NETZSCH

Proven Excellence.

Accessories for DMA 242 E *Artemis*

Sample Holders, Calibration Materials and Other Accessories

Analyzing & Testing

DMA 242 E *Artemis* – Sample Holders

DMA (Dynamical Mechanical Analysis) is a method for obtaining information on the visco-elastic properties of a material as a function of temperature and/or frequency. The procedure consists of applying a small sinusoidal dynamic force (stress σ) to the sample and measuring the deformation (strain ε) and the phase shift δ. This results in the determination of storage modulus E', loss modulus E'' and the damping factor tanδ as a function of temperature and/or frequency. NETZSCH offers a great variety of sample holders to guarantee optimal adaptation of the test conditions to the sample size and stiffness, as well as to the application. For example, a different sample holder is needed to measure a thin polymer film or a stiff material such as a fiber-reinforced composite.

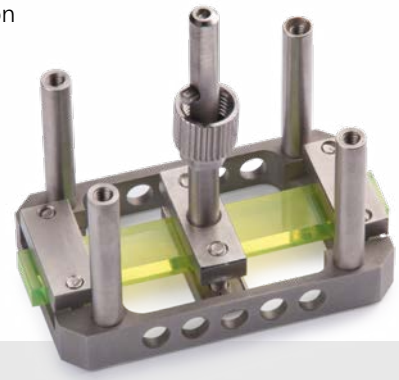
The lists in this publication include all the sample holders and accessories available for your DMA 242 E *Artemis* as well as the materials used for the calibration of your device.

TABLE OF CONTENTS

TABLE OF CONTENTS

Sample Holders for Cantilever Bending

Sample holders for cantilever bending are used to measure the dynamic-mechanical properties of thermoplastics and elastomers. Stiffer samples such as metals or fiber-reinforced polymers can also be measured with the single cantilever sample holder with free pushrod. The single cantilever sample holder with reinforced clamps was specially developed for determination of the glass transition (T_g) of reinforced polymers used in the aircraft industry.

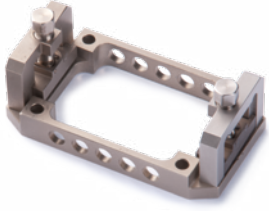


DMA 242 E *Artemis* – Sample Holder Sets for Cantilever Bending

	Free Bending Length*	Width (max.)	Height (max.)	Contains	Order Number
Single, dual cantilever bending	(2x) 1 mm	12 mm	5 mm	Frame with sample clamps, clamped pushrod	DMA2420CA50.001-00
	(2x) 5 mm	12 mm	5 mm		DMA2420CA50.010-00
	(2x) 16 mm	12 mm	5 mm		DMA2420CA50.020-00
	(2x) 17 mm	12 mm	5 mm		DMA2420CA50.021-00
Single cantilever – reinforced clamps	17 mm	12 mm	5 mm	Frame with sample clamps, clamped pushrod, torque wrench	DMA2420CA50.031-00
Single cantilever – free pushrod	20 mm	12 mm	5 mm	Frame with sample clamps, knife-edged pushrod, torque wrench	DMA2420CA50.030-00

*The samples must be greater in length than the free bending length values listed here. To obtain sample dimensions, the clamp's width must be added to the bending length.

The frames for single/dual cantilever bending are available in different sizes for optimal adaptation to the sample. The sample clamps can be ordered separately (6.160.1-40.2.00).



The 17-mm and 20-mm frames for single cantilever with reinforced clamps are used for measurements on very stiff samples.

DMA 242 E *Artemis* – Spare Parts for Single and Dual Cantilever Sample Holders

Type	Spare Part for	Single Order Number
Frame (2×) 1 mm	DMA2420CA50.001-00	6.160.1-40.1.03
Frame (2×) 5 mm	DMA2420CA50.010-00	GB395107
Frame (2×) 16 mm	DMA2420CA50.020-00	GB395604
Frame (2×) 17 mm	DMA2420CA50.021-00	6.160.1-40.1.04
Set of sample clamps with screws for frame (2 pcs)	DMA2420CA50.001-00, DMA2420CA50.010-00, DMA2420CA50.020-00, DMA2420CA50.021-00	6.160.1-40.2.00
Clamped pushrod	DMA2420CA50.001-00, DMA2420CA50.010-00, DMA2420CA50.020-00, DMA2420CA50.021-00	6.160.1-40.5.00
Sample clamp for pushrod	DMA2420CA50.001-00, DMA2420CA50.010-00, DMA2420CA50.020-00, DMA2420CA50.021-00	GB800016

The clamped pushrod (6.160.1-40.5.00) is used with all single/dual cantilever bending sample holders as well as for the 17-mm single cantilever sample holder with reinforced clamps. A spare clamp can be ordered separately (GB800016).

