

Automotive Service Industry: Tire Filling



The use of nitrogen for tire filling has been gaining more and more acceptance because of the many benefits that it has to offer over the use of compressed air. Compressed air consists of approximately 78% nitrogen, 21% oxygen and 1% other gases with moisture being a final component.

By reducing the percentage of oxygen and water vapor in tires from 22% to lower than 7%, the benefits of using nitrogen are well documented. These benefits can be realized with purity levels between 93-98% depending on the application.

Some typical applications in which nitrogen has been used for years primarily because it doesn't support moisture or combustion are commercial and military aircraft tires, NASA, racing tires for NASCAR, IndyCar, and Formula 1 and heavy-duty equipment tires such as for earthmovers and mining equipment. Commercial truck fleets have also been using nitrogen to help lower their tire operating cost.

Now the benefits of using nitrogen is gaining acceptance for consumer vehicles and light trucks.

The application is simple and easy to do. Nitrogen improves tire performance, decreases gas consumption, and increases tire life.

Benefits Of Using Nitrogen In Tires

Improved Tire Pressure – Nitrogen molecules are larger than oxygen molecules, so nitrogen does not permeate through the wall of the tire as fast as the oxygen in air; therefore tires lose less pressure over time. Tires lose 1 to 2 psi per month when filled with air. Tires inflated with 95% nitrogen maintain pressure on the average four times longer than compressed air.

Improved Fuel Economy - With under-inflated tires, tires have greater rolling resistance hurting fuel economy and reducing tread mileage. A good rule of thumb is, tire life decreases 10% for every 10% it is under-inflated. By converting to nitrogen, under-inflation is minimized and average rolling resistance and fuel economy is improved.

Cooler Running Tires – Under-inflated tires also run hotter. Increased flexing of the sidewall increases the temperature of the tire, which in turn increases the potential for tire failure and blowout. Tires filled with 95% nitrogen maintain pressure better and nitrogen does not heat up as much as air, so they run up to 20% cooler. This reduces tire wear and the risk of blowout when driving at high speeds in hot weather.

Removal Of Oxidation – Removing oxygen eliminates oxidation. When rubber oxidizes, tires lose elasticity and cannot support the weight of the vehicle, or handle the forces it was designed to endure. Therefore, filling the tire with nitrogen will increase the longevity, and the integrity of the inner tire. In addition, removing oxygen and water vapor inside the tire also eliminates the rust on steel wheels and the corrosion from aluminum wheels. Nitrogen is non-corrosive and will reduce oxidation and rust due to the absence of oxygen and moisture.

Reduction Of Tire Leaks - Moisture in air-inflated tires creates rim rust, leading to tire leaks. Because nitrogen is 100% dry, moisture is eliminated. No condensation, no leaks.

Generon IGS Nitrogen Generators

Nitrogen Tire Filling Systems

Nitrogen tire filling systems are typically made up of three components. (1) The Nitrogen Generator, the heart of the system and most critical component. (2) The tire inflator system. (3) The accessories needed to support the tire servicing business.

The **Nitrogen Generator** can be either PSA (*Pressure Swing Adsorption*) or Hollow Fiber Membrane depending on application, flows and pressures.

The **Tire Inflator** can be fully automatic and inflate from a single tire to multiple tires depending on the inflator used. The number of purges are programmable thereby setting purity levels of nitrogen in the tire.

Accessories range from nitrogen analyzers to nitrogen storage tanks to nitrogen valve caps, etc.

Industry Leader

Generon IGS is an industry-leading provider of comprehensive gas separation and compression solutions.

Generon IGS is in the unique position to be able to supply competing air separation processes utilizing either hollow fiber membrane or PSA technologies to provide our customers with the best technical solution for their application.

Generon IGS has been providing PSA and membrane generators to a multitude of industries for more than 30 years with over 7,800 systems installed worldwide.

Generon IGS is one of only a few membrane manufacturers in the world. We manufacture more than 4,000 membranes per year.

Generon IGS

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Dealer And Service Center Benefits

Nitrogen tire filling provides automobile and tire dealerships and service centers with innovative technology that requires a minimum investment while providing the opportunity to give value added service to their customers while also promoting safety. Nitrogen creates excitement while building customer satisfaction and retention and provides a means of increasing profits.

- Inexpensive to incorporate and quickly pays dividends.
- Dealers can offer a lifetime inflation program that nets other repairs (wiper replacements, oil changes, tune ups, Etc.) that are often turned over to the competition.
- Coupling nitrogen tire filling with other tire and wheel protection programs results in increased revenue opportunities.
- Nitrogen can be readily attached to less profitable services.
- TPMS alarms triggered by under inflation are significantly reduced when tires are filled with nitrogen, resulting in improved customer satisfaction.
- Offer a single service to your customers that can improve fuel efficiency, extend the lifetime of the vehicles tires, and provide your customers with a better ride. All which improves customer satisfaction while increasing customer retention.
- A Nitrogen tire inflation systems can give your business an edge over the competition, providing you with the means to provide a service that other dealers and service centers cannot.



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