

Looking Forward - Manufacturing Execution Systems for SME's **By Pete Doyon, VP Product Management, Schleuniger, Inc.**

A Manufacturing Execution System (MES) is a software program that manages and monitors production work in a factory. The MES controls and monitors all manufacturing data in real time, so there is no guesswork as to the status of any given job, machine, operator, etc. The focus is on short-interval scheduling (shift or day) with an emphasis on optimizing the distribution of work orders. Larger manufacturers have employed MES's for years but many small to medium sized enterprises (SME's) have yet to adopt such systems. The benefits of using an MES are many. Looking forward, I predict that even the smallest manufacturing companies will employ MES systems in the future.

An MES is integrated into a manufacturing operation by networking all of the production and quality equipment. It is programmed to know what type of jobs can run on which machines and it allocates jobs based on those capabilities. Jobs are sent to the machines electronically, thereby eliminating operator keystroke errors. The MES groups similar jobs together and optimizes the work by reducing the frequency of machine changeovers. If a production machine breaks down, the MES can reallocate jobs to the remaining machines. The MES optimizes work based on the due date and time to complete the individual work steps and finished assembly.

Even though the MES makes it possible to go "paperless", a paper work order is often used to make it easy to identify work-in-process as it moves through the manufacturing process. Barcode scanners are used to scan the work order at the beginning and end of a job. This makes it possible to know exactly how long each job took and the percentage of completion can be displayed in real time.

The MES can be programmed to ensure that any required quality tests are performed. If the quality test(s) is not performed, the MES will not allow the operator to go to the next production step. The MES can also require the operator to scan the barcode on the raw materials and tooling to make sure everything is correct before a production run. All data is stored with each job, making traceability extremely simple.

The MES can monitor the performance of the entire manufacturing operation by calculating the Overall Equipment Effectiveness (OEE). OEE is a key performance indicator based on a calculation which takes availability, performance and quality into consideration. Being able to easily monitor the OEE makes it easier to drill down and target where improvements can be made. As the cost of technology continues to drop, even small to medium sized companies can realize immediate savings and a quick return on investment by implementing a Manufacturing Execution System.