

A Review Paper on Optimization of TIG WELDING

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Abstract:

Tungsten Inert Gas (TIG) welding will be welding procedure of uniting diverse materials with amazing weld dab by electric circular segment age between non consumable anode and work piece under a protecting gas. It is utilized to weld ferrous and non-ferrous metals. It is otherwise called Gas Tungsten Arc Welding (GTAW) process. This procedure suggest a few favorable circumstances like low warmth affected zone, joining of dissimilar to metals, nonattendance of slag, high warmth fixation and so forth contrasted with other welding process. The TIG welding parameters are the most critical components influencing the quality, profitability and cost of welding. TIG Welding execution is generally assessed in light of Tensile Strength of the weld, Weld dab Geometry, Hardness, Depth of Penetration and Depth proportion Also known as Aspect proportion. In the present examination, we talk about the impact of the distinctive welding parameters, for example, welding speed, control source, kind of current, protecting gas stream rate, terminals, filer wire, Electrode hole and sorts of protecting gases which fits best to decide bend dependability, circular segment entrance and imperfection free welds.

Keywords:

Angle Ratio, Welding, Non Consumable Tungsten Electrode, Optimization, Process Parameters, Shielding Gas, Tungsten Inert Gas, Weld Bead.

Introduction:

Welding is the procedure of changeless joining of comparative or different metal at their reaching surfaces by use of

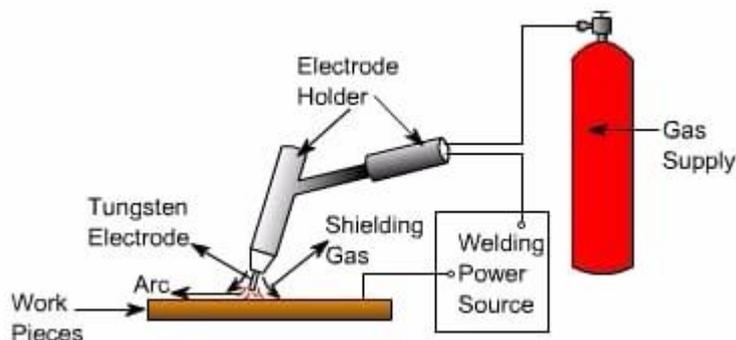
Warmth as well as weight. The welding appeared From "Bronze Age" about roughly 2000 years back Known as manufacture welding. Egyptian individuals figured out how to weld

Press sorts out amid Iron Age. Temperature Of the Welding range is in the middle of 1800°F-3600°F. This has Been done by dissolving the work pieces at the interface And a changeless joint can be accomplished after cementing. Filler material is alternatively added to produce weld pool of Molten material which hardens over the long haul and gives a Strong bond between the materials. A lot of ways and Sources are utilized in welding process like a gas fire, an Electric circular segment, a laser, an electron shaft, contact, and Ultrasound. It tends to be done in a wide range of Environments, including outdoors, submerged and in space.

A. TIG Welding

TIG welding process is an Arc welding process created in Late 1930s when a need to weld magnesium progressed toward becoming Necessity. TIG welding utilized when a decent weld joint Appearance, an excellent weld and soundness in the extensive variety of welding applications is required. TIG welding is a Process that melts and joins metals by warming them with an Arc set up between non-consumable tungsten cathodes And the work piece under a protecting gas. Following is the

Schematic chart of TIG welding appeared in figure.



Schematic of TIG welding.

B. Working Principle of TIG Welding

In the Tungsten Inert Gas welding, a curve is kept up Between a tungsten anode and the work piece. This bend And the weld pool are shielded from environmental Contamination with a vaporous shield of inactive gas, for example, Argon, helium or argon-helium blend. The filler metal is

Alternatively utilized relies on welding necessity. This Filler metal can be presented physically or consequently Independent of kinds of process. The TIG welding process Itself can be manual or programmed. The welding power Source conveys immediate or substituting current relies on the Heat dissemination required. TIG welding gives better bring about Welding of hard to weld materials.

C. Component of TIG welding

Accessible written works demonstrate that a portion of the instruments, which assume real job in increment weld quality, are Buoyancy constrain, Electromagnetic power, Arc narrowing because of dynamic motion, Arc tightening because of negative particles.

Relating Author:

Shivam Prasad Tungsten Inert Gas (TIG) welding will be welding procedure of uniting diverse materials with brilliant weld globule by electric bend age between non consumable anode and work piece under a protecting gas TIG Welding execution is for the most part assessed in light of Tensile Strength of the weld, Weld dab Geometry, Hardness, Depth of Penetration and Depth proportion Also known as Aspect proportion.

Writing REVIEW:

1. L Suresh Kumar: To enhance welding nature of Aluminum (Al) plate a computerized TIG welding framework has been produced, by which welding velocity can be control amid welding process. Welding of Al plate has been performed in two stages. Amid first period of welding, single side welding performed over Al plate and amid second stage both side welding performed for Al plate by changing distinctive welding parameters. Impact of welding pace and welding current on the rigidity of the weld joint has been researched for both kind of weld joint. Optical minuscule examination has been done on the weld zone to assess the impact of welding parameters on welding quality. Smaller scale hardness estimation of the welded zone has been estimated at the cross area to comprehend the change in mechanical property of the welded zone.

2. V.Gopinath: The nature of a welded joint is straightforwardly affected by the welding input parameters. Deficient weld dot measurements, for example, Welding Current, welding Speed, Filler diameter may add to disappointment of a welded structure which decides the pressure conveying limit of a welded joint. In this investigation, the relapse display was utilized to set up a connection between welding input parameters and profundity of entrance for Tungsten Inert Gas welding of 202 review tempered steel plates. The procedure control parameters decided for the investigation are welding current, welding speed, filler width. The created show was then contrasted and the trial results.

Conclusion

In the wake of doing the exertion of understanding different literary works and Making review in view of Influence of process parameters, for example, Welding current, welding speed, Welding extremity, Arc length, sorts of protecting gas alongside their stream rate and viewpoint proportion on productivity and yield of TIG Welding we can reason that TIG

welding is the most broadly Used circular segment welding process because of its immense scope of favorable circumstances Over other welding process. It has been seen that TIG Welding can be way to deal with its best yield when the above Listed parameters are set to its most appropriate climate for The predetermined work. Welding current relies on the Selection on warmth dispersal required either on work piece or Electrode. Generally DCEN or DCSP is utilized. Tungsten Electrode Tip is likewise molded appropriately. Welding speed Depends upon the kinds of protecting gas utilized and thickness Of material. With regards to weld Aluminum TIG is best Joining procedure.

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