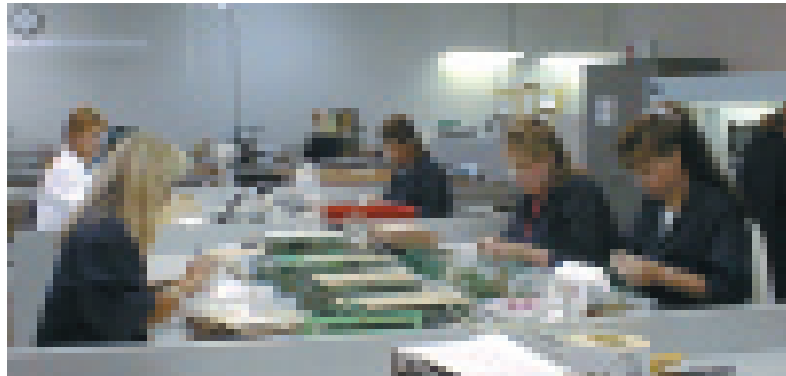


MEMTRON TECHNOLOGIES, INC.

Memtron Technologies, located in Frankenmuth, Michigan, designs and manufactures custom membrane switches and graphic overlays for data entry applications. Founded in 1984, Memtron quickly became a dominant player in the emerging membrane switch marketplace. Their target markets include industrial computers, food service equipment, and electronic medical equipment. In 1991, the company encountered a growth-related financial crisis. It underwent major restructuring when purchased by Don Golding in 1992. Through a lot of hard work on the part of the entire company, they achieved profitability in 1992 and for every year since. In fact, Memtron has set consecutive earnings records in 1995 through 1997.

Memtron attributes their strong growth to their concentration on the industrial marketplace for membrane switches and graphic overlays, and to a focus of providing "remarkable service." For example, although the industry average for lead-time is six weeks, Memtron's is two weeks. These changes were underscored when the company received Emerson Electric's Distinguished Supplier Award. Emerson Electric, which is number 120 on the Fortune 500 list, honored just twelve of more than 5000 suppliers worldwide.

As part of their strategic plan, management made a business decision to find new markets and products. With this in mind, Memtron Technologies hired Eric Miles as Director of New Business Development. "One of the first things I did on joining Memtron was to attend some networking sessions sponsored by the Center for Manufacturing Improvement (CMI) at Saginaw Valley State University. I wanted to learn more about the local business community," said Eric. At one event, Dick Kreuger, Director of CMI, described a User Group he was starting for implementing lean manufacturing. Eric thought it would be great to start producing new products using lean manufacturing principles right from the start. The User Group concept was new to Eric,



so he contacted Dick to find out the details. Eric liked what he heard, and made a proposal to his Memtron management peers. They fully supported the concept and the "Lean Team" was off and running.

Memtron Technologies joined the lean manufacturing User Group in October 1997. Eric notes, "We knew that lean manufacturing would require some changes in the way we did things, particularly lowering the size of production batches and shifting the responsibility of quality to the production worker. We also recognized that employee buy-in was necessary or the project wasn't going to succeed." Company management played a key role in getting employee buy-in by empowering people, and by encouraging them to think of "lean" as an experiment and to be open-minded.

During the first 4 of the 20 User Group sessions, Memtron's management defined what lean manufacturing meant for them and set project goals for shortening lead times, improving quality (as measured in returns), and reducing their work-in-process inventory. In the next 8 sessions they focused on understanding lean manufacturing principles and formulating implementation plans. During this phase as many as 12 Memtron employees from 7 departments were involved in the project. "It works!" says New Business Development Director Eric Miles. "We're sold on lean manufacturing, and we've overcome our biggest obstacle, the skepticism of our employees—they see

the results of the changes we made together." When asked about the benefits of participating in the User Group, Eric replied, "The User Group allowed us to work at just the right pace. By meeting every other week, we were able to stay really focused, and to see results as we progressed. We're now ready to tackle even bigger projects."

SUMMARY OF RESULTS

- Work-in-process (WIP) inventories have been virtually eliminated on two lines
- Cost savings was generated by producing no excess inventory and by saving time to track WIP.
- In the die-cutting process set-up times have gone from 13 minutes to 5 minutes, a 62% reduction.
- Defects are located and corrected much earlier in the production cycle, quality is built into the process, and no final inspection is required.
- On one job that had 5-12 returns per week, returns have been virtually eliminated, for an estimated annual savings of \$8000.
- Implementation of a U-shaped layout on a line significantly reduced wait times and distance traveled improving the total processing time by 83%, from 11 ¾ to 2 hours.

