

## The Challenge



Plasma processing is used extensively in medical device manufacturing. Applications include the modification of surfaces (to improve adhesion or reduce friction), sterilization and bio-compatible coatings for implants. Impedans have assisted several multinational medical device manufacturers to implement plasma measurement solutions to improve process performance and reduce product scrap. We have developed several applications to detect RF related issues, such as arcing and equipment malfunction, which lead to poor tool performance and reduction in product yield. The main applications can be summarised as follows:

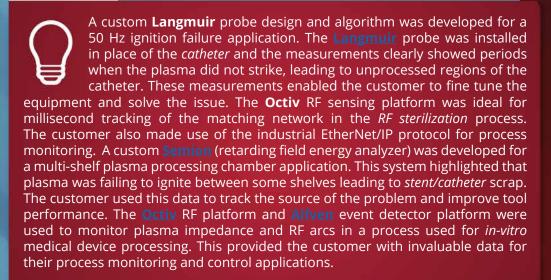
- Direct ion current measurement to detect plasma ignition failure at intervals through a 50 Hz power cycle, in processes used for catheter treatment
- RF matching unit tracking at millisecond report rates for sub-second RF **sterilization** processes
- Direct ion energy measurements on multiple shelves (simultaneously) in stent and catheter plasma processing chambers
- RF impedance monitoring and arc detection for process monitoring of plasma chambers used for treating various in-vitro medical devices.

## The Process



Impedans' development team works with the customer to find the optimum plasma sensing solution for their application. A custom sensing solution is developed. The sensor is manufactured and installed. Impedans' software team work in tandem with the company's IT team to identify the optimum solution for data management if necessary. Data is captured for a range of experimental conditions. Impedans plasma team collaborate with Impedans experts to analyse the data and identify fault signatures. Corrective action procedures are developed in collaboration with Impedans experts. The customer can avail of the Impedans Protect support packages to maintain the accuracy of the custom sensing platform long into the future.

## Our Solution



## Value Add

Medical device customers utilise the enormous pool of plasma and RF expertise built up by Impedans over many years to tackle their plasma processing issues. Sensing and data management systems are tailored to the needs of the medical device customer. In all cases

the return on investment far exceeded the cost of implementation. As medical device processing becomes more complex and production volumes are ramped up, smart sensing and data management capabilities are crucial requirements.

