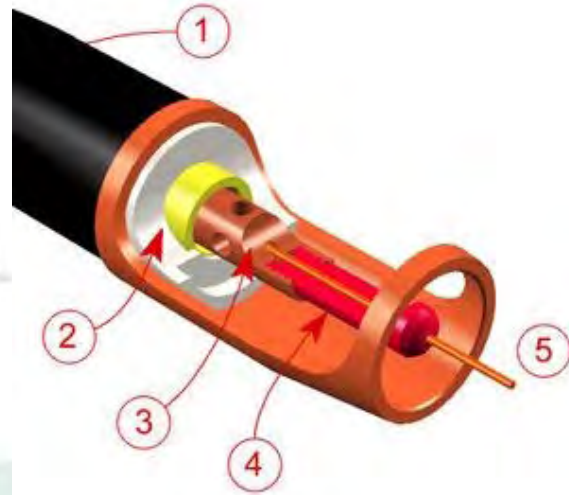


Variants of MIG – AC MIG

Introduction

Gas metal arc welding (GMAW), sometimes referred to by its subtypes, metal inert gas (MIG) is a semi-automatic or automatic arc welding process in which a continuous and consumable wire electrode and a shielding gas are fed through a welding gun. A constant voltage, direct current power source is most commonly used with MIG, but constant current systems, as well as alternating current, can be used. With advantages and limitations.



MIG torch nozzle cutaway image: **(1)** Torch handle, **(2)** Molded phenolic dielectric (shown in white) and threaded metal nut insert (yellow), **(3)** Shielding gas nozzle, **(4)** Contact tip, **(5)** Nozzle output face

The process:

The use of alternating current on MIG increases significantly the deposit rate and of course the productivity.

This variant has been only recently started to be applied on industries, due to the welding machines, because it was not possible, to have a stable way of transferring the metal to the weld tool. Recently has shown up in the market, power sources that operate in alternating current with reverse polarity, in which is possible to program the welding conditions, so that the transfer of the metal droop, from the tip of nozzle to the fusion bath, occur when the current is positive.

Alternating the current between the positive and the negative levels, is the correct way to get high productivities with acceptable transfer methods the generate welds without defects.

The main application of this variant has been welding thin plates of steel and aluminum, in automobile, furniture, space and transportation industries.

Advantages:

This type of welding is due to the fact that is possible to obtain in AC a minor penetration that on DC, to equal metal values per length unit and combined with a 25% productivity, with a stable shield and good dimensional, mechanics and metalurgic characteristics on the obtained welds.

This variant has a better tolerance, with the distances between the plates, on crossover joints, so on the case of robotized welding of thin plates, it does not need a great deal accuracy on the preparation.