amperage draw is greater than 15% of your alternator's rated output. Choosing the Best Generator, is all about EFFICIENCY.

Efficiency of generators is measured by a rating term called MMW. This term stands for, Milliliters ( of HHO ) per Minute, per Watt ( of electricity consumed ). The higher the MMW number, the greater the efficiency. There is a scientific term called Unity. Unity is the point where a device is producing as much energy in the form of HHO as the energy it is consuming in the form of electricity. 9.28 MMW is considered Unity.

Only one manufacturer of HHO Generators has been able to produce HHO Generators that operate efficiently. One of their Models operates at 19.135 MMW The closest any other manufacturer has been able to come is slightly under 8.00 MMW. The average Dry Cell on the market operates in the 4.0 to 5.5 MMW range. The average Wet Cell is in the 2.0 to 3.0 MMW range.

Why is all this important to you?? Lets start with your vehicles electrical system. Most all vehicles electrical system's are designed to accommodate all of your on board electrical devices and has a built in maximum of 15% ( of your alternator's rated output ) for additional electric consuming devices. Anything beyond this will force the alternator to run almost constantly at full engagement. Here comes those 17 horses to power the alternator and they are hungry, really hungry. Hungry for the fuel that you are trying to save.

Lets take a look at 2 examples of Generators One being the highest rated Dry Cell unit listed on eBay and the other being the Gen 10, Gen15 and Gen 20 multi cell unit. For a comparison we will assume that you have a 5.7 liter V8 engine with a 90 amp alternator. Something where a greater quantity of HHO will be needed. This engine should need approximately 1.5 LPM with the proper electronics for controlling the signals from your various sensors that control your AFR ( air fuel ratio

Top Rated Dry Cell Specifications

Voltage	Amperage	LPM Output	MMW	% of Alternator
13.8	25	1.5 LPM	4.35	27.70%

Gen 20 Hydrocell system specifications

Voltage	Amperage	LPM Output	MMW	% of Alternator
10.5	15.0	2.2 LPM	13.95	14.0

The test charts speak for themselves. The Dry Cell unit is using more than 1.8 times more electricity to produce the same amount of HHO as the Gen 20 system . The Dry Cell is using almost 28% of the alternator's rated output, which will cause the alternator to run fully engaged over 90% of the time. The "Gen 20 system is only using around 14% of the alternator's rated output which will cause the alternator to operate in trickle charge mode using only around 1 horsepower instead of the 17 horsepower being used by the Dry Cell. Do you want to spend your fuel feeding 1 horse or would you rather feed 17 ??

Too many sellers of HHO Generators feel that by pumping you full of Big LPM numbers, you will assume that their units are better. They do not tell you how much electric current it takes from your vehicles electrical system that it takes to produce these big numbers. In most cases the current draw and the horsepower it takes to produce these big numbers, will destroy any possibility of mileage gains. What they do not tell you is that if your vehicle is tuned properly, you only need ¼ LPM of HHO

for each liter of your engine's size. Example: if you have a 3.0 liter engine you will only need  $\frac{3}{4}$  LPM for maximum performance. So when making your HHO Generator purchase, there are three things that you need to remember,