



INDUSTRY: Automotive
 PROJECT: Plasma treatment
 CUSTOMER: Kostal

TF Automation were commissioned by Kostal to design and build two plasma treat machines to cope with an increase in demand for cleaning new automotive switch products.

Plasma pre-treatment is the key enabler technology for microfine cleaning, surface activation and plasma coating of nearly all kinds of materials. Conventional industrial pre-treatment methods are being replaced by plasma technology to make processes more effective and environmentally friendly.

THE CHALLENGE

Kostal required two plasma treat machines to clean the surfaces of a switch assembly. Under the touch sensitive switch or button there is a capacitive foil and to ensure good performance the bonding between the switch and foil is critical with no moisture or air bubbles. To prepare the switch for capacitive foil bonding, the plastic elements required to be plasma-cleaned to remove any moisture and impurities.

THE SOLUTION

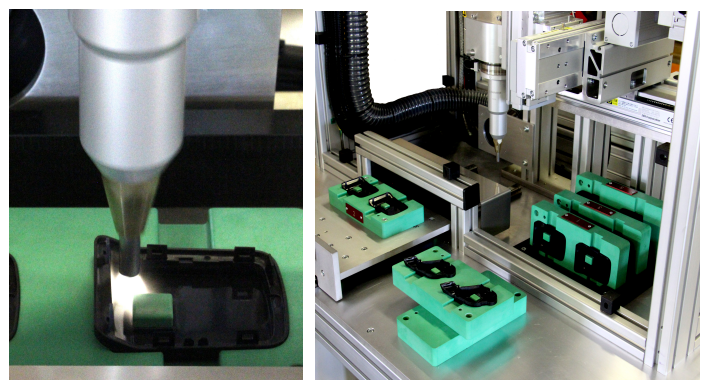
TF Automation designed and manufactured two Plasma Treat Machines to automatically clean and prepare the inner surfaces of the automotive switches. Both machines accept 6 variants; however, they are programmed to accommodate many more if required.

The operator places two component parts into nests on a sliding drawer which is then closed. The drawer is automatically locked which seals the plasma cleaning area and protects the operator. The plasma cleaning of both switches is carried out, allowing the operator to perform other tasks, as required. Once cleaning is complete, the operator then removes the switches and repeats the operation.

The change-over from one variant to another is simple with quick change nests selected from the menu on the HMI screen. The nests are fully poka-yoked sensed if variants are selected in error, the machine prompts the operator.

The plasma head is mounted on to a 3-axis servo cartesian gantry and when the operator chooses a variant on the HMI, the correct plasma path is automatically selected.

The plasma jet is guided with a defined speed and distance over the surface of the component prior to bonding. As the jet rotates, the plasma provides uniform treatment over a wider area than a non-rotational jet. The treatment is made by a potential-free plasma flume that exits the nozzle at an angle.



GET IN TOUCH

TF Automation is a team of dedicated designers and engineers working with manufacturers across a wide range of industries on process automation projects. With over 40 years' experience, we have the ability to assess and understand the needs and requirements of each individual project and customer ensuring the optimum solution.

For more information on this and other projects, please contact us

01274 308005 | info@tfautomation.co.uk | www.tfautomation.co.uk

INDUSTRY SECTORS

