

Air Liquide – Semi Automated Welding Plant CB-MATIC SM PLAMSA / TIG HPW NERTAMATIC 450

The introduction of the Air Liquide CB-MATIC semi-automated welding equipment has enhanced the welding capability within the Welding and Fabrication department. This capability includes Keyhole Plasma Welding, Soft Plasma Welding, DC Top TIG and AC TIG welding which has increased quality and efficiency within the welding process.

The welding cell has been setup predominantly for producing circular and longitudinal seam welding.

Equipment Overview:-

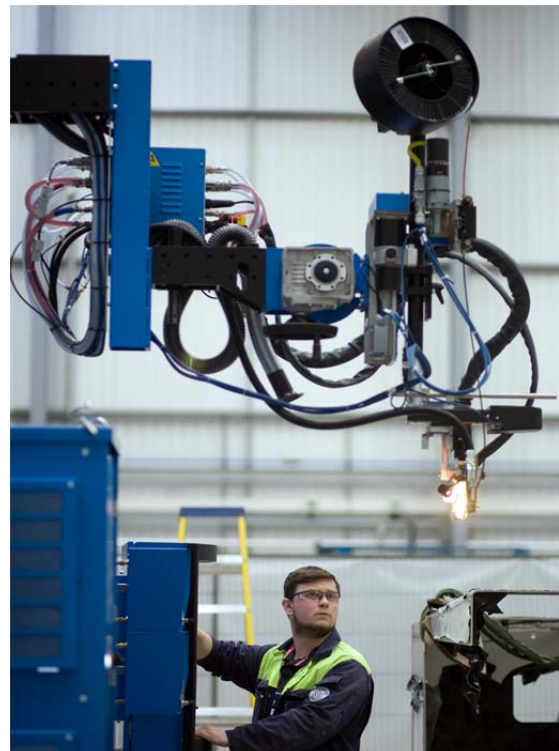
- ✓ Column and Boom
- ✓ Integrated Tilt & Turn Manipulator
- ✓ Controlled Welding Parameters through HMI Panel
- ✓ Control of the welding current, wire feeding, arc voltage control and gases
- ✓ Offline Programming and Weld Parameter Development
- ✓ Numerically Controlled Unit
- ✓ Real Time Weld Data Capture
- ✓ Live Video Feed of Weld Pool

Welding Processes:-

- ✓ Keyhole Plasma
- ✓ Soft Plasma
- ✓ DC Top TIG
- ✓ AC TIG

Technical Capability:-

- ✓ Vertical Arm Stroke – 4,000mm
- ✓ Horizontal Arm Stroke – 3,900mm
- ✓ Carriage Stroke – 11,000mm



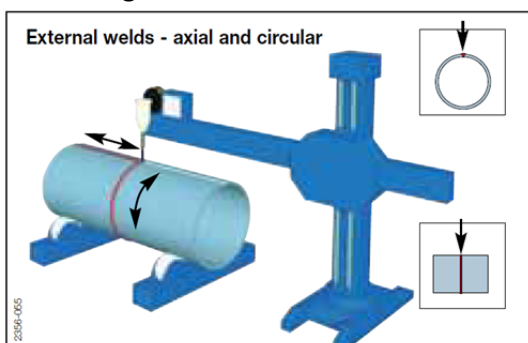
Welding Processes:-

- ✓ The plasma keyhole welding process can produce a weld in 8mm thick plate in with a single pass without weld preparation. This is a significant increase of speed and quality of weld.
- ✓ This significantly reduces the amount of heat input into the material; therefore distortion of the welded component is significantly reduced.
- ✓ We currently have approvals to ISO 15614-1 for Plasma & TopTig welding of 304L Stainless Steel & Plasma welding of S275 Carbon Steels.