The knife-edged pushrod (6.160.1-41.3.00) is used for the 20-mm single cantilever sample holder with free bending.

DMA 242 E *Artemis* – Spare Parts for Single Cantilever Sample Holders with Free Bending and Reinforced Clamps

Type	Spare Part for	Single Order Number
Frame 17 mm	DMA2420CA50.031-00	6.160.1-46.1.05
Frame 20 mm	DMA2420CA50.030-00	6.160.1-46.1.00
Set of sample clamps with screws for frame (2 pcs)	DMA2420CA50.030-00	DMA2420CA50.901-00
Sample clamp for pushrod	DMA2420CA50.030-00	GB800016
Knife-edged pushrod	DMA2420CA50.030-00	6.160.1-41.3.00
Clamped pushrod	DMA2420CA50.031-00	6.160.1-40.5.00
Torque wrench*	DMA2420CA50.030-00, DMA2420CA50.031-00	NGB815015

* Torque wrench adjustable 0.3 to 1.5 Nm

Sample Holders for Three-Point Bending

Stiff samples such as fiber-reinforced or highly filled thermoplastics, metals or ceramics can be measured in three-point bending. A special advantage of this geometry is that no clamping effects will influence the results. The three-point bending sample holders are available in different sizes and in round- or knife-edged versions.

DMA 242 E *Artemis* – Sample Holder Sets

	Free Bending Length*	Width (max.)	Height (max.)	Contains	Order Number
Round-edged	10 mm	12 mm	5 mm	Frame, pushrod; edge radius 2 mm	DMA2420CA51.010-00
	20 mm	12 mm	5 mm		DMA2420CA51.020-00
	40 mm	12 mm	5 mm		DMA2420CA51.040-00
	50 mm	12 mm	5 mm		DMA2420CA51.050-00
Knife-edged	20 mm	12 mm	5 mm	Knife-edged frame and pushrod	6.160.1-91.2.00
	40 mm	12 mm	5 mm		6.160.1-91.1.00

*The samples must be greater in length than the free bending length values listed here in order to obtain an optimal support area to the sample on the frame

Round-edged sample holder set for 3-point bending, 40 mm (DMA2420CA51.040-00)

Knife-edged sample holder set for 3-point bending, 20 mm (6.160.1-91.2.00)

DMA 242 E *Artemis* – Spare Parts for Standard Three-Point Bending Sample Holders (Edge Radius: 2 mm)

Type	Spare Part for	Single Order Number
Frame 10 mm	DMA2420CA51.010-00	NGB814955
Frame 20 mm	DMA2420CA51.020-00	NGB814954
Frame 40 mm	DMA2420CA51.040-00	NGB814958
Frame 50 mm	DMA2420CA51.050-00	NGB814956
Pushrod	DMA2420CA51.010-00, DMA2420CA51.020-00, DMA2420CA51.040-00, DMA2420CA51.050-00	6.160.1-41.7.00

The standard frame for 3-point bending measurements is available in four different sizes from 50 mm down to 10 mm free bending length

DMA 242 E *Artemis* – Spare Parts for Knife-Edged Three-Point Bending Sample Holders

Type	Spare Part for	Single Order Number
Frame 20 mm	6.160.1-91.2.00	6.160.1-41.1.02
Frame 40 mm	6.160.1-91.1.00	GB395108
Pushrod	6.160.1-91.1.00, 6.160.1-91.2.00	6.160.1-41.3.00

Knife-edged and round-edged pushrods (6.160.1-41.3.00 and 6.160.1-41.7.00)

Sample Holders for Compression and Penetration

Several sample holders are available for compression/penetration measurements. In compression measurements, the pushrod diameter is larger than the sample diameter. In penetration measurements, a pushrod with a tip diameter smaller than the sample allows for determination about issues such as softening. Soft samples such as foams and rubbers can be measured in these modes.

