

SUCCESS STORY 53

VAPOR PHASE SOLDERING



Q

How can the temperature profile of the vapor phase soldering process be easily measured?

A

Situation and background

When soldering high value products that contain components of differing thermal mass, the solder profile is critical. Vapor phase soldering can be used to ensure that no components are overheated as they are processed. It is used most extensively in the manufacture of electronic assemblies for use in aerospace and medical equipment. The process is conducted in a sealed chamber and is therefore, very difficult to measure using trailing thermocouples. Datapaq® has worked with a tier 1 supplier to the automotive electronics industry to develop the TB0071 for use in this application where small size is critical.

The winning solution

- The difficult process of profiling using trailing thermocouples is eliminated, ensuring that profiling is now conducted safely, quickly and easily.
- Datapaq products are used to monitor all of the soldering processes in the manufacturing facility, reducing training costs to a minimum.
- The time to set up the process at each new product or profile introduction is reduced, thus maximizing line utilization rates.
- The small size and superior insulation of the system enables it to pass through the pre-heat and vapor soldering processes, thus monitoring the entire thermal cycle.

Savings made

This process has regained some of its previous popularity, as these high-end industries convert to the use of lead free solders. With high value solders and small batch sizes, any product losses due to poor thermal profiling is costly. Setting up the process quickly and accurately with a Datapaq system will save thousands of dollars from lost production time and ensure minimal reject levels.

KEY FACTS

Customer's End Product

High value, low volume electronic assemblies - typically aerospace, military or medical

Max temperature reached

240°C/464°F

Duration of Process

6 minutes

Thermocouples

PTFE or fiber exposed junction.

PRODUCT AND BENEFITS

TB0071 combined with DQ1862 datalogger and Insight software

- Reduced setup time
- Enabled the end-user to compare performance of different machines and ensure all are optimized
- One profiling system used to monitor all soldering processes in the facility