

# Answers to 12 Frequently Asked Questions Concerning the Differences Between NIflate<sup>99</sup> Nitrogen Inflators and Nitrogen Generators

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As Nitrogen Inflation has become an increasingly popular way for automotive service facilities to build profitable add-on sales two methods of replacing air in tires with Nitrogen have received the most attention... Nitrogen generators and NIflate<sup>99</sup> Nitrogen Inflators. Nitrogen generators have been around for a while. But the problem is they weren't designed for use in the automotive service industry and two issues make them inappropriate for inflating tires with Nitrogen.

1. Nitrogen generators make an impure mixture of Nitrogen and air. Generators produce Nitrogen onsite by separating Nitrogen from air. However they actually make a mixture of Nitrogen and air that isn't sufficiently pure to deliver the benefits drivers expect. Some generators inflate tires with a Nitrogen/air mixture that is only 95% pure. Compare that with the 99.9% pure Nitrogen available in cylinders used by NIflate<sup>99</sup> Nitrogen Inflators.
2. Nitrogen generators require excessive maintenance. Generators are complex systems with highly sensitive components originally designed for use in pristine laboratories and clean rooms. Dirt, moisture and oil produced by their compressors will ruin Nitrogen generators. The fact is Nitrogen generators have practically no track record in the shop environment, so it is impossible to accurately forecast life expectancy.

NIflate<sup>99</sup> Nitrogen Inflators are designed exclusively to perform reliably in automotive service facilities by using a time tested concept... dispensing 99.9% pure Nitrogen from cylinders. For years NASCAR has used cylinders to inflate tires with Nitrogen. Most garages wouldn't generate their own oxygen or acetylene for welding and Nitrogen is no different. Nitrogen cylinders can be delivered to your location, or picked up locally, whenever you need them.

Nitrogen generator manufacturers are applying their systems in applications for which they were never designed. Before investing in a Nitrogen inflation system you need to become informed. These are answers to *12 Frequently Asked Questions* concerning the differences between NIflate<sup>99</sup> Nitrogen Inflators and Nitrogen generators.

***1. What is the basic difference between NIflate<sup>99</sup> Nitrogen Inflators and Nitrogen generators?***

The biggest difference is the design itself. Nitrogen generators are complex systems that must be integrated and maintained to perform, while NIflate<sup>99</sup> Nitrogen Inflators are simple stand-alone machines that require virtually no maintenance.

- NIflate<sup>99</sup> Nitrogen Inflators feature a rugged and reliable computer control that enables the technician to set them up for any vehicle in seconds for hands-free operation. He can then perform other vehicle services, such as changing the fluids and wiper blades, while the machine automatically replaces the air in 1, 2 or 4 tires at once with Nitrogen.
- They are designed with larger pneumatic valves for faster operation. Purge and inflation cycles are completed in just 7 to 12 minutes... within the time it takes to change the oil.
- Choose between wall mount and portable models designed with sturdy carts that are easily moved between service bays, outside or to remote locations.

*NIflate<sup>99</sup> Nitrogen Inflators are designed to the KISS principle (Keep It Simple Sir) and they couldn't be easier to use.*

Compare NIflate<sup>99</sup> Nitrogen Inflators with Nitrogen generator systems, which consist of several machines that must work together in harmony to perform reliably.

- A large and stationary Nitrogen generator, which itself is a complex machine featuring a number of filters intended to protect a highly sensitive membrane from the dirt, moisture and oil produced by the compressor that powers it.
- A compressor to force air through the generator. Even though every garage has a compressor, it is probably undersized to support your traditional pneumatic needs and a Nitrogen generator. A Nitrogen generator itself requires a 10hp compressor to run it.
- An air dryer to remove moisture from the compressed air so it doesn't degrade the sensitive membrane.
- Piping to connect the three machines and distribute Nitrogen to the various bays.

