

NDT-RAM™ External Setup Program Option

Adjust part inspection criteria based on process input

NDT-ESP

NDT-RAM (Resonant Acoustic Method) systems are ideal for manufacturers or users of powder metal parts, castings (including ductile iron), ceramics, composites or stampings that have substantial inspection costs (either material or labor costs), require 100% inspection, produce or use safety-critical parts, have substantial scrap costs due to false rejects, or simply want to improve their part quality.

Based on the ASTM E2001 standard for Resonant Ultrasonic Spectroscopy, or Resonant Inspection, NDT-RAM requires no part preparation and successfully identifies resonant frequency shifts resulting from internal or external flaws due to cracks, voids, material density, dimensions, porosity and nodularity as well as missed manufacturing processes.



NDT-ESP (External Setup Program) allows for automated external setup and template switching. NDT-ESP allows users to change NDT-RAM setups from such sources as a PC, PLC, or robotic arm without human input allowing for rapid switching between setup files and data is automatically sent to the appropriate file.

NDT-ESP is ideal for customers that test multiple parts on the same system, have multiple production lines married into one inspection system or have fully automated production lines and require switching NDT-RAM setups automatically based on a production trigger.

TYPICAL USES:

- Process compensated resonant inspection
- Weight compensation
- Lot to lot variation correction
- Part number changeovers
- Part temperature fluctuations

SUCCESSFUL APPLICATIONS:

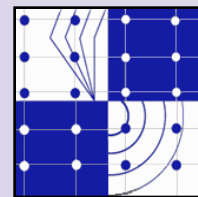
- Powder Metal
- Ductile Iron
- Iron Castings
- Metal Stampings
- Aluminum Foundry
- Forgings
- Ceramics
- Composites

BENEFITS:

- Based on ASTM E2001 standard
- 100% inspection - ensures the confidence that every part is objectively tested
- No part preparation required for inspection
- High throughput - as fast as a part per second
- Simple to learn and use application software
- Reduces scrap costs associated with false rejects
- Greatly lowers operating expenses by eliminating consumables
- Industrial package - NEMA4 enclosure allows factory floor operation.
- Versatility - same system can test many different parts
- Eliminates quality recall/containment costs
- Financially justified - ROI analysis available

CALL FOR FREE PARTS EVALUATION AND TEST REPORT

“Simplifying with Smart Sensing Solutions”



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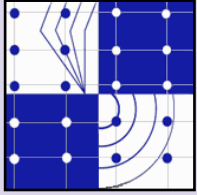
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NDT-ESP



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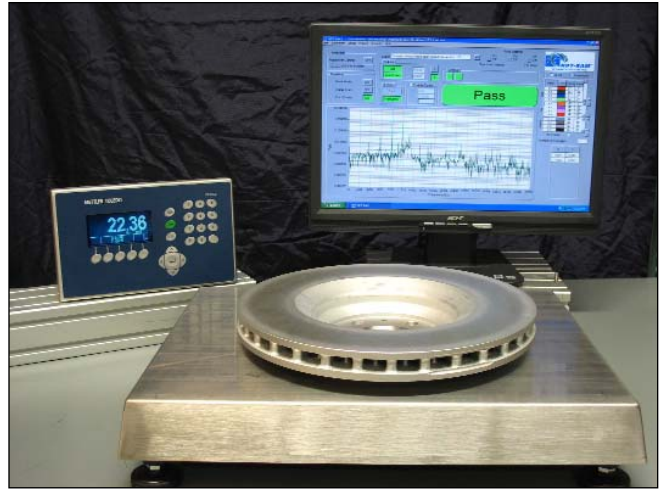
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The NDT-ESP-WC (Weight Compensation) option allows for automated testing criteria modification based on variances in part weight. NDT-ESP-WC automatically modifies NDT-RAM setups based on a part's weight communicated from an attached scale.

Weight Compensation saves users time by automatically modifying templates based on a part's weight and allows the software to identify smaller resonant frequency shifts in a part since variances in weight can be compensated for part to part.

Some variation in weight from part to part is inevitable in regular manufacturing processes. Since mass affects global resonant frequencies and NDT-RAM tests the whole part, weight compensation can be used to adjust a part template in real time leaving NDT-RAM to run uninterrupted in fully automated production lines while maintaining 100% inspection with more precise criteria to test against. It is ideal for customers who test parts that vary in weight across lots or molds or even part to part and require modifying NDT-RAM setups automatically based on a production trigger.



Schematic of NDT-RAM System with NDT-ESP option

PROCESS INPUT VARIABLE



Manufacturing process variables such as weight, temperature, part number, lot number, bar code, mold cavity, etc. can be transmitted automatically through the NDT-RAM software to adjust testing criteria on the fly.

IMPACT THE PART



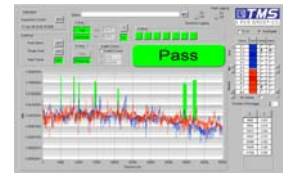
MEASURE THE RESPONSE



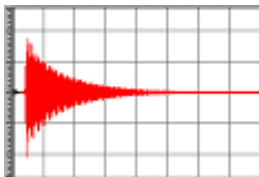
PROCESS THE DATA



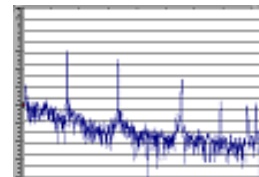
QUANTIFY THE RESULTS



An industrial instrumented impact hammer taps each part with a measured and repeatable force.



The impact causes the part to "ring" - audible and inaudible sound is measured by the microphone.



The Smart Digital Controller performs a Fast Fourier Transform (FFT) on the measured data.

Pass

Fail

NDT-RAM software compares the results to acceptable limits and accepts or rejects the part accordingly.