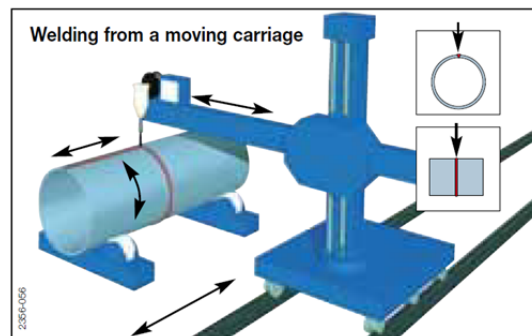
- ✓ We are currently working on new procedures to increase our approvals availability.
- ✓ This will cover Aluminium Alloys, Stainless & Carbon Steels, Nickel alloys etc. in numerous thickness and diameters.
- ✓ The manipulator can be placed in a number of orientations around the cell and is not restricted to a fixed position within the cell. This ultimately offers flexibility for welding of different sized and shaped products.
- ✓ A chuck can be fitted on the manipulator bed for holding small items.
- ✓ Welding torches can be quickly changed
- ✓ The torch can be rotated easily
- ✓ The manipulator has a 6,000kg capacity
- ✓ The manipulator has the capability to tilt approximately 120 degrees.
- ✓ The manipulator bed is 1.8M diameter.
- ✓ Flat beds can be set up by the track to allow restrain clamping of parts during welding giving an increased accuracy.

Configuration, Orientation and Welding Position:-

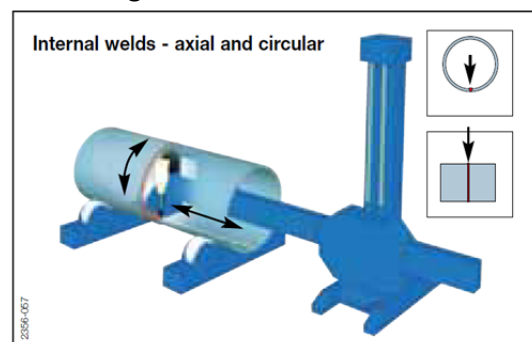
✓ Configuration 1



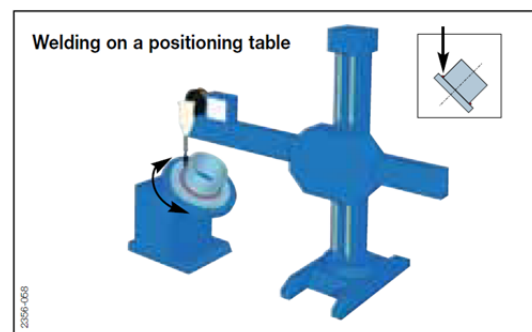
✓ Configuration 2



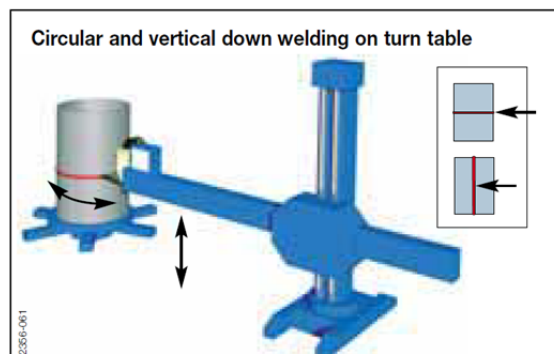
✓ Configuration 3



✓ Configuration 4



✓ Configuration 5



NIS Ltd – Manufacturing Capability

Cell Layout:-

- ✓ The welding equipment is installed on levelled rails allowing for 11,000mm of continuous welding along a single seam.
- ✓ The manipulator can be placed in a number of orientations around the cell and is not restricted to a fixed position within the cell. This ultimately offers flexibility for welding of different sized and shaped products.
- ✓ A large chuck can be mounted on the manipulator bed to allow for holding of cylindrical components.
- ✓ Welding torches can be quickly changed with the quick change system integrated into the equipment.
- ✓ The torch support rotation block allows the torch to be rotated easily between the different seams between the 1G, 2G and 3G positions.
- ✓ The manipulator is capable of loads of 6,000kg
- ✓ The manipulator has the capability to tilt approximately 120 degrees.
- ✓ The bed of the manipulator is 1,800mm diameter.



Commenting on the investment, NIS Group Managing Director Richard Penrose, said

“With our increasing workload and growing order book it’s imperative that we continue to enhance our capabilities and capacity to meet our clients, and our own, aspirations. This investment is the latest in a series of improvements to the NIS Group facilities which will continue with upgrades also underway at our sister companies, NSG Environmental and Hold Engineering Ltd”

