Handheld Plasma Cutter



Manufacturer: emrys_industries
Designer: emrys_industries

Price: 2,200 ks (delivered with 2 gas magazine and forward grip)
Component costs:

- Spare gas magazine (200 ks)
- Standard magazine valve (100 ks)
- High flow magazine valve (350 ks)
- Tube (500 ks)
- Polymer Frame (200 ks)
- Rear gas intake chamber (to connect a larger gas canister, when used in a workshop) (700 ks)
- Forward grip (200 ks)
- Thigh holster, with 2 magazine pouches, and front grip pouch. (50 ks)
- Battery cell (30 ks)
- Battery charger (50 ks)

Nomenclature

Name: Handheld Plasma Cutter, Model IV
Type: Power tool
Role: Cutting through metal and other hard materials.
Length: 22cm/8.7 inch
Weight: 1,700g/3.7lbs (without mag)

Appearance

The HPC-4 is intended primarily for field operations. It was necessary to make it light and small enough to be carried by an operative (usually by Technical Sentries) who needed a fast, precise and reliable cutting tool. The pistol-like design was the best alternative. The frame is made of high temperature resisting polymers, while all the internals are in ultra-high temperature resistive alloy, to ensure near perfect reliability and solidity. The forward grip allows for more stability and precision, and is also protecting the operative's hand of projections.

With the forward grip detached, the HPC-4 would fit a Type 28A Nekovalkyrja Service Pistol holster.

Gas magazines are designed to fit a standard Type 28A Nekovalkyrja Service Pistol battery magazine.

Operation

Open the small trap located at rear of the gun, insert the battery pack inside it, close the trap, put the gas magazine inside the magazine well, lock it with the small lever located on the rear grip, disengage the safety witch located near the front grip by pulling it down, press trigger, cut. The plasma beam is 5cm/2 inches long, and 1cm/0.4 inches wide. When done cutting, pull the safety lever up to engage it, unlock the magazine and remove it.

The cutting speed depends of the material, and varies from 5cm/s (2 inch/s) when used against copper and other “smooth” materials, to less than 0.5cm/sec (0.2 inch/s) when used against high temperature resistive alloys. Some alloys can't be cut at all.

Warning: Even when there is no magazine inside the gun, there may be some plasma left inside the heating chamber. It is recommended to empty this chamber by pulling the trigger until there is no more plasma coming out of the gun. (usually, a 1-2 second pull will be enough.)

ALWAYS empty the gas chamber

NEVER remove the battery pack until you're sure there is no plasma left in the chamber, it will cut the magnetic field holding it there, and will let it leak out of the gun.

NEVER USE IT TO CUT ANY COMBUSTIBLE THINGY (like: wood, gas, clothes… That's kinda intuitive.)

NEVER USE IT IN HIGH-OXYGEN LEVEL ENVIRONMENTS, Oxygen is an extremely good comburant in high concentrations, and you may end making the whole room go boom.

NEVER POINT IT AT SOMEONE (well, unless it's someone you'd want to kill, burn, or something like that).

ONLY USE EMRYS INDUSTRIES BATTERY PACKS AND GAS MAGAZINES.

Warranty void if open, and usual stuff.

How the hell does it work?

An ionized gas is stored inside the magazine, when you pull the trigger, some gas is released into a heating chamber located in the rear part of the gun. Once heated enough (usually 1-2 seconds), it will transform into plasma, heating itself to extremely high temperatures, enough to vaporize things on contact, and will be propelled by a magnetic pulse outside the gun (that's why we need a battery pack). When the trigger isn't pulled, another magnetic field will hold the plasma inside the chamber. There is no need to heat the chamber again after the first shot, since the plasma already there does the work.

Usually, a gas magazine contains enough gas for a 35 seconds burst, and the battery pack hold enough power to burn 10 magazines (more or less)

Customization

Only a few parts can be tweaked on the gun, without resorting to a complete redesign: The gas magazine valve and the tube. The heating chamber can be modded to use a gas canister when working in an industrial environment.

The valve can be replaced by an high-flow one, which will allow more gas to be pushed inside the chamber, expelling the plasma faster, which will result in a longer beam (8cm/3.2 inches), but will greatly increase gas consuming (a magazine will only last 10 seconds).

The tube can be replaced by a thinner or larger one, increasing precision, or making a larger cut.

The modding of the heating chamber, to allow the use of an external gas canister, consist in simply replacing the chamber with one with a premade gas intake. It's impossible to mod one itself, since the chamber is made of extremely hard materials, and require specific tools, quite expensive, to work with. Some precautions must be taken when using an external gas canister, since the gas pressure is usually higher than the one in gas magazines.

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Last update: **2023/12/20 20:39**