

Transducer Manufacture

This Weldlogic AWS-150 computer controlled system offers precision arc welding with advanced levels of weld process control and automation



Micro-arc TIG welding offers a cost-effective alternative to the beam welding processes

MANUFACTURING transducers for the instrument industry often calls for the production of leak tight and mechanically sound joints, typically between diaphragms and bodies and cases, or between connectors and housings. Welding processes, frequently considered to be the most suitable joining methods, must involve low heat input to avoid internal damage and distortion, yet still provide a strong, consistent weld. The process used has to be capable of joining very thin metal diaphragms to thicker components and to be capable of making welds that can withstand high pressures.

Traditionally, electron beam and laser welding have been chosen due to their ability to produce deep penetration, low heat input welds. The absence of a reliable

alternative welding method has caused industry to accept high capital investment costs, high and repetitive service costs,



and extremely tight manufacturing tolerances to accommodate these processes.

The Weldlogic micro-arc TIG process,

available through Huntingdon-based Weldlogic UK, now offers manufacturers a low-cost, high-quality alternative which not only performs transducer welds with the reliability and quality demanded by the industry but also offers other significant advantages.

The process uses a small transistorised power source which will plug into any single phase electrical socket and generate an arc between the workpiece and a tungsten welding electrode. The latter is surrounded by a shielding gas, usually

Single phase supply

argon. The total heat input is kept very low because of the tiny, narrow arc, typically only 0.020in diameter. With properly designed joints and tooling, the heat input is as low as and can be lower than electron beam or laser welding. A typical body weld might take 10 seconds, welding at 10A welding current and an arc voltage of approximately 9V. A diaphragm weld might be made at welding currents as low as 2 to 3A.

The heat is concentrated in short crisp square wave over-lapping pulses which allows the weld pool to solidify and cool before the next pulse has solidified. Excess heat is taken away by the tooling chills. Because the process takes place in room conditions, the part is cool enough to be ejected into the hand immediately after welding, thereby avoiding any possibility of damage occurring due to heat

Low capital cost

flow back when part removal has to be delayed.

Capital cost of a micro-arc welding system is about one-tenth of that of a typical beam welding system, and running costs are negligible. Furthermore, since many companies making instruments of this nature produce insufficient quantities to justify the purchase of their own welding systems, they have had to accept the difficulties and delays associated with transporting their components to sub-contractors. Now, the low cost of Weldlogic micro-arc welding systems makes purchase of their own equipment a cost-effective alternative.

WELDLOGIC UK ENQUIRY 316