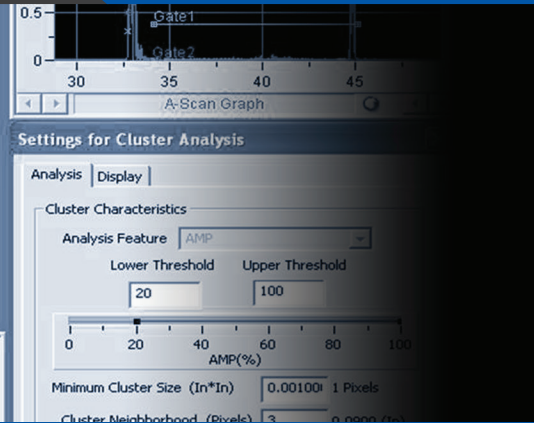



**PRODUCTS & SYSTEMS DIVISION**
**APPLICATION BRIEF**

Location	Y(In)	THK(In)	Min(%)	Max(%)	Ave.(%)	Size(In*In)
0.241	1.053	0.154	22.9	68.0	39.1	0.0108(0.04%
	0.675	0.154	21.3	38.3	28.1	0.0054(0.02%
	0.750	0.154	21.2	28.0	24.0	0.0045(0.02%
	1.080	0.154	21.0	26.4	23.2	0.0045(0.02%
	0.20	0.154	21.6	27.7	23.8	0.0045(0.02%
	0.050	0.154	22.0	29.8	26.1	0.0027(0.01%
	0.960	0.154	21.9	21.9	21.9	0.0018(0.01%
	0.065	0.154	21.3	24.1	22.7	0.0018(0.01%



A completely digital Ultrasonic (UT) data acquisition and analysis program can test bearing-quality steel in minutes and analyze the results in seconds with all relevant data digitally stored and archived. A process that used to take hours is now completed in a matter of minutes with MISTRAS' state-of-the-art digital system configuration.

## Ultrasonic Bearing-Quality Steel Testing

Bearing-quality steel testing, a process that would traditionally take hours, can now be performed in minutes and seconds thanks to MISTRAS' Ultrasonic testing expertise and solutions.

MISTRAS' Ultrasonic (UT) scanning systems meet the requirements outlined in the ASTM "Standard Practice for Detection of Large Inclusions in Bearing-Quality Steel by Ultrasonic Method," ASTM E588-03.

### COMPONENTS

This complete digital data acquisition, imaging, and analysis system configuration is a mix of hardware and software designed to expedite testing and analysis with unparalleled results.

- X/Y/Z, UT Immersion scanning tank – 3-axis UT immersion system is rugged and rigid enough for industrial and laboratory use and is a fast, accurate method to locate, classify and quantify defects.
- P/R & A/D Boards – MISTRAS designs and fabricates (in-house) the majority of its ultrasonic boards employing state-of-the-art surface mount and FPGA technologies.
- UTwin™ C-scan acquisition, imaging and analysis software system – This includes cluster and flaw analysis with motion-control

hardware and software. UTwin™ also displays any combination of A-, B- and C- scans desired.

- Complete system PC and Windows 7 operating system – Fully integrated PC and operating system works hand-in-hand with testing, analysis and imaging hardware and software
- 10 MHz, focused immersion transducer – MISTRAS offers a variety of transducers used with all of product and system applications. This model is specifically matched with the UT Bearing-Quality Steel application.
- Digital storage capabilities for test set-up and data – Stores preferences for future or easily recreate a test scenario days after initial trial.

### ANALYSIS DISPLAYS

While testing takes just minutes, analysis is done in seconds and can be displayed in ways depending on your needs. Thanks to our industry-leading software, UTwin™, analysis displays can do everything from establish logical inclusion levels to mark inclusions detected on C-Scans with a number that corresponds to a table listing.

- Flaw Analysis, Counts Inclusions – This feature is capable of establishing 1-20 levels, with logic, to qualify an inclusion count

automatically. It can also verify reference standards to help ensure proper future test procedures as well as current analysis.

- Cluster Location – This allows users to identify a specific location for inclusion assessment or simply test the entire C-Scan image.
  - Table listing of all inclusions detected with data listed below
  - Provides X/Y and depth location of detected inclusions
  - Provides minimum/maximum/average amplitude
  - Provides square area of indication
  - C-Scan image is marked a number correlating to table listing
- A-, B-, and C-Scan Displays – With UTwin™, you can display any combination of A-, B- and C-Scans for easy and productive comparing and contrasting. Mix any combination of C-Scans, B-Scans, numeric plots, and even 3-D views. If room is getting tight, UTwin™ will let you add more pages.
- FFT (fast Fourier transform) Frequency Analysis Display – Allows users to test, chart, and analyze power levels at different levels to identify and quantify any inclusions.