



ElectroForce®  
Testing Solutions For  
**Dynamic  
Mechanical  
Analysis**

Versatility for a wide range of materials and  
component characterization capabilities.

Welcome to **Above & Beyond™** Support  
Industry-leading assistance from applications specialists.

Powered by **ElectroForce®** Technology

Your success. Our mission.™

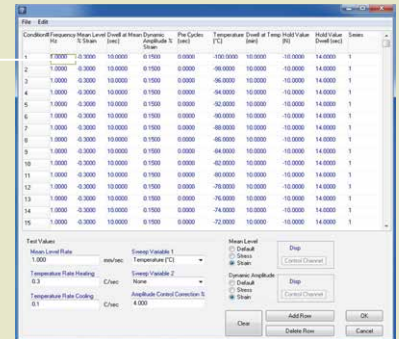


The ElectroForce® Dynamic Mechanical Analysis (DMA) application provides advanced materials testing and calculation capabilities for more thorough materials characterization. Versatile systems configurations accommodate a wide range of sample sizes and test parameters to meet common and unique characterization needs.

## Variety of Control Parameters

Intelligently steps through test conditions for

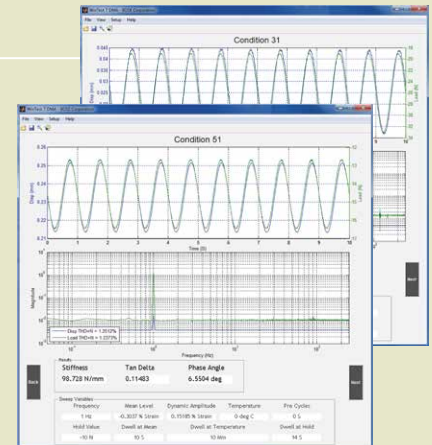
- Frequency
- Dynamic amplitude for force, displacement or strain
- Mean force or displacement
- Temperature
- Single condition or two overlapping conditions



## Automatic Calculations

Automatically calculates material and component characteristics

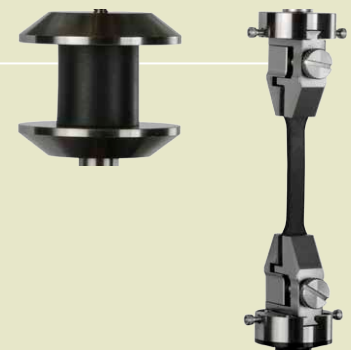
- FFT Analysis
- Materials
  - Complex, loss and storage modulus ( $E^*$ ,  $E'$ ,  $E''$  or  $G^*$ ,  $G'$ ,  $G''$ )
  - Tan delta ( $\tan \delta$ )
- Components
  - Dynamic, storage and loss stiffness ( $K^*$ ,  $K'$ ,  $K''$ )
  - Phase ( $\delta$ )
  - Damping (C)



## Specimen Versatility

Accommodates multiple sample, fixture and test types

- Tension, compression
- 3-point bend (free end and double cantilever)
- Single, double and quad lap shear



# ElectroForce<sup>®</sup> Testing Solutions For Dynamic Mechanical Analysis

## Easy Access to Data

Raw data easily accessible for additional processing

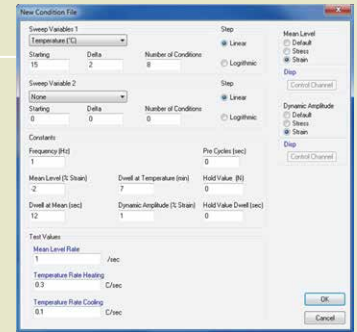
- ASCII format
- 5 kHz acquisition rate
- Provides for simple master curve generation (TTS)