DMA 242 E *Artemis* – Standard Sample Holder Sets for Compression and Penetration

	Sample Area (max.)	Contains	Remarks	Order Number
Compression, penetration	Ø 15 mm	Supporting frame, pushrods of Ø 15 mm, Ø 3 mm and Ø 1 mm		DMA2420CA52.010-00
	Ø 30 mm	Supporting frame, pushrod of Ø 30 mm	For measurements on samples with irregular shape	DMA2420CA52.020-00
	Ø 15 mm	Supporting frame, two pushrods made of fused silica, free ceramic disc	One pushrod for measurements on insulation foams, one pushrod Ø 4 mm for TMA measurements	DMA2420CA52.030-00

Sample holder set for compression and penetration (DMA2420CA52.010-00)

Sample holder set for compression, 30 mm (DMA2420CA52.020-00)

Sample holder set for measurements on insulation foam and for TMA measurements (DMA2420CA52.030-00)

DMA 242 E *Artemis* – Spare Parts for Compression and Penetration Sample Holders

Type	Spare Part for	Single Order Number
Frame, diameter of sample area: 15 mm	DMA2420CA52.010-00, DMA2420CA52.030-00	GB395608
Frame, diameter of sample area: 30 mm	DMA2420CA52.020-00	GB395609
Pushrod, diameter: 15 mm	DMA2420CA52.010-00	6.160.1-42.5.01
Pushrod, diameter: 30 mm	DMA2420CA52.020-00	6.160.1-42.5.04
Pushrod, diameter: 0.5 mm	-	6.160.1-42.5.05
Pushrod, diameter: 1 mm	DMA2420CA52.010-00	6.160.1-42.5.02
Pushrod, diameter: 3 mm	DMA2420CA52.010-00	6.160.1-42.5.03
Pushrod made of fused silica, with clamping nut and free alumina disc Ø 15 mm	-	DMA2420CA52.031-00
Pushrod made of fused silica, Ø 4 mm, for TMA experiments	DMA 2420CA52.030-00	NGB815174
Alumina disc	DMA2420CA52.030-00	NGB804879
Pushrod made of fused silica	DMA2420CA52.030-00	NGB804878
Pushrod made of fused silica, Ø 4 mm, with clamping nut, for TMA experiments	-	DMA2420CA52.032-00

Pushrods for penetration (0.5 mm, 3 mm and 1 mm)

Alumina disc
(NGB804879)

Pushrod with clamp ring and fastening nut (DMA2420CA52.031-00)

The pushrod made of fused silica with free alumina disc was specially developed for compression measurements on insulation foams.

Sample Holders for Curing

The sample holder described in the following table and figures was specially developed for determining the curing behavior of viscous materials during a controlled temperature program. The container can be removed and cleaned separately.

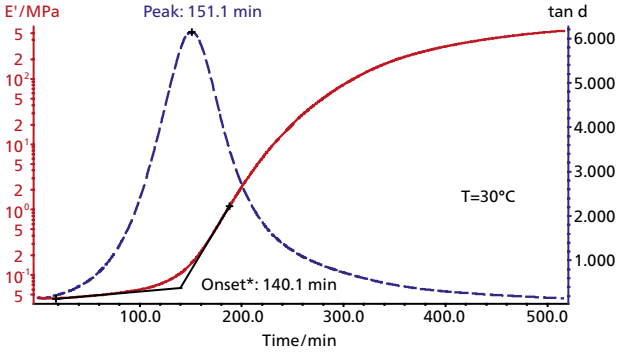
Spare parts for ball-shaped sample holder (container, spare ball and pushrod)

DMA 242 E *Artemis* – Sample Holder Set and Spare Parts for Curing of Viscous Materials

Contains	Remarks	Order Number
Spare container Ø 19 mm, height 15 mm and ball-shaped pushrod with ball Ø 8 mm	-	DMA2420CA55.010-00
Container	Spare part for DMA2420CA55.010-00	6.160.1-92.9.03
Pushrod without ball	Spare part for DMA2420CA55.010-00	DMA2420CA55.011-00
Spare ball	Spare part for DMA2420CA55.010-00	6.160.1-92.9.06

Curing of an Epoxy Adhesive

In this example, an epoxy adhesive was measured with the DMA 242 E *Artemis* using the sample holder with container and ball-shaped pushrod.
The temperature was kept constant at 30°C. The rise in the storage modulus curve after 140 minutes (onset time) is due to the beginning of curing. It is associated with a maximum in the tanδ curve at 151 minutes. After approximately 500 minutes, no significant change in the storage modulus can be detected any longer. This indicates the end of the curing reaction.



