

CASE STUDY

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MOVINCOOL SPOT-COOLING UNIT SAVES AUTECS TIME, MONEY AND MANPOWER

CHALLENGE:

How do you go from 121 degrees to 75 degrees in less than two minutes? As the Manufacturing Engineer of Airflow Components for AUTECS (Automotive Electronic Control Systems Inc.), that's what Eric Garvin wanted to know.

SOLUTION:

By using a MovinCool spot-cooling unit on an AUTECS production line, cool-down time of the company's HFM5 automotive airflow sensors was cut from 30 minutes to 96 seconds – a staggering **94.7% reduction** in cool-down time. Not only did this significantly speed up production, the wave soldering process no longer had to be interrupted to offload the sensors for cooling, which resulted in lower scrap due to handling damage. For AUTECS, the MovinCool spot-cooling unit translates into major savings in production time, handling damage and manpower.

BACKGROUND:

Located in Anderson, South Carolina, AUTECS is a joint venture of Robert Bosch Corp. -- one of the top automotive component manufacturers in the world -- and Unisia Jecs, Japan. As a senior engineer, Garvin wanted to speed up production of the company's HFM5 airflow sensors, used to measure the amount of air going to an engine's combustion chamber for the purpose of maximizing fuel efficiency. Production of the sensors involves three stages: 1) Electronic Module Assembly 2) Plug-in Sensor Assembly and 3) Programming. The challenge comes at the end of stage two when the plug-in sensor's silicone encapsulation is cured in an oven. The plug-in sensor exits the oven at 121 degrees and must be cooled to room temperature before programming can begin.

Initially, Garvin managed the cooling process by offloading the parts after the second stage and allowing them to cool naturally. After the parts cooled for 30 minutes, they were loaded onto the third stage to complete the assembly process.

Garvin worked with his local MovinCool distributor to test out a portable spot-cooling unit, the Classic Plus 26 -- a two-ton model which provides up to 26,000 BTU/h, features digital temperature control and costs as little as ten cents per hour to run. The unit requires no costly installation and can simply be rolled in, plugged in and turned on.

The Classic Plus 26 was leased to AUTECS for customized trials. For optimum efficiency, Garvin built a duct system using a lexan tunnel above the conveyer belt to maximize the cold airflow over the plug-in sensors. By the time the plug-in sensors traveled to stage three, 15-20 seconds after the spot-cooling process, they were below room temperature and ready for programming.

INDUSTRY NEEDS:

Heat is a problem on many production lines though the scenarios are as varied as the processes themselves. Molding. Welding. Casting. Coating. They all create their own heat-related challenges, and MovinCool hears about all of them. “Each industry is unique and every call is different,” explains John Doran, Manager of DENSO’s® MovinCool Department, whose staff often speaks directly with plant managers and engineers looking for a solution. “The challenges of one plant or industry may not seem relevant to another, but when you explain the various ways spot-cooling units are used, an engineer can see the connection and set up a similar method of testing.”

One large packaging company, for instance, uses MovinCool portable air conditioning units to cool the pre-applied hotmelt – which is used on cardboard ice cream packaging to glue the ends together – before the packages can be stacked and sent to customers. This cooling process enabled the plant manager to cut production time considerably.

Because the needs vary significantly from plant to plant, testing is critical. Therefore, MovinCool allows companies to rent the spot-cooling units for customized trials as in the case with AUTECS. “A spot-cooling solution can not be calculated with a pencil. The engineer needs to test and modify the system to address their specific challenges,” says Doran. To facilitate the process, most MovinCool distributors offer free demonstrations and apply rental charges to the unit’s purchase price, making the testing process a relatively risk-free option for plants in need of a solution.

The idea of portable cooling systems was pioneered by DENSO®, MovinCool’s parent company, to meet the company’s own automotive factory needs in Japan. Since then, MovinCool has designed new models to address the needs of offices and computer rooms, which often require supplemental cooling support that permanent air-conditioning systems cannot provide. “Today’s offices often need portable air conditioners to keep expensive computer equipment running smoothly or to keep the overall temperature comfortable for personnel. But the true “spot cooling” needs of the industrial environment are what MovinCool units were made for,” adds Doran.

“The amount of benefit spot-cooling can offer a plant will vary from company to company,” notes Doran. “But whether cool-down time is reduced by 10% or 90% that can add up to significant savings in time and money.”

MovinCool is located at 3900 Via Oro Avenue in Long Beach, California, 800-264-9573. You can also visit their web site at www.movincool.com. Suggested list price for the Classic Plus 26 is \$3,995.

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