Manual TIG welding machine

1. Advantages of TIG welding

Tungsten electrode welding in an inert atmosphere protection can be used to weld aluminum, magnesium, stainless steel, copper and copper alloys, nickel and nickel alloys, and low carbon steels with different thickness.
TIG welding can be performed in all positions without the space of metal splashing from molten metals additional weld puddle right in not participate in creating the arc.

TIG welds not suck because during welding wholesale not make wholesale.

TIG welding can be done easily for both metals are considered to be the most difficult to weld metal and base metal cover it easily combined together to form the weld. Can use pieces of scrap metal to weld, the weld after completion need not worked because bulge weld shape can be adjusted easily, while soldering. Compact metal welds, no porosity or suck Wholesale and it is important to be able to perform to a very high welding speeds, reducing the cost significantly.

2. TIG welding machines and power lines

TIG welding machine with all kinds of DC and AC. The welding machine is specifically designed for each different purposes depending on the material properties and arc welding required.

a. Direct current: DC currents will have two types of wiring is biased and reverse polarity (as in

conventional arc welding). However, reverse polarity rarely used in TIG welding due to this type of wiring drawback is not stable arc, less depth and fast lenses worn electrodes. The only advantage of this method is the cleansing effect oxide layer on the surface of the material, works well when welding metals such as aluminum prone to oxidation and magnesium. However, most other metals are not necessary to the process by which the TIG welding method used mostly biased. Bias is to create a more stable arc, depth comprehend better than reverse polarity welding lead to less stress and more deformed.

b. AC: Of course there will be a combination of both biased and reverse polarity. Thus when in reverse polarity half cycle, it also has the effect removing the oxide layer on the surface. So when welding metals such as aluminum, magnesium, and copper beryllium rod. often preferred to use AC rather than DC reverse polarity. With these metals, removing the oxide surface plays a very important role in order to obtain beautiful and clean welds.
The DC welding machines often use a high-frequency line to cause the initial arc (called additional high frequency) welding machines also for the high current AC frequency is maintained constant. The TIG welding machines are operating normally in the range from 3 to 350A currents, voltages from 10 to 35V and load factor is 60%. The high-frequency welding machine can be used with AC and DC power supply common. AC must have a minimum no-load voltage is 75V.

3. Gas protection

Arc and molten metal will be protected in an inert gas such as argon or helium or argon mixtures are both widely used due to two reasons: First, it is kind of cheap gas, easy modulation. Second, Argon is heavier than helium because it is capable of protection even when low flow gas injection. When mixed with helium to argon, the mix increases the heat arc, although current and the arc is the same way, for this reason, a mixture of two gases, commonly used to weld thicker material.
Generally there are five gases and gas mixtures are used as protection when TIG welding gases:
Argon purity
Pure helium
Pure CO2
Argon + helium mixtures
Mixtures of Argon + CO2

4. Mine TIG

Soldering is responsible for keeping the electrode tungsten, ceramic shooting, electrical conductors and shielding gas.

a. Cooling

Since TIG welding should generate a lot of heat TIG welding torch needs to be cooled, it facilitates safe and comfortable for welders and welding the life of the mine.
The TIG welding torch can use low-current air-cooled. The large TIG welding torch, using large currents must be cooled, the torch can be operated with a current up to 500A.
Type "Soft Jacket" is a special kind of soldering with solder capable first bend in the corner, which is used for special tasks.

b. Electrode Holder

The electrode was kept inside a silver soldering taper screw, silver bevel is a real hole in the middle. The size of the silver taper depends on the diameter of the electrode. Direction and air flow is controlled by gas cup or nozzle mounted at the top of the groin.

5. TIG welding electrodes

Unlike hand-arc welding, TIG welding electrodes do not melt during welding, so the metal electrodes have very high melting point to withstand without being self arc melting.

a. Pure tungsten electrode

A type of electrode used in TIG First, it has a high melting point to 3400oC (6170oF) makes the fact that it does not melt during the welding process. Then people started using the tungsten alloy electrodes due to their many advantages over pure tungsten for each different application. The TIG welding electrodes are distinguished by color at the top electrode. Pure tungsten electrodes are painted green and have the EWP.

In fact often use electrodes made of a tungsten alloy in the following two categories because they have more to offer:

- Zirrconi - Tungsten: mainly used for welding aluminum, zirconium electrodes - Tungsten Tungsten electrode for welding as pure but more durable, electrodes are often used with AC line and give us the high quality welds .

Electrodes Zirrconi - painted brown tungsten electrode at the top and have the EWZr.

- Thorium - Tungsten: This type is used for welding low alloy steel with low amperage than kind and mainly used in DC-biased. Because lower currents so it's less and less distortion than that affect weld quality when welding circuit breaker with unwanted animals. There are two types of electrodes thorium - tungsten with thorium concentrations respectively 1% and 2%.
Type 1% thorium are painted yellow in the first electrode and the word EWTh1.
Type 2% thorium is painted red at the top electrode and the word EWTh2.
For TIG welding, precision adjustment of flow and air pressure protection plays a very important role, so only use equipment designed for gases used in TIG welding

6. Pressure reducing valves and flow meters used in welding TI G

In this type of pressure relief valves used for TIG welding in general slightly different type of welding gases (oxygen-acetylene welding). During welding, the head nozzle pressure (pressure supply) indicated on the meter unit for measuring pressure "psi" (PE pound square inch - pounds on square inches - the Anglo-American measurement system) or MPa (1psi = 7.10-3MPa). In TIG welding, gas welding torch protect the head is not measured in units of pressure gauge that measured in units of flow measurement is the "CFH" (cubic feed hour PE - cubic feet per hour - the unit of measurement Anglo-American system) or m3 / h (1cfh = 28,3.10-3m3 / h). CFH is measured by the flowmeter, the air flow increases, indicating balls are pushed higher on the scale, then we know the gas flow through the meter is how many CFH, a different clock is used to measure the amount of gas remaining in the bottle as in welding.

7. Metal parts in TIG welding

Like in gas welding, TIG welding can be used with or without metal elaborate depending on the welds. Generally, the use of metal parts only applies to large weld small welds are not required, wife Although metal may be in the form of wire automatically, but usually it is level with the lower arm form of metal bars. The size of the filler metal rod into the welding current and weld thickness.

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