

Plasma Cutter Safety Guide

With the invention of inverter based welders and plasma cutters, and the affordable prices of welding equipment provided by such companies as Longevity®, plasma cutters and welders are now available to the majority of the population as they are now within the budget of a shop owner, artist or even a garage hobbyist type user. Inverter technology has also made welding equipment and plasma cutters more compact, versatile, and so advanced that the cost of production is far less than the transformer units everyone is so used to.

With that said, since there are so many newcomers to the welding and plasma cutting industry, Longevity feels safety is a major concern and should be taken very seriously when operating such possibly dangerous equipment. With this guide, we will show you how some simple steps taken to insure your safety will keep you and your loved ones away from harm and cutting by minimizing some of the dangerous risks. This article is all about plasma cutting safety tips. As you may know, the arc from a plasma cutter is an extreme fire hazard. The heat and sparks create a major issue for anything that is located around your working area, the fumes can be hazardous, and the danger of the arc can be dangerous to exposed and unprotected body parts such as arms and eyes, thus it is very important to keep the following points in mind to insure a safe cutting session:

General:

- Do not allow any unauthorized personnel use plasma cutting equipment without supervision or permission.
- Before beginning to use the plasma cutter, warn the individuals around the working area that you are about to begin. Make sure those around you are also wearing protective gear such as goggles and heat/fire resistant clothing.

Personal Protective Gear: It is extremely important to protect yourself during welding or plasma cutting. Exposing yourself to high molten metal, fumes, and other potential and harmful drawbacks can be dangerous. By protecting yourself and others you are practicing being a responsible welder and plasma cutter operator. Here are a few tips from The Longevity Testing Team that will help you with plasma cutting and welding safely by protecting yourself and other with the necessary gear.

- A welding or plasma cutting arc generates an intensely bright light that will harm your eyes unless they are properly protected with the right gear. [Longevity® recommends using Longevity® Auto Darkening welding and plasma cutting helmets](#) for maximum eye protection. No matter what, operators and those near the plasma cutting process must protect their eyes in order to avoid visual stimulation to the pupil from the bright arc or any debris from the cutting process.
- Although goggle can protect your eyes, a good [Longevity® Auto Darkening welding and plasma cutting helmet](#) is recommended because it also straps and conforms to your head offering the maximum protection from a large viewing area. Our welding helmets are also the most

advanced in the business offering sensitivity and darkening settings that will best suit your welding and plasma cutting needs.

- Wear non flammable welding aprons and clothing to insure that if a piece of spark, metal cuts or any other debris flies or comes into contact with yourself while welding, your heat resistant clothing will protect you properly

There are some additional points that the Longevity emphasizes on their website while you are welding or plasma cutting:

Button up: Any exposed skin is susceptible to the painful and damaging effects of ultraviolet and infrared rays. Further, sparks can catch in open pockets, pant cuffs or down a shirt that isn't completely buttoned. These sparks can smolder unnoticed while the welder is "under the hood," causing serious damage. Button shirt collars, cuffs and front pockets to prevent them from catching sparks and be sure to cover all exposed skin. Do not keep matches or butane lighters in your pockets. Avoid wearing cuffed pants because the cuffs also might catch sparks.

Wear the right gear: At all times during welding and cutting, it is extremely important to wear welding gloves. Currently, Longevity Welding offers a nice pair of affordable and effective welding gloves that will protect you during your cutting from burns. Wearing the right shoes is also important. Longevity recommends wearing leather top steel toe shoes or boots. Remember, that you want to insure that nothing is able to slip into your shoes or boots during welding.

Dimming the Lights: Longevity plasma cutter Arc rays produce intense visible and invisible (ultraviolet and infrared) light rays that can burn eyes and skin. Proper clothing protects your skin, but your eyes need the additional protection provided by a face shield or safety glasses outfitted with the correct lens shade, which our [Longevity Welding Helmets](#) mentioned above provide.

To determine the proper lens shade, check your machine's amperage capabilities and then consult Figure 1 (see ANSI Z49.1 for shade numbers used with plasma cutting above 80 amps). To protect others from flash and glare, install and maintain approved screens and barriers where appropriate. Warn observers or fellow shop members prior to beginning a cut or initiating a plasma arc.

Figure 1 - Eye Protection for Plasma Arc Cutting

Current Level in Amps	Minimum Shade Number
Below 20	#4
20-40	#5
40-60	#6
60-80	#8

Fire Hazards to Avoid: The plasma cutter arc is so intensely hot and powerful that it provides immediate danger for a possibility of fire if you are not safely operating the plasma cutter in your working environment. Here are some few pointers to practice while plasma cutting.

- Keep a distance between your work or cutting area and anything flammable including fuel, wood, paper or any other flammable materials. It is best to always have at least 25feet of distance between the cutting material and your surroundings.
- Keep a suitable fire extinguisher around you at all times in case of an emergency

Clean Air: How to Avoid Fumes and Gasses

The plasma cutter cutting process produces fumes and gasses that may create a health hazard to your working environment, the operator, and to the workers in the facility. It is very important to have a fresh breeze of air or to maintain proper ventilation when plasma cutting. The Longevity® Testing Team has gathered several key points for you to help prevent hazards while plasma cutting.

- Work in a confined space where proper ventilation is constant while wearing an air-supplied respirator and while complying with other ANSI requirements. Remember, that the gasses can be harmful so you must take every measure to protect your breathing.
- While cutting coated metals such as galvanized steel, lead or cadmium-plated steel, please remove the coating prior to cutting with a grinder if possible. Heating up the coating will not be a good idea as the fumes will enter your air supplied resistor. These coated metals may give off toxic fumes, which are extremely hazardous.
- If you are cutting coated material, allow yourself more ventilation and make sure to wear a breathing apparatus.

Being Well Ground and Avoiding Electrocutation: Plasma Cutters, especially with inverter technology increase the power output so much that it can cause fatal shock risks. The Longevity® Testing Team has some solution on how to be properly grounded in case of a shock risk.

- Always wear rubber gloves while cutting in addition to your welding gloves.
- Insure that you are not working in a wet environment and check the ground for moisture or water.

- The Longevity Testing Team recommends that you operate while standing on top of a rubber place mat to insure your safety. It is also very important that your plasma cutting unit is properly grounded and wired by an electrician.

In conclusion, these plasma cutting safety tips will help save your life and your health. You should follow them and read them over prior to operating Longevity Plasma Cutting equipment. This will be the most important step to a good, clean, and safe cut.