2. ***What are the comparative costs of buying and installing NIflate<sup>99</sup> Nitrogen Inflators with the typical Nitrogen generator?***

An extensive line of NIflate<sup>99</sup> Nitrogen Inflators allows you to match the most appropriate model for your application and budget. There is no installation cost. Uncrate them and attach a cylinder of Nitrogen and you're ready to inflate tires.

*It's just that simple!*

The costs of Nitrogen generators depend on the size and features. But even low-cost Nitrogen generators have hidden costs you should know about.

	<b>NIflate<sup>99</sup> Nitrogen Inflator</b>	<b>Typical Nitrogen Generator</b>
1. Purchase price	\$1,995 to \$6895	\$4,000 to \$40,000
2. Cost of capability to auto-inflate while technicians are performing other services.	\$0 It's included	\$1,500
3. Cost of additional compressor capacity to accommodate Nitrogen generation.	\$0 Not required	\$2,500 <i>Or More</i>
4. Cost of an additional dryer to remove membrane-degrading moisture from air.	\$0 Not required	\$1,500 <i>Or More</i>
5. Cost of installing piping etc. for compressor, dryer and hoses.	\$0 Not required	\$750 plus <i>Or Much More</i>
<b>TOTAL</b>	<b>\$1,995 to \$6,895</b>	<b>\$10,500 <i>Or Much More</i></b>

3. ***Why is purity important? And is there a difference in purity between the Nitrogen produced by the typical Nitrogen generator and the Nitrogen supplied in cylinders for my NIflate<sup>99</sup> Nitrogen Inflator?***

Yes, there is a big difference in purity and according to research completed by Ford Motor Company scientists, purity isn't just another issue... it is the issue. The air we breathe is already about 78% pure Nitrogen. However, air also contains oxygen that causes tires to lose air pressure in two ways.

1. Oxygen molecules are smaller than Nitrogen molecules and continuously leak through a tire's inner rubber layers at a much faster rate than Nitrogen.
2. Oxygen is highly reactive and eats away at the rims and inner rubber belts causing air to leak out at a faster rate. Nitrogen is an inert gas that actually protects the rims and the tire.

The Ford Report states that within three weeks there was a noticeable difference in the rubber in the belt package between tires inflated with a high purity grade of nitrogen (96% and higher) and regular air. To deliver the benefits consumers expect, their tires must contain a minimum of 96% pure Nitrogen. NIflate<sup>99</sup> Nitrogen Inflator cylinders supply 99.9% pure Nitrogen. The most expensive generators produce Nitrogen that is only 98% pure, and that's only when their membranes are brand new. Why would a few percentage points be a big difference?

All tires, even "flat" ones, contain some ambient air, and merely inflating them with Nitrogen will not result in an inflation that reaches the benefit threshold of 96% pure Nitrogen. The tires must be inflated and purged multiple times with dry Nitrogen to dilute and remove the air and moisture. Because Nitrogen generators produce a Nitrogen/air mixture that is much less pure than that delivered in Nitrogen cylinders, they require three purges to reach the threshold of 96% pure Nitrogen. However, routinely providing three purges isn't practical. Not only will three purges significantly extend your customers' time in your bays, it will result in more energy and maintenance costs to produce the additional Nitrogen.

*Because NIflate<sup>99</sup> Nitrogen Inflator cylinders contain 99.9% pure Nitrogen only two purges are necessary to reach the threshold of 96% pure Nitrogen in customer tires. And 1, 2 or 4 tires can be purged and inflated twice in only 7 to 12 minutes.*

It is important to note that not all Nitrogen generators produce Nitrogen of the same purity. Some low-cost Nitrogen generators produce a Nitrogen/air mixture that is only 95% pure, and that is when the membranes are brand new. (Over time the membrane produces less and less Nitrogen.) Because it is impossible to remove all of the ambient air from the tire, regardless of the number of times tires are purged and inflated, the 95% pure Nitrogen made by the generator will always be diluted. As a result, it is impossible for tires inflated by these systems to ever achieve the threshold of 96% purity necessary to provide customers with the promised benefits of driving on Nitrogen.