Sample: Epoxy adhesive
Test mode: Compression with curing sample holder (container with ball-shaped pushrod)
Test parameters: Isothermal 30°C; frequency: 1 Hz; amplitude: ± 20 µm

The ball-shaped pushrod is immersed in the sample during measurements with sample holder set DMA2420CA55.010-00.

The sample holder with sample insert is used for curing measurements on powdery and pasty samples. The pushrod presses onto a sapphire disc placed on the material. The sample insert can be removed and cleaned separately.

Frame with sample insert, pushrod and sapphire disc for compression measurements on pasty samples. The use of aluminum pans (NGB810405) prevents sample holder contamination.

DMA 242 E *Artemis* – Sample Holder Set and Spare Parts for Powdery and Pasty Samples

Contains	Remarks	Order Number
Supporting frame, sample insert Ø 7 mm, height 2.5 mm, pushrod Ø 3 mm, 5 sapphire discs Ø 6×0.5 mm	Aluminum pan recommended (Order No. NGB810405)	DMA2420CA52.040-00
Frame	Spare part for DMA2420CA52.040-00	NGB812140
Pushrod Ø 3 mm	Spare part for DMA2420CA52.040-00	6.160.1-42.5.03
Sample holder for pasty samples	Spare part for DMA2420CA52.040-00	6.160.1-92.6.02
Sapphire disc Ø 6 × 0.5 mm	Spare part for DMA2420CA52.040-00	GB398454
Aluminum pan set, 100 pieces	-	NGB810405

Sample Holders for Shearing

The shearing sample holder is used for measurements in sandwich geometry on adhesive tapes as well as on soft samples such as foams or rubbers.

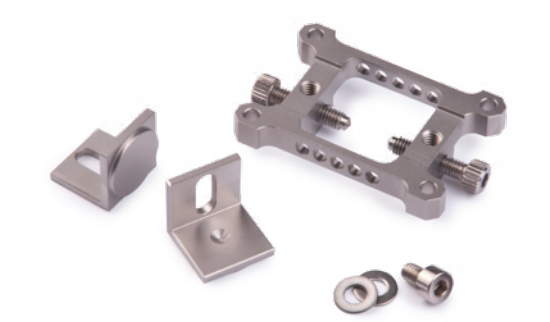
DMA 242 E *Artemis* – Sample Holder Sets for Shearing

Contains	Ø/Width/ Thickness (max.)	Thickness (max.)	Remarks	Order Number
Frame with clamps (flat surface), pushrod (flat surface)	15 mm	6 mm	e.g., for adhesive tapes	DMA2420CA54.010-00
Frame with clamps (grooved surface), pushrod (grooved surface)	15 mm	6 mm	for samples which require a better grip (e.g., for rubbers)	DMA2420CA54.020-00

Sample holder set for shearing with flat surfaces (DMA2420CA54.010-00)

DMA 242 E *Artemis* – Spare Parts for Shearing Sample Holders

Type	Spare Part for	Single Order Number
Frame with screws	DMA2420CA54.010-00, DMA2420CA54.020-00	6.160.1-44.1.00
Set of sample clamps with screws, flat (2 pcs.)	DMA2420CA54.010-00	6.160.1-44.2.00
Set of sample clamps with screws, grooved (2 pcs.)	DMA2420CA54.020-00	6.160.1-44.4.00
Pushrod, flat	DMA2420CA54.010-00	6.160.1-44.5.01
Pushrod, grooved	DMA2420CA54.020-00	6.160.1-44.5.02
Allen wrench	-	GB800188



Frame for shearing with flat sample clamps

Flat clamps (6.160.1-44.2.00)

Grooved pushrod
(6.160.1-44.5.02)

Grooved clamps
(6.160.1-44.4.00)

The shearing sample holder with grooved surface allows for a better grip on the sample

Sample Holder for Tension

The tension sample holder is used for measurements on foils, films, fibers or thin rubber strips.

DMA 242 E *Artemis* – Sample Holder Set

	Free Tension Length* (max.)	Ø/Width/Thickness (max.)	Contains	Order Number
Tension	15 mm	6.8 mm	Frame, pushrod, clamps	DMA2420EA53.010-00

* The samples must be greater in length than the free tension length values listed here. To obtain sample dimensions, the clamp's width must be added to the tension length.

