



Endres Machining  
**INNOVATIONS**

1402 E. Sharon Ave., Suite 1001  
Houghton, Michigan 49931  
phone: 906.487.9EMI  
toll free: 877.487.9EMI  
www.endresmachining.com

## Machinability Testing Services

### Details

An EMI machinability testing project can be configured to specifically meet your needs and certainty requirements. Upon completion of the project, an electronic report is provided in PDF format. The report includes a summary of the results, including Taylor tool-life parameters that quantify the effect of cutting speed on tool life — time and volume removed upon reaching 300  $\mu\text{m}$  of flank wear. If desired, the Taylor model can include effects of feed rate and/or depth of cut. Testing can be performed dry, with general-purpose coolant, or with customer-specified coolant. Force measurements can also be recorded to quantify how forces evolve with tool wear.

#### ***Test Specifics***

Each test (speed-feed-depth combination) is complete once 300  $\mu\text{m}$  of flank wear is reached. EMI's proprietary system allows many measurements to be made in a cost effective manner — on average, approximately 30 measurements of flank wear (and forces as applicable) are made for each test. Speeds are chosen such that the longest (lowest speed) test lasts about 45 minutes and the shortest (highest speed) test lasts no less than five minutes.

#### ***Pricing***

The base price is set for testing at one feed rate and depth of cut. If effects of feed rate and/or depth of cut are desired the total price is the base price scaled by the number of feed-depth combinations. The base price depends on the number of cutting speeds and test replications chosen. We recommend a minimum of three cutting speeds to obtain a good estimate of the effect of speed on tool life. We also recommend a minimum of three replications of each test to provide a sense of variability. Increasing speed levels and replications provide improved understanding of certainty in the data and speed effects. Please contact EMI to discuss your needs and to obtain a quote.

#### ***Materials and Supplies***

Inserts, work material and any special tool holder are provided by the customer. When using customer-specified coolant, the coolant is provided by the customer and a surcharge is applied for coolant system drain-fill-drain.