PRECISION CONTROL OF NITROGEN INCREASES WAVE SOLDERING PRODUCTIVITY AND CUTS COSTS

Installing automatic control of the nitrogen atmosphere in its wave soldering plant has allowed Axis Electronics to increase productivity of assembled printed circuit boards (pcb's) and reduce gas costs in its wave soldering equipment.

The Systech NitroSave 9500 system monitors the oxygen content of the inert atmosphere in the preheat tunnel and the solder wave areas of the machine and automatically adjusts nitrogen flow to maintain the oxygen content at less than 200 ppm. The low oxygen content of the atmosphere minimises oxidation of pcb's in the pre-heat tunnel and reduces dross production in the solder pot.

The NitroSave 9500 continuously monitors the oxygen content of the atmosphere inside the machine using Systech's specialised cell technology and applies fuzzy logic to the measurement to control the flow of nitrogen into the machine. Although 200 ppm is the normal critical level of oxygen contamination, the more demanding level of less than 100 ppm, set by Axis, has been consistently achieved whilst the nitrogen consumption has fallen by 20%.

According to Dave Easton, Axis Electronics' Senior Process Engineer, significant, additional cost savings have come from the dramatic reduction in dross production in the solder pot. This has allowed the period between dross removal to be extended to three months, with a corresponding increase in plant availability. Because Axis Electronics specialises in the production of high specification boards, run size can vary considerably from day to day and the reliable nitrogen control keeps the system more tolerant by maintaining low dross level at all times. With on time delivery at better than 98% and first time customer acceptance at better than 99%, plant availability and reliability are both very important to Axis.

The Systech NitroSave 950 system is used in many applications where the oxygen contamination of an inert atmosphere must be maintained at a specified level. By continuously monitoring the oxygen content of the atmosphere, the system automatically injects just the amount of nitrogen required to stay within specification. Compared to fixed flow systems, NitroSave 9500 minimises nitrogen consumption whilst ensuring that the oxygen content of the atmosphere stays within the desired range.

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