Sample holder set for tension (DMA2420EA53.010-00)

DMA 242 E *Artemis* – Spare Parts for Tensile Sample Holders

Type	Spare Part for	Single Order Number
Frame	DMA2420EA53.010-00	DMA2420EA53.012-02
Sample clamps made of titanium with screws	DMA2420EA53.010-00	NGB817604
Pushrod with clamps made of titanium	DMA2420EA53.010-00	DMA2420EA53.011-00

Special Applications

The immersion bath allows for measurements in a liquid such as water, oil, artificial blood, etc., in combination with any of the sample holders. It can be used with the standard furnace, so the only restriction is the evaporation/decomposition temperature of the solvent.

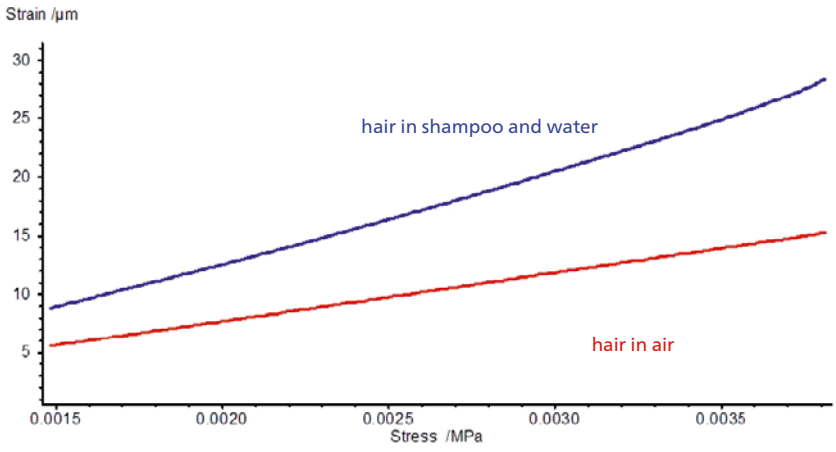
Container for immersion tests

DMA 242 E *Artemis* – Immersion Bath

Type	Remarks	Order Number
Container made of stainless steel for nonaggressive media	Maximum temperature depends on the liquid used (boiling/decomposition temperature)	DMA2420EA57.010-00

Influence of Shampoo on Human Hair

Stress-sweep tests were carried out on a human hair in an air atmosphere and in a mixture of water and shampoo. The same hair was used for both measurements. The force was varied from 0.1 N to 1 N and the strain was measured. The plot represents the stress-strain plot for both measurements. The curves differ in their slope: the hair has a lower storage modulus – i.e., is softer – when in contact with the mixture of water and shampoo (higher slope) than with air (lower slope).



Influence of shampoo on the hair softness
Sample: Human air (thickness between 70 µm and 80 µm)
Measurements parameter: tension mode, temperature: 25°C, frequency: 1 Hz, force varied between 0.1 and 1 N

The NETZSCH DMA 242 E *Artemis* can be coupled to a DEA device. Dielectric analysis measures changes in the ion viscosity of a material occurring under a controlled temperature program at a defined frequency. The special DMA-DEA coupling will record complementary curing results from the two methods with a single measurement.

DMA 242 E *Artemis* – Accessories for Measurements with DEA

Type	Contains	Remarks	Single Order Number
Compression	Pushrod Ø 15 mm, frame for DEA sensors (mini-IDEX recommended)	DEA system necessary, max. temperature: 200°C	DMA2420CA56.020-00

DMA 242 E *Artemis* coupled with DEA 288 *Ionic* and Adapter Box

The curing of UV-sensitive materials can be measured with the NETZSCH DMA 242 E *Artemis* using its standard furnace. The SiO_2 window in the bottom of the furnace allows for UV light irradiation of the sample. Measurements are carried out with a special compression sample holder.

