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INSTRUCTIONS FOR USE

This type of welding is very similar to soldering with tin, except that a torch is used instead of a soldering iron. By following these instructions, in just three steps you can weld aluminum with no problem at all and with optimal results.

What do you need to get a perfect weld?

A torch suitable for the part to be welded and a correctly prepared part.

Torch: The rods melt at a temperature of 390 °C, a temperature which is far below that of an everyday cigarette lighter (1300°C), however, as we're all too well aware, a cigarette lighter flame is unsuitable for welding for the simple reason that it's just not possible to heat up a part sufficiently. Therefore, depending on the part to be welded, you need a torch capable of heating the part up to 390°C.

It's possible to use a portable butane gas torch or oxygen torch. The part shape, size and thickness will determine the type of torch to be used. For example, to weld a soft drinks can, a portable butane-powered torch is sufficient, whilst to weld a one millimeter thick piece of sheet metal you will need a blow torch, and an oxygen torch for welding larger parts.

A simple propane torch is sufficient for most work. It doesn't matter how the aluminium is heated, the only requirement is to bring it up to 390 °C and to keep it at this temperature throughout the work. If you haven't yet acquired a torch, then get one that can heat up to the highest temperature, as you can always work below this. For heavy parts, you should use an oxy-propane torch. In this case, use a torch with a long end and a neutral flame in order to apply the heat uniformly. You should apply the heat only with the centre of the flame or else with the outer cone of the flame.

Preparing the part: Clean the aluminum to remove any oxide (alumina) and impurities (dirt, paint or coatings) and leave the metal bare. This cleaning operation to decontaminate the metal from ions and free electrons, is necessary in order to guarantee some optimal results (strong and long-lasting) for the weld.

To remove the fine layer of aluminum oxide (alumina), use the stainless steel brush supplied with our rod kit. First clean the part when cold and then clean under heat.

How should the rods be used?

The part should be heated up until it is at the right temperature. You'll know when you've reached this temperature because, in the same way as for a tin solder application, you need to gradually rub the end of the rod against the part until you note that it starts to melt. Then heat a little longer and you're ready to weld. Don't direct the flame directly at the rod as this would cause molten drops from the rod to fall onto the cold part to give a "cold joint" instead of a correctly welded one.

Hold the torch flame a few millimeters in front of the rod tip as the weld progresses. So that one hand is used to move the rod forward and to apply material to the part, whilst the other hand is used to move the torch flame forward. Never stop heating the part, otherwise the part will cool down during the welding process to create a "cold joint". The next step is to use the stainless steel

brush to rub the joint base, removing any impurities and oxide which will come up to the surface. Just a few strokes with the brush are sufficient, given the fact that the heat applied penetrates the metal and leaves it free from impurities. Being stainless steel, the molten rod material does not stick to the brush.

Should you wish to weld two parts together, then both parts should be heated to the rod melting temperature. If you only heat one part and make the weld with the other part at ambient temperature, then you'll get a "cold joint".

If you're working with two parts which are of a very different size, then you'll need to apply more heat to the larger part in order to perform the operation with the two parts at the same working temperature.

The joint will harden in just a few seconds and the part can then be used almost immediately. However, it should not be immersed in water in order to speed up the cooling process, as a quick cooling process will lead to a fragile joint.

Use the rod to fill the part, then clean and repeat.

You'll find videos explaining the use of this type of rod on www.youtube.com

SAFETY INFORMATION:

Always wear gloves and safety glasses or goggles.

To get a perfect weld, you need to ensure that all the conditions are correct: the part must be at the right temperature and correctly prepared, etc. If this is not done, then in all likelihood, the weld will not be optimal and will lead to subsequent problems. Patience is essential, otherwise the weld will not be as expected.



If you are first planning to try out these rods on a "valuable" part, then you are well advised to first practice on other scrap parts, using 1 or 2 rods in order to get used to the system. This will be well worth your while, given the fact that the key to the success of this welding system is control of the heat and the procedure.