

MAKING CHIPS TO MAKE MONEY

Conventional wisdom in metalworking says you are making money only when you are making chips, and, when you are not making chips you are not making money. Manufacturing Event Monitoring (MEM) gives you detailed real-time and historical knowledge of what is happening on the shop floor. That knowledge – when you are making chips, when you are not, and why – gives you the ability to optimize your processes so that you can make more chips and more money.

ACCURATE DATA, THE FOUNDATION OF SUCCESS

Charts, graphs and summary reports are, of course, an important part of Manufacturing Event Monitoring, but if the data behind these presentations is inaccurate or unreliable then even the most sophisticated presentations are of little value. The accuracy and reliability of data gathered from machine tools varies widely, depending on the equipment and methods of collection used.

MANAGEMENT FOR CONTROL AND REPORTING

Manufacturing Event Monitoring

Machine Utilization Reports

Production Efficiency Reports

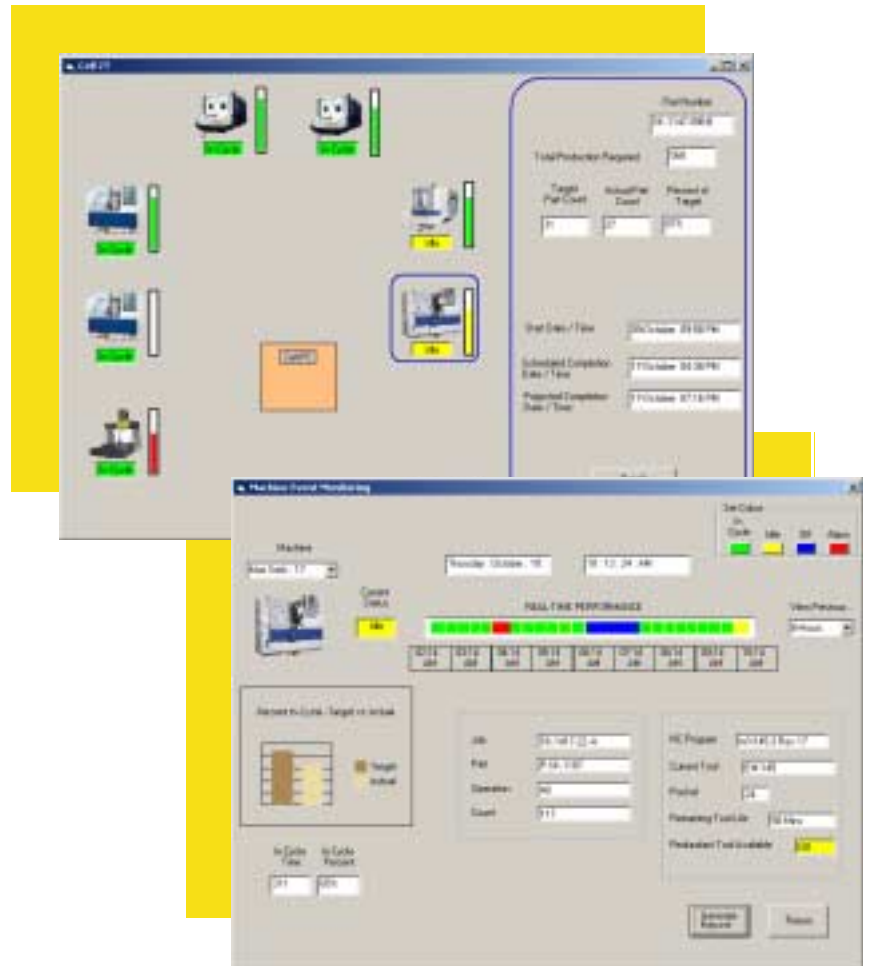
Operator Activity Reports

Maintenance Reporting

Flexible Data Collection Designs

Maintenance Reporting

Available Integration with Existing MRP, MES, or Job Systems



CNC Engineering's deep expertise in both CNC controls and state-of-the-art electronics provides assurance that the data obtained from your machine tools is accurate and meaningful. This is supported by our team of engineers who constantly evaluate the latest technologies available in data gathering tools.

SOLUTIONS TO MEET YOUR OBJECTIVES

When you begin discussions with CNC Engineering about Manufacturing Event Monitoring we won't try to dazzle you with chart and report glitz. Instead, we will start by evaluating your manufacturing objectives. From those discussions we will develop a cost-effective plan that utilizes industry best practices to gather and analyze the data you need to meet your objectives.



OPERATOR STATUS TRACKING

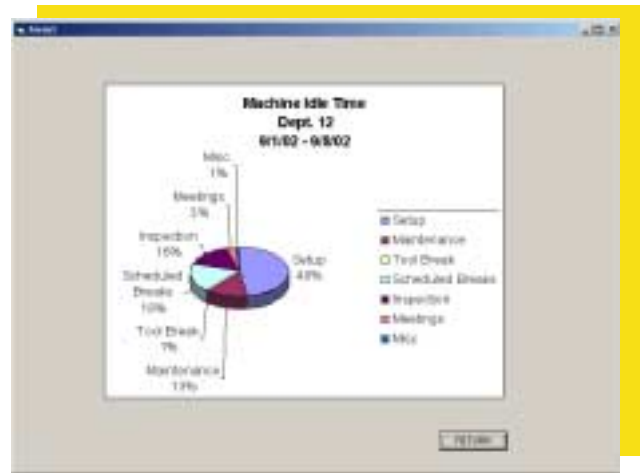
Machine Events let you know when the machine is running, cutting, etc., but, this data becomes even more relevant when combined with information about operator activities. For example, if the machine is ready for the next part but the operator isn't there to load it, how should that idle time be reported? CNC Engineering offers a variety of methods for tracking operator status such as "At Lunch", "Waiting for Tools" or "In Setup". Operator Status Tracking input options range from shop-floor barcode systems to industrial keypads or full PC solutions.

INTEGRATION WITH EXISTING SYSTEMS

To achieve desired manufacturing objectives it is often necessary to incorporate data from MRP, MES, Cell Controls, or similar manufacturing systems. CNC Engineering's software engineers are highly skilled at working with third-party systems and personnel to build creative and cost-effective links.

CHARTS AND REPORTS TO FIT YOUR NEEDS

Once you have decided on the data that is important to your operations and are ready for implementation, CNC Engineering will work with you to configure your system. Through the use of our pre-defined charts and reports, or the



development of custom charts and reports we can enable you to meet your unique needs. And, since our database is ODBC compliant, you may write your own routines to query and analyze the data.

A table titled "Machine Use By Department" for the Milling Department (8/1/02 - 8/3/02). The table has five columns: Machine ID, Cycle Time, Setup Time, Idle Time, Total, and Cycle Percent. The data is summarized for four machines and a total row.

Machine	Cycle Time	Setup Time	Idle Time	Total	Cycle Percent
Machine 01	443.0	21.3	82.0	546.3	81.1
Machine 02	387.0	88.0	82.0	557.0	69.3
Machine 03	311.0	74.0	388.0	773.0	40.1
Machine 04	482.0	9.0	82.0	573.0	84.0
TOTAL	1593.0	192.3	496.0	2281.3	

SINGLE SOURCE SOLUTION

CNC Engineering develops all of its MEM and other software components internally. This gives CNC Engineering unsurpassed knowledge to respond to and support our customer's unique needs. We have the capability to work with any third-party hardware and software providers as needed in order to implement a turn-key solution.