DMA 242 E *Artemis* – Add-On for Measurements under UV

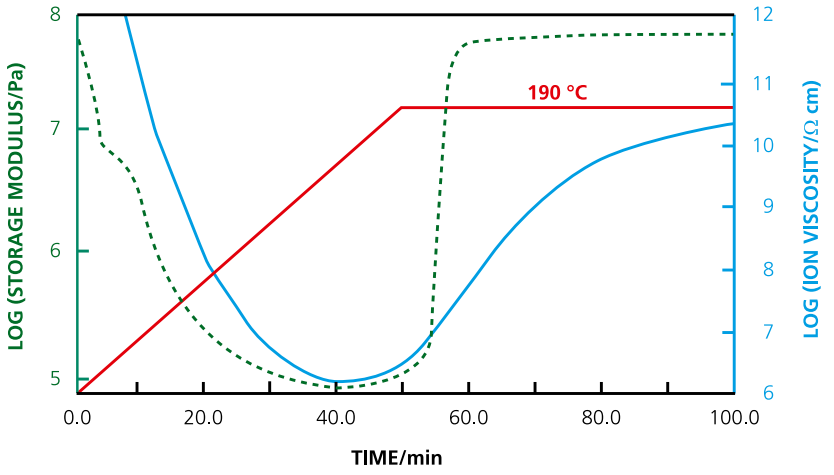
Description	Single Order Number
Sample supporting set for UV curing, fused silica window Ø 15 mm, with supporting frame and compression pushrod 15 mm	DMA2420CA58.010-00
Adaptor for connection of UV light source to DMA 242 E *Artemis**	DMA2420EA61.000-00
OmniCure S2000SC light source: high-pressure mercury lamp (wavelength range from 320 to 500 nm) with a high-power fiber-optic light guide and UV safety goggles, including adaptor for connection to DMA 242 E *Artemis* (manual triggering)	DMA2420CA30.000-00

* Custom version to fit specific guide dimensions available on request.

DMA 242 E *Artemis* with Omnicure light source

DMA-DEA Measurement on an Epoxy Resin

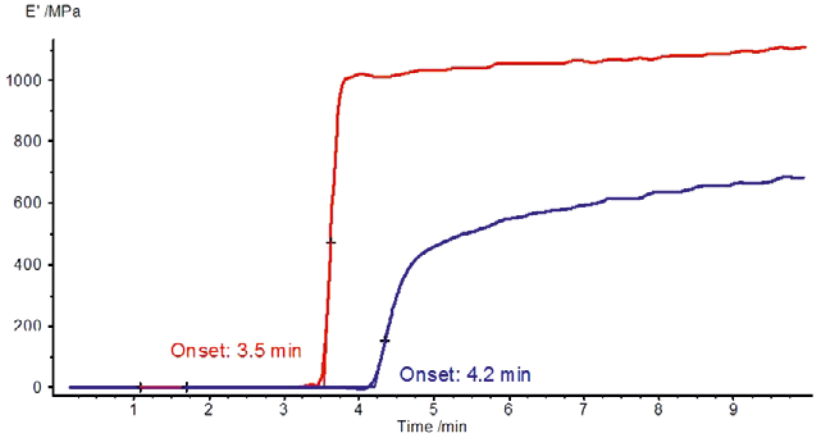
In this example, an uncured epoxy resin was heated to 190°C and the temperature was kept constant. The initial decrease in the storage modulus and ion viscosity during heating is due to softening of the sample. The increase in the storage modulus is related to the beginning of curing. The subsequent sharp increase in storage modulus demonstrates the sensitivity of DMA at the beginn of the curing reaction.
During the isothermal hold at 190°C, the storage modulus stabilizes in compression mode. However, the ion viscosity continues to increase; the more sensitive DEA method makes it possible to determine that curing has still not completely finished after even 100 minutes.



Curing of an epoxy resin
Sample holder: special compression sample holder for DMA-DEA
Measurement parameters: room temperature to 190°C at 3 K/min and isothermal at 190°C, frequency: 10 Hz

Light Curing of Two Dental Masses

The curing behavior of two dental masses under light were compared. The storage modulus of dental mass A (red) increased sharply after 3.5 minutes, which can be attributed to curing of the material. The reaction of dental mass B (blue) began nearly one minute later and ran more slowly, as can be seen by comparing the slopes of the two materials. The difference in the final storage moduli (1100 MPa for dental mass A and 700 MPa for dental mass B) is due to differences in the mechanical properties of the cured products.



Comparison of the curing behavior of two dental masses
Measurements parameter: compression mode, temperature: 30°C, frequency: 10 Hz, amplitude: ±15 µm

Furthermore, the standard furnace of the DMA 242 E *Artemis* can be easily coupled with a humidity generator that provides a special atmosphere with controlled humidity content. This add-on allows for investigation of the influence of humidity on the dynamic-mechanical properties of a material.

