

Injector torches versus equal pressure torches

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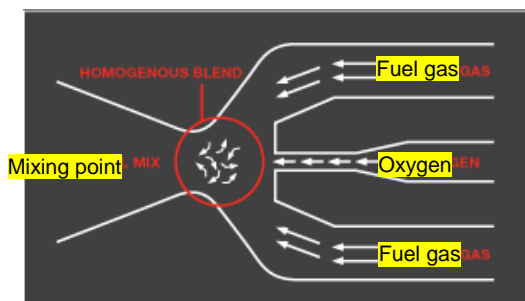
Every so often, the question pops up:
What works best when welding and cutting? Injector or equal pressure torches?

Background

Two general types of welding torches are used:

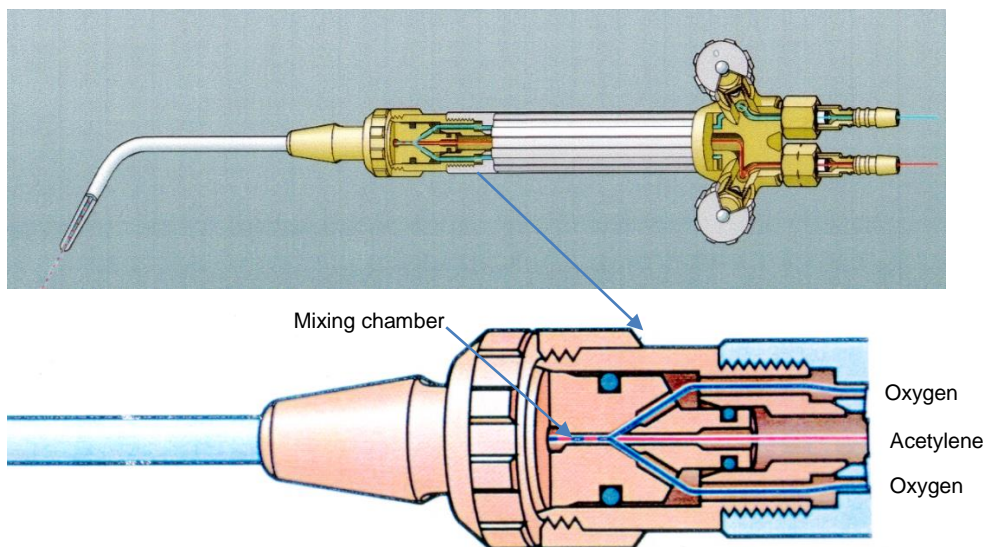
- Injector torches (low pressure torches)
- Equal pressure (balanced-pressure torches)

The injector torch is also known as low-pressure torch. The fuel-gas pressure is 0.07 bar (1 psi - pound per square inch) or less. The oxygen pressure ranges between 0.7 to 2.8 bar (10 to 40 psi), depending on the size of the torch tip. A jet of relatively high-pressure oxygen produces the suction necessary to draw the fuel gas into the mixing head. The welding tips may or may not have separate injectors in the tip.



The expression fuel gas imply acetylene, propylene, propane, natural gas, and modified propanes (such as MAPP).

Equal-pressure torches are often called balanced-pressure torches because the fuel gas and the oxygen pressure are kept equal. Operating pressures vary, depending on the type of tip used.



Unitor UCT 500 Combination torch is an equal pressure torch.

TECHNICAL UPDATE

Marine Products



Most industrial oxy fuel torches are of equal pressure design (Victor, Smith, Purox, Harris, Unitor etc.). The big advantage of the equal pressure torches are that you have total control of the Acetylene / oxygen ratio. This is important when you want to have a very carburizing or oxidizing flame. Because of the design of the mixing chamber, the equal pressure torches have a significantly higher flow rating. This is important when running large "rosebuds" heating attachments

This style mixer works well with acetylene, propylene, propane, natural gas, and modified propanes (such as MAPP). The equal pressure torch is safer than the injector torch, since equal gas pressures are used; you are less likely to get a flashback



UCT-500 Master kit
Product no 500000



UCT-500 Compact kit
Product no 500001

The advantages of injector torches are:

- you do not have to adjust the fuel gas pressures, only the oxygen.
- you only need a small amount of pressure in the fuel gas. This is important if you are using natural gas. The injector torch will actually suck open the fuel gas regulator diaphragm even when the adjusting screw is backed way out (closed) and the gauges will show zero pressure and yet you have a flame.

The disadvantages of injector torches are:

- not optimized for acetylene
- cannot run the very large heating attachments and
- does not run very well when you feed the injector mixer with high fuel gas pressures (old habits are hard to break. Some people cannot get their head around that you only need a small amount of pressure on the fuel gas gauge)

Bottom line is:

If you use Acetylene as fuel gas, use an equal pressure torch

If the job at hand require use of large size heating attachments ("rosebuds") or cutting nozzles, stick to equal pressure torches