

X-Ray



2009

Authored by: Nick Baker – Test Manager

AXIOM MANUFACTURING SERVICES LTD
TECHNOLOGY PARK
NEWBRIDGE
NP11 5AN

WWW.AXIOM-MS.COM

01495 242000

CASE STUDY: X-RAY - MEDICAL MARKET

BACKGROUND

Axioms customer is a leading keyhole surgery equipment developer and manufacturer. A local company setup in 1989, which has grown substantially and is now part of an international multi billion pound corporation.

Our customer had developed new instrument tips that were micro welded and needed to understand what combination of time and power gave the best weld joint.

Due to the small area and internal structure of the design, there was no normal optical means of inspecting for this criteria.

ISSUES

Within the medical sector quality and reliability are of utmost concern. Without the use of the X-Ray test to determine what gave the best and most consistent results via their processes, the client would not have been able to get the new products to market within their tight timescales.

WHAT WAS DONE

A sample of products were initially X-Rayed to find out if positioning and quantity of weld connections could be determined via the X-Ray system. This proved successful and showed a consistent image could be produced that could be utilised for quality control and ongoing analysis.

IMPLEMENTATION

During March '09 we inspected a larger quantity of product via a quick and repeatable process at a competitive price, which gave the customer the desired information and hence ability to confirm quality of the product.

ABOUT X-RAY

An X-Ray machine is one of a group of equipment that comes under the heading of 'Non Destructive Tests' or NDT's.

If you want to analyse potted compounds or see inside of metals you normally have to cut them into pieces, with X-Ray you do not need to do this 'destructive' process as it sees through the items, hence its' class of an NDT.

How it does this is amazing. Certain types of radiation such as X-Rays pass through different elements (metals, plastics, fabric etc) at different intensities therefore it passes through less dense items such as plastic easier and with less power than it needs to pass through copper or solder for example. So, when you view these on an X-Ray machine they appear as lighter or darker shapes.

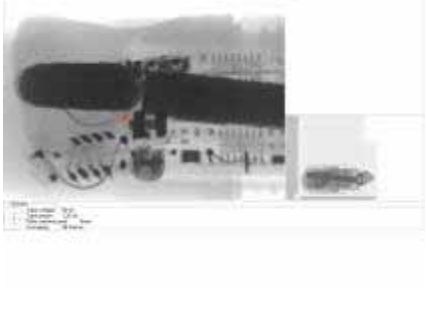
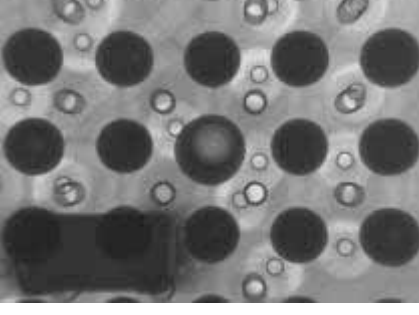
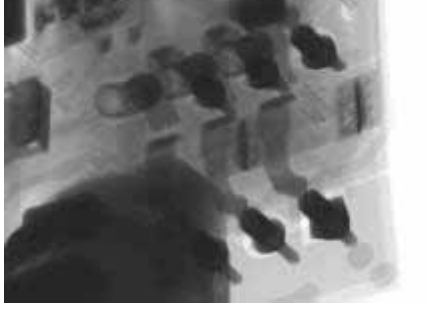
X-Ray machines are used for many different purposes, the one you might have seen in a hospital is different to an industrial machine such as the one we have, the DAGE VR7500.

The most obvious reason for using an X-Ray machine is to see things that are hidden from normal view, inside a potted assembly such as the Radiodetection Sonde or to see under a BGA or to check the fill of a through hole component is to IPC specification, are some of the main reasons why we use our machine.

Our X-Ray machine is quite simple to use, which is one of its' main benefits; you just put the item in, scan it and then navigate around to see the item(s) you are interested in. The worst part is trying to understand what the picture is telling you, but in most cases it is fairly obvious what you are seeing.

Our customers also use it for analysis during the design stage or for customer returns.

SOME EXAMPLES OF IMAGES TAKEN DURING X-RAY;

Broken Ferrite inside Sonde	Void inside BGA ball	Through hole components - solder fill check
		



ABOUT AXIOM MANUFACTURING SERVICES

Axiom Manufacturing Services focuses on providing **contract electronic manufacturing services (EMS)** to original equipment manufacturers (OEM's) who do not want to manufacture some or all of their products in house.

A complete range of **electronics manufacturing services** are available from design support, prototyping, new product introduction, PCB assembly, sub assembly, product assembly, test, warehousing and logistics through to aftermarket services which includes repair and rework.

Our focus is on working in partnership with our customers, **providing a total electronics manufacturing solution**. We work with you to help you to retain your competitive edge and profitability. Axiom delivers value throughout the supply chain, whilst helping to lower your total acquisition costs.

**AXIOM MANUFACTURING SERVICES LTD, TECHNOLOGY PARK, NEWBRIDGE, NP11 5AN.
01495 242000, 01495 242096. ENQUIRY@AXIOM-MS.COM**