**4. *I maintain a pretty clean shop. Why do I have to worry about contaminants damaging a Nitrogen generator?***

The sensitive membrane that separates the Nitrogen from the air we breathe can be destroyed by oil, water or particles. This was not a concern for the many years that Nitrogen generators were used in the ultra-clean hospital and research laboratories. However, no matter how clean an automobile garage is it won't come close to the clean room standards for which Nitrogen generators were designed. In fact, the very compressors you'll use to power a Nitrogen generator will constantly produce these contaminants. Compressor oil is the greatest threat and there is virtually no way to eliminate it, which is why Nitrogen generators are designed with two or three filters. However, when contaminants reach the sensitive membrane your generator will cease to effectively produce Nitrogen and you're out of the Nitrogen business until you replace this expensive part.

Because it is virtually impossible to keep 100% of the oil, water and dirt from reaching the membrane, over time it becomes contaminated. As the membrane steadily degrades it produces a less and less pure Nitrogen/air mixture. Even though your system will continue to inflate tires, it will be filling them with more air and less Nitrogen, which means your customers will not get the results they pay for. Some generators even have a nitrogen purity gauge built in. This will show you the loss of purity and lets you know when you need a new membrane. *Quite simply, because of its design a generator will steadily produce a less and less pure Nitrogen/air mixture.*

The fact is that Nitrogen generators have practically no track record in the shop environment, so it is impossible to accurately forecast life expectancy, and replacement membranes are expensive. Keep in mind that a membrane that is damaged by oil, moisture or dirt may not be covered by a warranty because contamination is not a manufacturer's defect. And because contaminants will eventually reach the membrane, you have to wonder whether or not any supplier that offers a prolonged warranty against contamination will be around long enough to honor it.

5. ***What does it cost to operate the NIflate<sup>99</sup> Nitrogen Inflator vs. the typical Nitrogen generator?***

It will cost as little as 25 cents to inflate a tire with Nitrogen using NIflate<sup>99</sup> Nitrogen Inflators. But many dealers charge consumers between \$6 and \$10 a tire for Nitrogen inflation. Because your technician will be able to inflate tires with Nitrogen at the same time he is changing the oil or providing other services there are no additional labor costs, which is likely to make Nitrogen inflation one of your most profitable services. As far as maintaining NIflate<sup>99</sup> Nitrogen Inflators go, they have no costly filters or membranes to replace. *Pure and Simple!*

Although manufacturers often claim that Nitrogen generators provide free Nitrogen, there are many hidden costs that make this "free" Nitrogen quite costly.

- **Cost of maintenance parts:** Nitrogen generators use multiple filters that must be replaced regularly to prevent the sensitive and expensive membrane from fouling prematurely. These filters are expensive and take up to one hour to replace. And when you have to replace the membrane, it will cost you thousands of dollars.
- **Cost of maintenance labor:** You pay your technicians to work on customer cars not your Nitrogen system. But someone has to change the filters on the generator, and maintain the dryer and compressor or they will not work.
- **Cost of increased energy:** Running additional compressor capacity and a dryer will dramatically increase your monthly energy bill. And with energy costs rising as they are, wouldn't you prefer to cut back on energy usage instead of increasing it?

When increased costs of maintenance and energy to operate additional compressor capacity, dryers and the generator itself are considered, NIflate<sup>99</sup> Nitrogen Inflators are the lower cost alternative.

Keep in mind all Nitrogen generators require a great deal of maintenance. NIflate<sup>99</sup> Nitrogen Inflators have no filters or membrane to maintain. Pure and Simple!