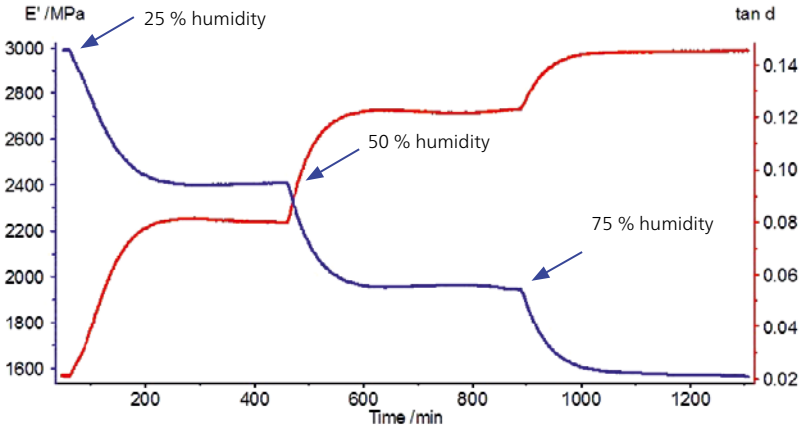
DMA 242 E *Artemis* with Humidity Generator

DMA 242 E *Artemis* – Accessories for Measurements with Humidity Generator

Description	Single Order Number
Humidity generator	MHG40000A02.000-00
Adapter for connecting humidity generator to the DMA 242 E	DMA2420EA62.000-00
Temperature controller	TRG00100A00.000-00
Humidity sensor (spare part)	MHG40000A02.021-00

Influence of Humidity on the Mechanical Properties of a Polyamide Film*

For this example, a polyamide film was dried and measured with the humidity generator in the tension mode. At the beginning of the test, the humidity generator was switched off and the storage modulus was constant at approx. 3000 MPa. As soon as humidity was introduced into the furnace, the storage modulus of the polymer decreased sharply; it reached a plateau at approx. 2400 MPa. Increasing the humidity content to 50% and to 75% (after 7 hours and after 14 hours) led to further decreases in the storage modulus. These results show that the humidity content has a great influence on the storage modulus of polyamide because water acts as a plasticizer on polymers.



DMA measurement with humidity generator
Sample: polyamide film (thickness: 50 µm), Sample holder: tension, Measurement parameters: isothermal 30°C, frequency: 1 Hz, amplitude: ±75 µm, Humidity generator parameters: relative humidity: 25%, 50%, 75% at 30°C, purge gas: 10 ml/min N_2

*Our thanks go to the University of Applied Sciences in Merseburg for the measurement and discussions.

Calibration Materials and Accessories

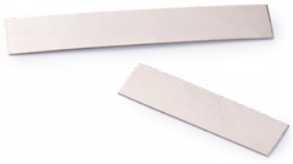
The DMA device must be calibrated in order to achieve optimum accuracy. In order to achieve this, Dynamic Mass Calibration, Empty System Calibration, System Stiffness Calibration and Rotation Tuning Calibration are necessary. The following tables list the equipment necessary to perform these procedures. The temperature calibration corrects the deviation between experimental and nominal temperature values. All calibration materials delivered with the NETZSCH DMA are described in following tables.

DMA 242 E *Artemis* – Calibration Set

Type	Contains	Remarks	Order Number
Calibration set	Steel bars for dynamic mass, stiffness and rotation tuning calibration	6.8 mm	6.160.1-50.0.00
Dynamic Mass Calibration	Weight		6.160.1-50.0.03
Stiffness Calibration	Steel bar, 35×8×5 mm	For bending and cantilever	NGB809255
	Steel bar, 60×8×5 mm	For bending and cantilever	NGB809256
	Steel bar, 20×6×2 mm	For tension	NGB809254
Rotation Tuning Calibration	2 steel bars (35×10×0.4 mm and 60×10×0.4 mm)	For cantilever	6.160.1-50.0.06

Weight for Dynamic Mass Calibration

Steel Bars for System Stiffness Calibration



Steel Bars for Rotation Tuning Calibration

DMA 242 E *Artemis* – Temperature Calibration Set

Type	Contains	Order Number
Temperature calibration set	Adamantane, indium, lead, sapphire disk, aluminum pans	6.160.1-98.2.00
Adamantane	400 mg	6.217.1-92.1.09
Indium Ø 4.5×0.25 mm	10 pieces	6.217.1-92.1.05
Lead Ø 4.5×0.5 mm	10 pieces	6.217.1-92.1.07
Sapphire disc		GB398456
Aluminum pan set	100 pieces	NGB810405

A variety of tools and parts is delivered with the DMA 242 E *Artemis* in order to mount the sample holder and the sample before measurement. They are listed in following table.

