Welding equipment MIG/MAG with double pulsed arc by Gala Gar

Gala Invermig Syner 230 MP Bi-pulse is a multi-process, inverter and synergic singlephase welding device that permits executing 12 different welding processes and up to 76 synergic programmes in MIG/MAG welding. It also incorporates dual pulsed arc technology.

The pulsed arc welding procedure transfers the weld metal to the base metal by "individual drops reproducible in size and electric charge of melted material" in a similar way to pulverisation transfer (spray type), whereby two currents of different intensity are combined, one continuous current, with weak intensity (base) whose objective is toprovide the wire with the calorific energy to maintain the ignited arc, that is, which serves to preheat and prepare the wire, which will be fed continuously; and another high intensity (peak) current, made up of a series of pulsations at a certain frequency, so that each pulsation raises the intensity sufficiently to melt a drop of the same diameter as the diameter of the wire that is being used. This drop is detached before the end of the wire comes into contact with the base metal.
The drop will become detached after each pulsation, whose interval will have been previously regulated.

The main characteristic of the Invermig Syner 230 MP Bi-pulse to be highlighted is that it incorporates dual pulsed arc technology, which permits welding fine aluminium sheets and also carrying out aluminium welding beads with that typical wavy aspect.

The application of the pulsed current permits adapting the heat input to the welding demands, marked by the position, type of joint and thickness. Likewise, great penetration is achieved due to the high intensity during the pulsation, and thus the average energy used in time unit and surface, is less than when using traditional MIGMAG welding, ensuring a reduction of the thermally affected area, as well as less deformation, less danger of gaseous inclusions and heat cracking. On increasing the frequency a more stable and concentrated welding arc is obtained. This permits obtaining higher quality welding in finer materials and thus completely eliminating splashes.
In addition, with the dual pulsed arc it is also possible to considerably improve the aspect of the welding bead,

Gala Invermig Syner 230 MP Bi-Pulse

Electric arc welding under protection gas with continuous weld material thread, called MIG/MAG welding, is a type of welding used by manufacturers and more commonly by repair workshops to replace the spot electrical resistance welding when assembling different body parts, mainly in difficult access areas.

Galagar's Gala Invermig Syner 230 MP Bi-pulse welding equipment, is a synergic MIG/MAG welding device with dual pulsed arc technology, permitting the execution of welding work on very different materials, even on fine aluminium sheets.

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bead, permitting, for example, in materials such as aluminium,with MIG welding in bi-pulse mode, providing the bead with an aspect that until now was only achieved with TIG welding.

The Invermig Syner 230 MP Bi-pulse is a multi-process device with which different welding processes can be carried out, such as: Traditional MIG/MAG, pulsed and dual pulsed arc MIG/MAG, self-shielded continuously fed tubular wire FCAW welding, without needing to use gas, SPOT welding (programmable spots), TIG and Pulsed TIG welding with Lift arc striking and MMA Welding with traditional and special coated electrode.

This equipment is extremely versatile and synergic and with it, it is possible to weld both with steel wire and aluminium or with copper-silicon.

There are specific programmes for each one. The main characteristic of the Invermig Syner 230 MP Bi-pulse to be highlighted is that it incorporates dual pulsed arc technology, which permits welding fine aluminium sheets and also carrying out aluminium welding beads with that typical wavy aspect.

Its synergic control and LCD display make this equipment a simple tool to work with. With few buttons and in an intuitive manner, all the welding parameters can be controlled. Furthermore, it incorporates a shockproof display protection system, consisting of a transparent plastic cover.

Not only can all the parameters be easily adjusted but it is also possible to record, in "JOB Mode", a certain process in the equipment memory with its relative values to repeat it as many times as one wants and for there to be no variation in the process. It is so simple to handle that it is possible to begin to weld in just three steps: 1) process selection, 2) programme selection, and 3) wire selection.

MIG/MAG welding by Galagar

It permits controlling each and every one of the elements that intervene in the welding:

- Ascent ramp or slope control function, and descent ramp to decrease the risk of splashes appearing, reduce stress and increase stability, controlling the thermal input and transition between the initial intensity and the set intensity in welding in the first case, and from welding intensity to crater filling intensity in the second case, which helps minimise the appearance of pinholes and crater micro-cracks.
- Striking control and burn-back, to modify the speed at which the striking occurs, and the free wire length that remains in the gun after ending the welding, adjusting it to the position of the work to be executed, which will result in an excellent welding start.
- The special crater filling in 4TS welding mode, to reduce the defects at the end of the welding and also to reduce the input heat.
- Pre-gas control to improve the protection of the welding bead, and of the post-gas, to reduce the bead contamination risk during cooling.

The equipment applies a self-regulation system that, by means of the voltage, compensates the wire feed variations, as well as the modifications in the arc height during welding.

Flexibility is the most representative characteristic of the pulsed arc in the MIG/MAG method, as it permits welding low alloy steel, stainless steel, aluminium and copper, in thicknesses of over 0.5 mm and in all positions. The CuSi3 welding programme permits carrying out joint welding on copper alloys, or similar. It has good resistance to corrosion and is easy to apply.

With respect to the gas, the greater the percentage of CO2 in the gas mixture with Aragon, the worse it will be to obtain the pulsed arc. A maximum percentage of 18% CO2 is recommended.

With respect to the main advantages of the equipment, in addition to the comments made above, it has 76 synergic welding programmes with different gas mixes, applied to carbon and stainless steel, aluminium, copper-silicon, etc., in which the use of pulsed or bi-pulsed current improves the process features, reducing the number of splashes, provoking less thermal input in fine thicknesses, with a more even surface aspect and penetration, as well as less deformation of the base material. It is also possible to work with larger diameter wires in lower intensity ranges, reducing production costs.

Characteristics

- MIG-MAG welding equipment with synergic programming.
- Modular system with torch cooling possibility.
- Synergic inductance control. No splashes. Great dynamics with pure CO2 gas
- 4-roller drawing system.
- 300 mm diameter wire reel (15kg).
- Wire diameter of 0.6 to 1 mm (1.2 mm in aluminium).
- MMA welding process with specific MMA CEL mode for welding special electrodes.
- TIG DC/TIG PULSE welding process with general cycle parameter control.
- Lift Arc striking.
- Suitable for connecting to generating set.
- Supports connection to 400 V without breakage.
- Maximum MIG/MAG welding intensity of 200 A (200 A/40%; 165 A/60%)

At Centro Zaragoza, very satisfactory results have been obtained with respect to the use of Galagar's Gala Invermig Syner 230 MP Bi-pulse MIG/MAG welding equipment, highlighting its versatility, which permits welding different types of materials and above all, aluminium, due to the possibility of creating the beads with a similar aspect to TIG welding.

Information and distribution
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