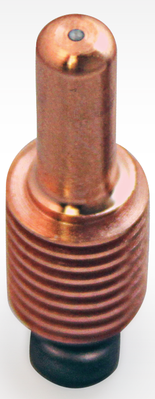
WHEN SHOULD YOU REPLACE Consumables?

Evaluate the condition of your consumables to know when replacement is needed, improve cut quality and prevent damage.

These examples may differ from your consumables, but the key indicators for replacement will be similar.

ELECTRODE

NEW



REPLACE

As the source of the plasma arc, the electrode is constantly being consumed when the arc is on. It is usually made from copper or a copper-silver alloy with a tungsten or hafnium emitter rod in its center. **The wear on the emitter causes a pit** or dimple in the electrode, and running the torch when this wear **pit is too deep can cause significant damage**. Check the specifications for the electrode and learn to judge the pit depth by measuring them regularly.

SWIRL RING

NEW

REPLACE

The swirl ring causes the high-pressure plasma to form a rotating jet when it exits the nozzle. It is not consumed by the arc, but because it is part of the consumables disassembly process, it can get **chipped or cracked** *[note the hairline crack in photo above]* and minute quantities of **dirt can build up** over time and **plug the swirl holes**. The O-ring **seals can tear or crack**. If you find any of these conditions, replace the O-rings, or the entire swirl ring.

NOZZLE

NEW

REPLACE

The copper or alloy nozzle directs the plasma jet from the torch through its orifice (nozzle opening). Larger amperage nozzles will have larger orifices, but any new nozzle will have an orifice that is not only round, but has sharp, not rounded, edges. Check the orifice and **replace it if it shows any oval or oblong shape**.

SHIELD CAP

NEW

REPLACE

The shield cap orifice should be **round and smooth**. Because it is close to the work piece, it can suffer from spatter, and nicks. You can clean it with a non-metallic kitchen abrasive pad (don't use sandpaper), if it is not badly **burned, dented, or cracked around the orifice**. When you remove the shield cap, check the O-ring (if present) and its lubrication.

CONSUMABLE COST CALCULATOR

Estimate and keep track of your consumable costs with the Lincoln Electric Cutting Systems Consumable Cost Calculator. The customizable calculator can help optimize life expectancy for each portion of the consumable. Check it out: torchmate.com/consumable-cost-calculator

TIPS TO REDUCE COSTS

1

Ensure that you have the right consumables for your amperage, and that your amperage is correct for the material you are cutting. Consult the cut chart for your plasma power unit whenever you change materials. Perform speed tests and evaluate cut quality. Look for adjustments that will improve quality — they will often extend consumable life.

2

Don't replace every component in your consumable stack when one component is worn out. Replacing the nozzle, electrode, and cap all together when only one is worn out increases your cost-per-part.

3

If you experience a fall-off in cut quality, make some immediate observations. Inspect the consumables individually and replace those that are damaged or worn out. Look at your air supply to check for excess moisture or oil. Check your work lead connection. Be aware of any changes to your cutting height, bevel, and dross. Not only can these problems cause lower cut quality, but they can accelerate wear on your consumables.

4

Get as much experience as possible with your machine so that you're aware of any subtle changes in its operation. This experience will help you to maximize the life of your consumables, as well as to avoid unnecessary replacements.

5

Keep track of when you replace consumables. This can help you spot any irregularities and plan your purchases for appropriate stock levels.

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