

# What's New in Manufacturing? - Dynamic Quality!

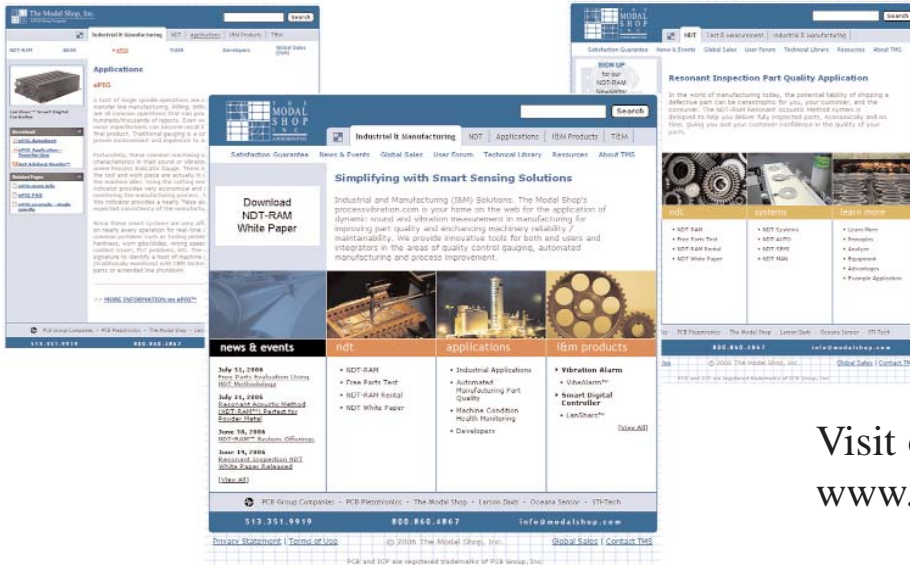
Today's competitive manufacturing environment is driving both technology and efficiency gains at even the smallest operations. The use of dynamic measurements are delivering immediate gains in manufacturing efficiency and part quality. The Modal Shop has pioneered smart sensors and smart digital controllers that are economical, process automation friendly and easy to deploy. Part and process generated sound and vibration are now high return measurands on the plant floor generating reliable and cost effective indicators of part quality, process integrity AND machine health. Expense level investments in smart sensing are providing capital level returns in improved quality and manufacturing efficiency. In today's economy can you afford not to learn more?



## Smart Digital Controllers save \$\$\$ in both product quality and process efficiency.

- An automotive manufacturer ensures quality and saves millions of dollars in reduced scrap, improved tool life and reduced down time with just the first 16 TMS LanSharc units installed.
- Various steel manufacturers avoid unplanned downtime with the LanSharc by monitoring the rolling process. Quality is also enhanced by monitoring for chatter during the grinding of rolls.
- An aircraft company monitors vibration and related health of critical fans and bearings with closed-looped connection into the process to avoid unplanned down time and ensure product quality.
- An HVAC manufacturer uses band-filtered vibration energy to check quality in end-of-line testing of chillers and reduces customer warranty claims.
- A powder metal part manufacturer ensures part quality with automated 100% inspection of parts via their resonant acoustic signature with TMS NDT-RAM. Cracks, voids and density shifts are found online.
- An aircraft research facility replaced an older, more expensive monitoring system on a limited budget and now monitors more points to assess the vibration health of their high speed air handling equipment.
- A university laboratory protects their engine dynamometers and students by monitoring engine vibration and providing automated shutdown if critical vibration level is exceeded.
- An automotive component manufacturer uses band-filtered vibration energy as a quality indicator in end-of-line testing for engine balance.

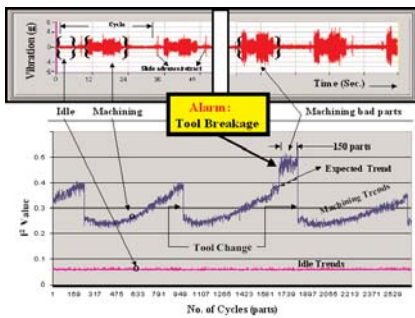




Visit our website,  
[www.processvibration.com](http://www.processvibration.com)

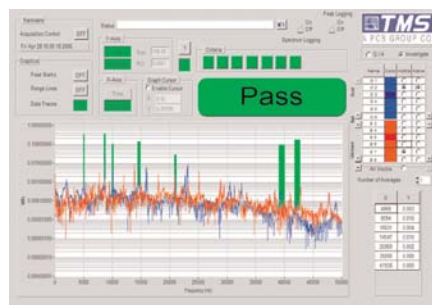
Leading manufacturers are already saving millions of dollars and increasing their product quality by adding TMS LanSharc based smart systems to their manufacturing processes. The [processvibration.com](http://www.processvibration.com) website provides an overview to the growing range of application software, hardware and connectivity solutions to ensure your dynamic quality. The descriptions below provide a sample of the most popular applications for the LanSharc Smart Digital Controller. Call one of our experienced application engineers at (800) 860-4867 to discuss your opportunity today.

### Ideal for Transfer Line Machining



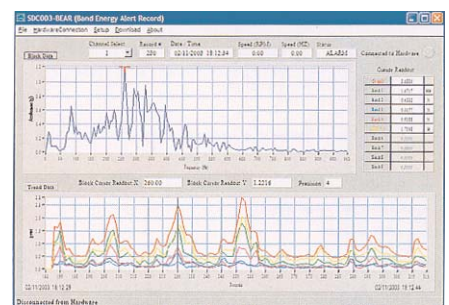
**ePIG™** is an affordable, smart system for continuous online machined part quality and machine health monitoring. The system utilizes innovative signal-processing algorithms designed to alarm on common machining faults like broken tooling or loose clamping, as well as machine health, like worn spindles, slides or gibbs. The algorithms are based on adaptive processing techniques wherein the low cost hardware automatically learns the base signature during the machining process and monitors statistical data on a normalized basis. Trending this data clearly indicates any significant change in the manufacturing process, providing tighter control of manufacturing consistency and quality. *Save 100's of thousands of dollars in reduced scrap, quality related rework and machine downtime.*

### Fast Part Inspection for Cracks



**NDT-RAM™** - With decades of testing and modeling the behavior of structures, The Modal Shop has developed an ideal technique for 100% quality assurance testing of powder metal parts and castings in the production environment. The NDT-RAM inspection system uses an instrumented impact hammer and a microphone to evaluate part quality via the acoustic signature of components in a quick, efficient and cost-effective manner. With no part preparation required, this technique can successfully identify internal and external flaws due to dimensions, cracks, porosity, material density, bonding and manufacturing processes. *100% automated quality inspection of your parts ensures customer satisfaction and avoids costly part recalls and additional containment costs.*

### Simple Machine Health Monitor



**BEAR™** - For basic rotating machinery, much can be understood about the condition health from a simple vibration signature. Well known references have been published on machine vibration severity, as well as other operational standards. A basic single frequency band vibration monitor can be an extremely inexpensive and effective condition health watch-dog. For more complex types of machinery, multiple frequency band energy monitoring can help identify specific condition faults or degradation. For example; on a rolling mill separate bands can be selected which monitor previously identified problem frequencies such as drive, speed, gear box, backup roll, work roll, and octave chatter frequencies. *Monitor all your critical processes full time at an extremely affordable price.*