**6. *The cost of buying and running an air dryer really adds up. Is an air dryer really necessary?***

The air in most automotive service stations is too humid to be used with a Nitrogen generator without conditioning because moist air will degrade the membrane, the most sensitive and expensive part of a Nitrogen generator. To protect the delicate membrane, air dryers must be used. And this presents a big cost dilemma for Nitrogen generator users. Operating a Nitrogen generator without a dryer will result in degradation to the costly membrane. But operating an air compressor and an air dryer dramatically increases the costs of electricity and equipment maintenance. Either choice you make is going to increase your operating costs.

The NIflate<sup>99</sup> Nitrogen Inflator was designed so it doesn't require a compressor or a dryer. It uses cylinders of dry 99.9% pure Nitrogen delivered to your location, or that can be picked up when you need it. It's more cost-effective and convenient. Pure and Simple.

**7. *I already have a compressor. Why can't I just connect the Nitrogen generator to my current pneumatic system?***

Most automotive service shops have compressors that are sized to their current needs. Nitrogen generators require large volumes of compressed air to produce Nitrogen. In fact it takes a 7.5 to 10 hp compressor just to run a generator. This means you could be replacing your current compressor with a 15 hp model to operate your new generator and the rest of your shop.

Generators produce Nitrogen by separating it from large volumes of air. A generator that produces 98% pure Nitrogen will only be 33% efficient. This means a compressor will produce 2.5 to 3 cubic feet of air to get 1 cubic foot of Nitrogen.

It takes about 6 to 7 cubic feet of 98% pure Nitrogen to properly inflate a tire. However, to generate enough Nitrogen to properly inflate one tire, the compressor will have to pump enough air through the Nitrogen generator to inflate 7 tires.

And operating a compressor at this rate is not cheap. In addition to the energy costs, the average cost of upkeep on a compressor is \$3.50 per horsepower per month. When the additional requirement of inflating tires with Nitrogen is added to the shop compressor the maintenance costs will skyrocket.

**8. *To operate an effective Nitrogen business I require a reliable supply of Nitrogen that I don't have to think about. What could be more reliable than generating my own supply with a Nitrogen generator?***

It might seem logical that generating Nitrogen onsite is the most reliable and convenient approach. However, there is nothing reliable about a Nitrogen generator that is incapable of generating sufficient volumes of Nitrogen to provide a steady stream of customers with tires containing 96% pure Nitrogen.

The NIflate<sup>99</sup> Nitrogen Inflator dispenses 12 cubic feet of 99.9% pure Nitrogen every minute. A typical Nitrogen generator *might* be able to produce 3.5 cubic feet of 98% pure Nitrogen per minute *if* the compressor setting is increased to 175 psi to force sufficient air through the generator's membrane. Of course, this will overtax your compressor and it will still only produce enough 98% pure Nitrogen for you to inflate one tire every 2.25 minutes. You could add a 120 gallon storage tank, but this hardly solves your problem. It will only provide a sufficient volume of Nitrogen to properly inflate one set of passenger tires and it will take about nine minutes to refill the tank for the next car. Fast recuperation times are not a requirement in the laboratories where Nitrogen generators were designed to perform. However, having sufficient Nitrogen available at all times, is critical to a Nitrogen tire inflation business.

For example, to meet expectations in quick lube operations, Nitrogen machines must always be ready with sufficient volumes of highly pure Nitrogen to simultaneously replace the air in all four vehicle tires in the 7 to 12 minutes it takes to change the car's oil. And if your customer is unwilling to wait until the Nitrogen generator produces a sufficient volume of Nitrogen, you'll lose a highly profitable sale you'll never get back.