Frequency	Reference Amplitude	Amplitude	Reference Mean	Mean	Test Data
1	0.000001	66.111	-0.07763	66.033	1.0000
2	0.000001	66.265	-0.07762	66.188	1.0000
3	0.000001	66.419	-0.07761	66.342	1.0000
4	0.000001	66.573	-0.07760	66.496	1.0000
5	0.000001	66.727	-0.07759	66.650	1.0000
6	0.000001	66.881	-0.07758	66.804	1.0000
7	0.000001	67.035	-0.07757	66.958	1.0000
8	0.000001	67.189	-0.07756	67.112	1.0000
9	0.000001	67.343	-0.07755	67.266	1.0000
10	0.000001	67.497	-0.07754	67.420	1.0000
11	0.000001	67.651	-0.07753	67.574	1.0000
12	0.000001	67.805	-0.07752	67.728	1.0000
13	0.000001	67.959	-0.07751	67.882	1.0000
14	0.000001	68.113	-0.07750	68.036	1.0000
15	0.000001	68.267	-0.07749	68.190	1.0000
16	0.000001	68.421	-0.07748	68.344	1.0000
17	0.000001	68.575	-0.07747	68.498	1.0000
18	0.000001	68.729	-0.07746	68.652	1.0000
19	0.000001	68.883	-0.07745	68.806	1.0000
20	0.000001	69.037	-0.07744	68.960	1.0000
21	0.000001	69.191	-0.07743	69.114	1.0000
22	0.000001	69.345	-0.07742	69.268	1.0000
23	0.000001	69.499	-0.07741	69.422	1.0000
24	0.000001	69.653	-0.07740	69.576	1.0000
25	0.000001	69.807	-0.07739	69.730	1.0000
26	0.000001	69.961	-0.07738	69.884	1.0000
27	0.000001	70.115	-0.07737	70.038	1.0000
28	0.000001	70.269	-0.07736	70.192	1.0000
29	0.000001	70.423	-0.07735	70.346	1.0000
30	0.000001	70.577	-0.07734	70.500	1.0000

## Simple Test Setup

Setting up a test is quick and easy

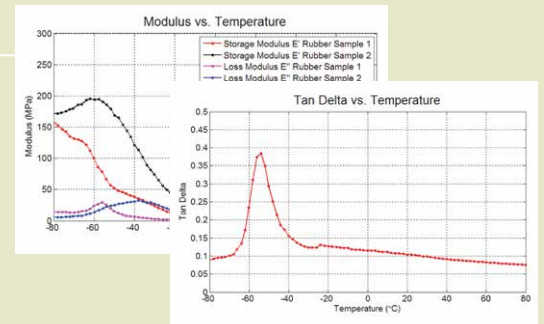
- Enter test conditions
- Enter sample information
- Run the test
- Save the test file for easy access for future tests
- No tuning is needed



## Versatile Display

Multiple user-defined display options are available

- Test status windows show progress of test
- Test results are displayed after each condition
  - Includes Total Harmonic Distortion + Noise (THD + N)
  - Real-time verification of reliable data acquisition
- Collected data may be graphically displayed in a variety of ways



## Ongoing Support

The TA commitment to your success includes

- Free lifetime technical support
- Support from applications specialists
- Free initial and ongoing training opportunities



ElectroForce® Testing Solutions For  
**Dynamic Mechanical Analysis**

With special attention given to the development of the test frame, several ElectroForce® test instruments are designed to provide materials characterization over a wide range of loads, strains, frequencies and temperatures. Find out more at [electroforce.tainstruments.com](http://electroforce.tainstruments.com)

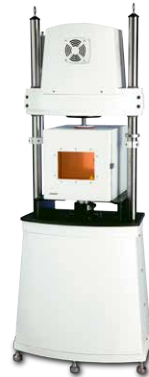
3100



3200



3330



3500



22 N  
 5 mm (± 2.5 mm)  
 100 Hz max  
 75 Hz DMA

225 N or 450 N  
 13 mm (± 6.5 mm)  
 300 Hz max  
 200 Hz DMA  
 -150° to +315° C\*

3,000 N  
 25 mm (± 12.5 mm)  
 100 Hz max  
 75 Hz DMA  
 -150° to +350° C\*

7.5 kN or 15 kN  
 50 mm (± 25 mm)  
 100 Hz max  
 40 Hz DMA  
 -150° to +350° C\*

\*Indicates temperature range of standard temperature chamber. Additional temperature ranges are available. Specifications subject to change.

The ElectroForce friction-free moving-magnet linear motor provides high performance across a wide force and displacement range, and offers the only 10-year warranty in the industry. In addition to providing exceptional DMA performance, ElectroForce test instruments are designed to accommodate creep and stress-relaxation testing, monotonic tensile and compression testing, high-cycle fatigue and durability testing, and multi-sample and multi-axis testing.

Ask your TA representative for technical information on ElectroForce test instruments and software.

Testing Solutions for  
**Engineered Materials - Medical Devices - Biomaterials**



[electroforce.tainstruments.com](http://electroforce.tainstruments.com)

Your success. Our mission.™