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Hitachi High-Tech Group Introduces NEXTA® DMA200 Thermal Analyzer with High Force Capability and Enhanced Efficiency

NEXTA® DMA200 Thermal Analyzer

Tokyo, September 6, 2023 – Hitachi High-Tech Science Corporation ("Hitachi High-Tech Science") has launched a new product in the NEXTA ® series, the DMA200 a dynamic mechanical analyzer (DMA) for advanced materials development and product quality control. This instrument is distributed by Hitachi High-Tech Analytical Science Ltd. ("Hitachi High-Tech Analytical Science").

As industries pursue high-performance composite materials with new functions, the demand for in-depth evaluations using thermal analysis grows. For example, sectors like automotive, aircraft and electronics increasingly require DMA analysis to understand properties like carbon-fiber-reinforced plastics and adhesive behaviors.

DMA technology is utilized to measure the viscoelastic properties of materials, with a primary focus on glass transition detection. Additionally, it can assess secondary transitions, material stiffness, curing level and damping properties. This versatile tool finds extensive applications in mechanical characterization for applied research and R&D, including composites, plastics, rubber and film materials.

As the most recent addition to Hitachi High-Tech Group's high-specification thermal analysis range, the DMA200 offers increased maximum force capability and built-in efficiency with straightforward troubleshooting, seamless data exchange and easy measuring head interchangeability. Real View® enables valuable real-time furnace observations, 'Guidance Mode' aids DMA novices and electrical gas cooling eliminates the need for liquid Nitrogen.

Key Technologies

1. Empowering advanced materials analysis with high-force capability

The upgraded 20N maximum force capability of the DMA200 is a twofold increase compared to our previous model. This allows customers to exert higher levels of stress on their samples, making it ideal for characterizing materials that require significant force for deformation.

This expanded functionality is particularly beneficial for customers dealing with stiff samples, such as carbon fiber composites, enabling them to achieve precise and reliable material characterizations. From aerospace applications to cutting-edge automotive technologies, the DMA200's enhanced force capability enables deeper exploration of the mechanical behavior of a wide range of materials.

“With the DMA200's high-force capability, we empower researchers to explore new possibilities in advanced materials analysis, achieving precise characterizations of stiff materials and driving innovations across industries.” – Sukehiro Ito, President, Hitachi High-Tech Science stated.

2. Cutting-edge Real View® technology visualizes analysis

The DMA200 features an upgraded Real View® high-resolution camera at the core of the system. This enables improved observation of the sample during the measurement over a wide temperature range, capturing images in real-time that can be related directly to the DMA signal. It proves to be an ideal option when using the NEXTA DMA for research, teaching, troubleshooting and measuring the size of the affected area.

The Real View® system incorporates color analysis (RGB, CMYK, and L*a*b*) and allows for the creation of result videos. This helps to identify physical property changes and the added visual information to the DMA output simplifies interpretation, particularly when conducting failure analysis, foreign particle analysis and investigating abnormal results.

3. Efficient electrical gas cooling with no external nitrogen needed

The DMA200 provides three cooling options: by air, liquid nitrogen and electrical gas cooling. The unique advantage of the electrical gas cooling feature is its simplicity and ease, as it solely requires power to operate, eliminating the need for external resources like liquid nitrogen. This streamlined cooling process makes the DMA200 more user-friendly, ensuring effortless and efficient operation for materials analysis.

4. Software update and new lighting system enable ease-of-use

'Guidance Mode,' an intuitive software feature, is purposefully crafted to assist customers who lack prior DMA experience by providing systematic, step-by-step measurement and analysis instructions.

From method overviews to published results, this mode supports international standard methods and allows customization for individual needs. It is simple to learn, easy to teach and adaptable to a multi-tasking workforce, making it an ideal choice for busy laboratories.
Additionally, the newly incorporated lighting system enhances measuring heads and sample interchangeability, providing efficiency and convenience during the analysis process.

Dawn Brooks, Managing Director at Hitachi High-Tech Analytical Science, stated, "Designed in response to the demanding environments our customers operate in, the DMA200 – with its advanced efficiency-focused features and capabilities – is set to make a meaningful impact in various industries. We are confident that this dynamic mechanical analyzer will empower researchers and professionals to drive innovation and uncover valuable insights."

The DMA200 is available to order now. Contact Hitachi High-Tech Analytical Science hhtas.net/DMA (https://hha.hitachi-hightech.com/en/contact-us)

Hitachi High-Tech Science supports research, development, and quality management in a wide range of fields and contributes to improving people's QoL. Hitachi High-Tech Group will continue to refine our beam and analysis technologies, and contribute to solving social and customer issues in the areas of environment, resilience, safety and security.

* "NEXTA®" is a registered trademark of Hitachi High-Tech Science in Japan, the United States, Europe, the United Kingdom, Korea and Taiwan, and "Real View®" is a registered trademark of Hitachi High-Tech Science in Japan, the United States, China, Europe, the United Kingdom, India, Turkey and Brazil.

Website DMA200 Series Product
https://www.hitachi-hightech.com/global/en/products/analytical-systems/thermal-analysis/nexta-dma.html

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About Hitachi High-Tech Corporation
Hitachi High-Tech Corporation, headquartered in Tokyo, Japan, is engaged in activities in a broad range of fields, including manufacture and sales of clinical analyzers, biotechnology products, and analytical instruments, semiconductor manufacturing equipment and analysis equipment. and providing high value-added solutions in fields of social & industrial infrastructures and mobility, etc.
The company's consolidated revenues for FY 2022 were approx. JPY 674.2 billion. For further information, visit https://www.hitachi-hightech.com/global/en/