Of course you could buy a much larger and more expensive Nitrogen generator, which would require a more expensive compressor to run it. Or you could save a lot of money by investing in a NIflate<sup>99</sup> Nitrogen Inflator. Choose between NIflate<sup>99</sup> Nitrogen Inflators that inflate 1, 2 or 4 tires simultaneously with 99.9% pure Nitrogen. A typical set of cylinders contains sufficient Nitrogen to fill 120 tires without any recuperation time in between. *NIflate<sup>99</sup> Nitrogen Inflators are your best alternative. Pure and Simple.*

**9. *I have a big operation. How can a NIflate<sup>99</sup> Nitrogen Inflator meet my needs as well as a large Nitrogen generator?***

First there is a range of NIflate<sup>99</sup> Inflator models, so you can select the one most appropriate for your needs. Also NIflate<sup>99</sup> Nitrogen Inflators feature a modular design that accommodates a number of Nitrogen cylinders. You can order models that operate on 1, 2 or an entire pallet of cylinders. The two cylinder model is capable of inflating about 120 tires with 99.9% pure Nitrogen. Set it up once a week and you'll have sufficient Nitrogen to generate between \$750 and \$1,200 in Nitrogen sales. Regardless of whether your NIflate<sup>99</sup> Nitrogen Inflator is designed for 2 cylinders, or a pallet of cylinders, it is based on the same design that simplifies your Nitrogen inflation business and minimizes costs and maintenance.

**10. *I'm not sure exactly how many of my customers will buy Nitrogen. Is there a way to build some flexibility into my planning?***

Flexibility is another big difference between Nitrogen generators and NIflate<sup>99</sup> Nitrogen Inflators. The capacities of Nitrogen generators are fixed and production of Nitrogen cannot be increased in the future without buying additional generators. In order to purchase the appropriate size generator you must accurately forecast your future needs. Forecasting is always tricky and you are likely to buy a generator that is too large and expensive or one that is too small and inadequate.

However, buying Nitrogen in cylinders makes it simple to adjust to growing Nitrogen inflation businesses, because capacity is virtually unlimited. As your business grows you simply order more cylinders of Nitrogen. You can be confident that you'll never pay for too much capacity you can't use, or be held back by too

little capacity when you order Nitrogen in cylinders for your NIflate<sup>99</sup> Nitrogen Inflator.

Another important point to consider is that you can order NIflate<sup>99</sup> Nitrogen Inflator models that are totally portable and can easily be moved from bay to bay. They can even be moved outside to service vehicles in the parking lot. They can operate for hours plugged into a rechargeable power pack available from major retailers. So you can inflate tires with Nitrogen anywhere. Use them for mobile oil change businesses, to service fleets on location and to raise funds at nonprofit events. That's flexibility you can't get from a stationary Nitrogen generator.

***11. I have limited floor space at my location. How would this affect my decision?***

Nitrogen generators are big machines that require compressors and air dryers. A typical Nitrogen generator takes up as much space as six Nitrogen cylinders. NIflate<sup>99</sup> Nitrogen Inflators are smaller. The portable models occupy no more space than a file cabinet and can be moved around in the service bay to provide efficient use of limited space. Wall mounted models are as small as a briefcase.

***12. Are there any safety concerns about using Nitrogen in my shop?***

Yes, there is one aspect of Nitrogen generators that should cause an auto mechanic concern. When Nitrogen generators make Nitrogen they vent oxygen enriched gas into your shop. That is a major safety concern where a spark from a welder or a cigarette could ignite a fire. This is why generators come with warning labels.

Nitrogen is a noncombustible inert gas. Because NIflate<sup>99</sup> Nitrogen Inflators dispense Nitrogen from cylinders instead of separating it from the air, you won't be venting oxygen enriched gas into your shop. And the safety record of delivering and using cylinders of gas is well established. In fact there are several million high pressure Nitrogen cylinders currently in use and the industrial gas industry has a 50 year history of safely providing customers with a convenient and reliable supply of Nitrogen.

Attempting to run a Nitrogen inflation business with a Nitrogen generator, dryer and additional compressors will create headaches you don't need.

*You need to ask yourself whether your goal is to make Nitrogen or make money.*  
*NIflate<sup>99</sup> Nitrogen Inflators are all about making you money. Pure and Simple.*

**NIflate<sup>99</sup>**  
*Pure and Simple*