Micrometer gauge (GB396834)

DMA 242 E *Artemis* – Accessories

Type	Remarks	Order Number
Thermocouple K, with connector		6.160.1-03.8.00
Torque wrench adjustable 0.4 to 2.0 Nm	▪ Spare part for sample holders DMA2420CA50.030-00 and DMA2420CA50.031-00 (page 5) ▪ For precise fixing of all pushrods	NGB815986
Insert with wrench size 5.5 mm	For torque wrench NGB815986	NGB815987
Insert with wrench size 6 mm	For torque wrench NGB815986	NGB815988
Accessories set	Contains all elements described below	6.160.1-51.0.00
Micrometer gauge	Spare part for 6.160.1-51.0.00	GB396834
Torque screwdriver	Spare part for 6.160.1-51.0.00	GB396835
Cross slot screwdriver	Spare part for 6.160.1-51.0.00	GB396837
Hexagon wrench key DIN 911	Spare part for 6.160.1-51.0.00	GB010006
Flat wrench, type GEDORE 6 M	Spare part for 6.160.1-51.0.00	GB018374
Knob, Ø 16 mm, type OKW, size 16	For reamer GB396891, spare part for 6.160.1-51.0.00	GB395226
Reamer DIN 212	Spare part for 6.160.1-51.0.00	GB396891
Caliper gauge	Spare part for 6.160.1-51.0.00	NGB804815
Insert for torque screwdriver, size TX10	Spare part for 6.160.1-51.0.00	NGB813399

Torque screw driver and parts

Thermocouple K, with connector (6.160.1-03.8.00)

Torque wrench (NGB815986) with insert (NGB815987)

Expertise in Service

Our Expertise – Service

All over the world, the name NETZSCH stands for comprehensive support and expert, reliable service, before and after sale. Our qualified personnel from the technical service and application departments are always available for consultation.

In special training programs tailored for you and your employees, you will learn to tap into the full potential of your instrument.

To maintain and protect your investment, you will be accompanied by our experienced service team over the entire life span of your instrument.

Summary of Our Services

- Installation and commissioning
- Hotline service
- Preventive maintenance
- Calibration service
- IQ/OQ (for DSC, TGA and STA)
- On-site repairs with emergency service for NETZSCH components
- Moving / exchange service
- Technical information service
- Spare parts assistance

Our Expertise – Applications Laboratories

The NETZSCH Thermal Analysis applications laboratories are a proficient partner for nearly any Thermal Analysis issue. Our involvement in your projects begins with proper sample preparation and continues through meticulous examination and interpretation of the measurement results. Our diverse methods and over 30 different state-of-the-art measuring stations will provide ready-made solutions for all your thermal needs.

Within the realm of thermal analysis and the measurement of thermo-physical properties, we offer you a comprehensive line of the most diverse analysis tech-niques for materials characteri-zation (solids, powders and liquids).
Measurements can be carried out on samples of the most varied of geometries and configurations. You will receive high-precision measurement results and valuable interpretations from us in the shortest possible time. This will enable you to precisely characterize new materials and components before actual deployment, minimize risks of failure, and gain decisive advantages over your competitors.

For production problems, we can work with you to analyze concerns and develop solutions. The minimal investment in our testing and services will reward you with reduced down time and reject rates, helping you optimize your processes across the board.

The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 4,000 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

When it comes to Thermal Analysis, Calorimetry (adiabatic & reaction), the determination of Thermophysical Properties, Rheology and Fire Testing, NETZSCH has it covered. Our 60 years of applications experience, broad state-of-the-art product line and comprehensive service offerings ensure that our solutions will not only meet your every requirement but also exceed your every expectation.

Proven Excellence.

NETZSCH-Gerätebau GmbH
Wittelsbacherstraße 42
95100 Selb
Germany
Tel.: +49 9287 881-0
Fax: +49 9287 881 505
at@netzsch.com

NETZSCH®

www.netzsch.com

NGB · Accessories DMA · EN · 0223 · Technical specifications are subject to change.