



# Part Quality Inspection Application: Automated Resonant Inspection System Drop Test Fixture

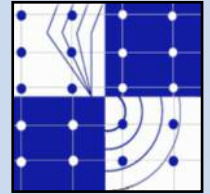
NDT-DTF

Drop Test  
Fixture

The Drop Test Fixture, Model NDT-DTF Resonant Inspection System, is an ideal choice for testing small powdered metal (PM) or other metal parts. The innovative Drop Test Fixture makes automation for 100% quality testing easy and efficient. With cycle times approximately 3 seconds per part, typical\*, the NDT-DTF provides a means for objective sorting, requiring no human interpretation. A simple pass/fail result is returned by the NDT-RAM system and parts are automatically sorted via a servo-controlled motor.

The NDT-DTF automates easily with typical small part automation components like bowl feeders or vibratory tables and is instrumented with a laboratory grade force sensor, microphone and digital signal analyzer all designed to withstand a tough manufacturing environment. An industrial PC, mounted on a convenient swivel arm, provides software interface control.

This easy-to-use NDT system quickly becomes a critical quality assurance tool in your inspection process. The NDT-DTF can detect imperfections or flaws such as variations in overall geometry, cracks, and missing features. It can also detect if processes have been missed, such as machining or heat treating operations.



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## TYPICAL USES

- Production - End-of-Line Inspection
- Production - Process Monitor
- Quarantines - Troubleshooting
- Quality Control - Spot Checking
- Engineering - New Product Development

## SUCCESSFUL APPLICATIONS

- Powdered Metal
- Brazing
- Small Metal Parts

## BENEFITS

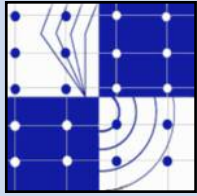
- Speed: Approximately 3 seconds per part, typical\*
- Versatility: Tests many different parts on a single system
- Ease of use: No part preparation or elaborate fixturing
- Easy-to-learn and use application software
- No human interpretation needed
- Generates production reports for statistical analysis
- Industrial design for reliable factory operation
- Provides three access levels of security
- Ensures the confidence of knowing that every part is 100% QA tested
- Light tower for visual pass/fail indication
- Effective for parts up to 4 inches (10.16 cm) and approximately 0.45 pound (200 g)

Helping you test,  
model, and modify  
the behavior of  
structures and processes.

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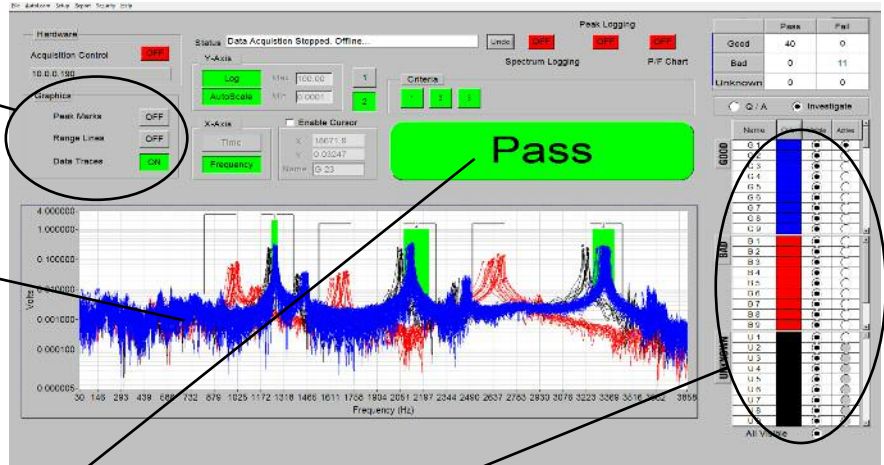
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## NDT-DTF Software Graphical User Interface

NDT-RAM Software Showing Resonant Frequencies and Sorting Results

Easy visual data evaluation

Color coded spectra show good and bad parts against acceptable criteria ranges



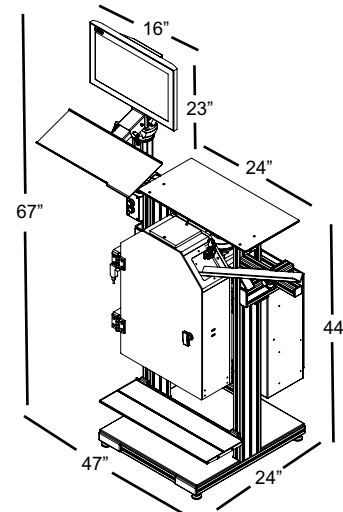
Clear indication of pass/fail

Investigate Mode supports up to 1500 part spectra, labeled good, bad or unknown

NDT-RAM application software compares each part's resonant signature against reference criteria limits and accepts or rejects the part accordingly. The system report generation feature allows for full part signature archival and statistical analysis of your parts and manufacturing processes.

The NDT-RAM Drop Test Fixture is automated, requiring no user intervention during testing, for efficient and cost effective 100% part testing. Integrating an industrial PC, free standing Drop Test Fixture, 2-channel smart digital controller, force sensor and microphone, this turnkey system is designed to withstand continuous operation in plant floor environments.

A light tower status indicator provides prominent visual display of passed or failed parts, indicating a system fault or providing warning that a preset number of parts have failed consecutively. Also, the NDT-DTF system can be integrated with automatic part feed mechanisms in the existing production line to support fully automated part handling and sort.



### Part Throughput

Drop test rate control

Cycle time (typical)

Approximately 3 seconds per part, typical\*

Maximum part size

4 inches (10.16 cm), < 200 g

### Pass/Fail Mechanism

User defined criteria ranges

Up to 20 frequency bands

Rejection/Approval mechanics

Servo-Controlled motor

### Acoustic Measurement

Response sensing

Prepolarized microphone - PCB 130 series

Frequency range

Up to 50 kHz

### System Control

PLC Servo controller

16 inputs/16 outputs modular expandable

Computer

Industrial PC

\*Part throughput rate dependent upon part size, data acquisition set-up parameters, and other part handling considerations

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