Automation GT designs micro solution for the treatment of Prostate Cancer

Automation GT

California based Life Science specialist, Automation GT, has developed automated machines to assist the manufacturing of products to treat prostate cancer. The machines, operating at micro-level, were developed for a medical company that specializes in the manufacture of products for cancer treatment. Automation GT designed automated systems to inspect and measure radioactive seeds 500-600 microns in size and assemble them into strands that were implanted at the site of cancerous cells.

With recent developments within the Life Sciences, such as the design of swimming microrobots to carry drugs1, micro technology is becoming a requisite in order to revolutionize the way patients are medicated. For this particular client, Automation GT demonstrated a high degree of engineering precision to design two systems to safely handle the radioactive beads; the Bead Inspection Machine and the Strand Assembly System.

The Bead Inspection Machine sorts the beads into six categories, five measured into thresholds based on their diameter (from 500 to 520, 520 to 540, 540 to 560, 560 to 580, 580 to 600µm) and the final being Reject. A micro-needle, a long stainless steel tube of 0.032” OD and 2.75” long is used to pick up and place each bead using a vacuum. To prevent unwanted beads from sticking to the needle, a stripper plate with an opening large enough for the diameter of the needle is used. The medical company would take these organized beads, radiate them and then merge into a radioactive seed measuring in at 0.32” by 0.185”.

To reduce the risks of manual handling, the Strand Assembly System assembles the seeds, sandwiches them between spacers and loads them into a Teflon Tube. This is picked up by an arm and placed into a heating chamber where the seeds and spacers are fused together and cooled to form a complete strand. Each strand is based on a recipe from a doctor and is designed to a specification dependent upon the placement and size of cancerous cells within a patient. The patient is treated ‘on the go’ and will receive a higher dose of radiation to a smaller area than is possible with external radiation treatment.

With an ability to design at a small scale, Automation GT has contributed to the manufacture of implants to treat prostate cancer. As demand for micro technology increases within the Life Sciences, Automation GT is able to take increasingly complex problems and deliver precision engineering solutions to match.

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