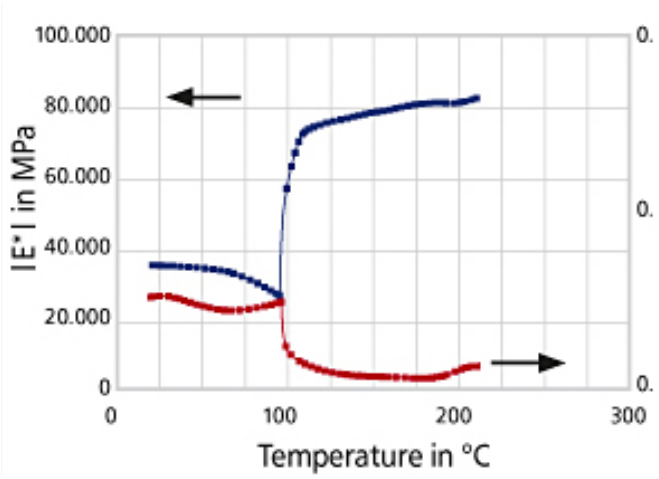
APPLICATION**SHEET**

Metals – DMA EPLEXOR®

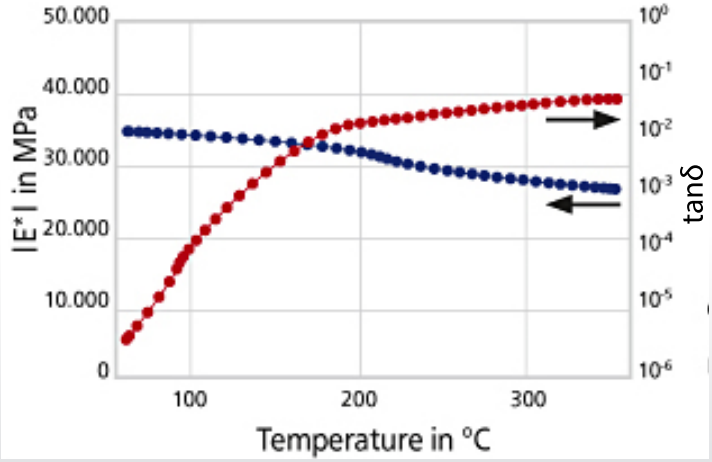
NiTi Shape Memory Alloys – New Materials Investigated with the Powerful DMA Method

This plot shows the complex modulus E* and loss factor tanδ of an TiNi wire (shape memory alloy) as a function of temperature. With increasing temperature (heating rate: 3 K/min, test frequency: 10 Hz, tensile mode), the shape memory alloy undergoes the transformation from martensite to austenite at a material specific transition temperature of 100°C. At the transition temperature, a sudden increase in tensile modulus E* as well as a decrease in intrinsic visco-elastic damping tanδ can be observed.



Temperature Dependence of Magnesium

The figure shows the complex modulus E* and loss factor tanδ of a magnesium bar (thickness: approx. 2 mm, width: approx. 4 mm) as a function of temperature. With increasing temperature (heating rate: 2 K/min, test frequency: 10 Hz, modified single cantilever), the modulus decreases softly about 20%. The intrinsic damping shows a significant increase. A strong increase for tanδ of about four orders of magnitude has to be noticed. This run shows the very high resolution of the tanδ measurement due to the very high resolution and accuracy of the EPLEXOR®.



NGB · Application Sheet 271 · EN· 08/17 · Technical specifications are subject to change.

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