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High service requirements if savings are made on investments

TeMeCo, March 2021

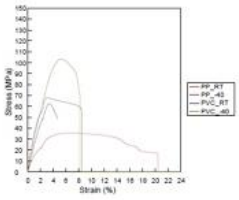
The first quarter of 2021 will soon be history, and TeMeCo's service in particular is in great demand.

Services from TeMeCo

Dear customers,

In these times of the pandemic, our on-site service is in great demand. Testing machines are well maintained, calibrated and remain in use for longer. Our quick service response to problems is very much appreciated. Without having to worry about travel restrictions in border traffic, we were able to help our customers easily.

The schedules of our service technicians are filled accordingly. As the year progresses, sales activities are increasing too. We would like to motivate you to discuss your investment intentions with us at an early stage. This will save you hectic actions at the end of the year.



Tensile Tests of Plastic Materials at Low Temperature

To determine the modulus of elasticity of a tensile sample, an extensometer must be used, with which tiny deformations of the sample can be measured with high accuracy. The measurement of the cross head includes not only the deformation of the sample, but also the deformation of the load cell, the testing machine frame and the clamping device. If the gauge length is very small, the error becomes significant, making this data unsuitable for modulus calculations. In such cases, an extensometer must be used that can measure changes in gauge length with an accuracy better than ±1%. When measuring the modulus of elasticity with a gauge length of 50 mm, this corresponds to an accuracy of ±1 micrometer. In the test linked here (see below), a clip-on extensometer was used that could also be operated in an environment with -40°C.

Read more > Shimadzu Application Data Sheet

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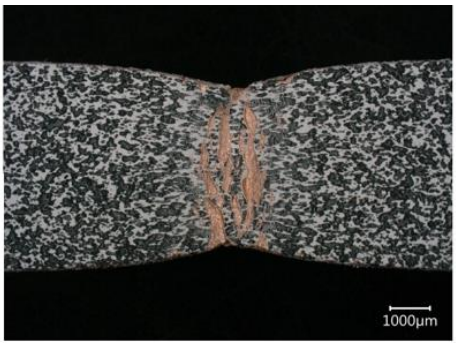
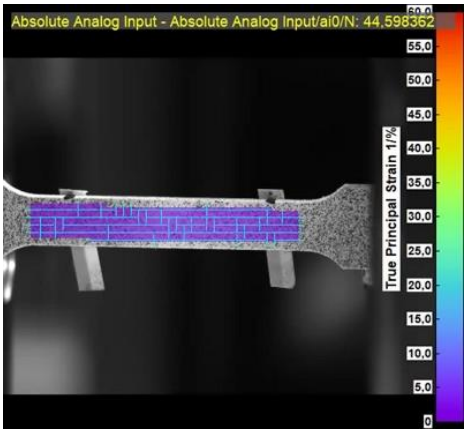
Modern Battery Testing: BINDER Chambers are Used in Enerlab 4.0

The Enerlab 4.0 at Offenburg University tests lithium-ion batteries. In the state-of-the-art laboratory, several cooling incubators with package P, converted by BINDER INDIVIDUAL, are used in the area of battery testing. The current batteries are examined from the outside and then from the inside with light and scanning electron microscopes. The knowledge that can be gained on the structural and chemical level about the aging process is transferred to a digital twin, which the scientists then age virtually. Half a year of continuous operation provides the necessary data, on the basis of which three to five years can be simulated.

Read more> Newsletter BINDER





DIC, Digital Image Correlation Q400 from Limess

During the deformation of a sample or component, images are being recorded. Displacements and strain in the plane or flat components are measured with just one camera, while the 3D displacements and the expansions on curved surfaces can be measured with two cameras.

For this purpose, the sample surface is provided with a random speckle pattern. The image correlation identifies the shifted and deformed pattern in the image and calculates displacements and strain.

The picture is divided into «facets». Each facet must be unique so that the software can track it as it deforms. The uniqueness of each facet is guaranteed if the surface has a non-repeating, isotropic, high-contrast pattern.

In a student's work at CERN, the quality and durability of speckle patterns and their influence on the result were examined.

Read more> student's work

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Capillary Rheometer to Determine Relaxation Behavior

Due to the constantly increasing speeds in plastics and rubber processing, the elastic properties of polymers are becoming more and more important. In addition to the viscous and elastic flow properties, the relaxation behavior of the material is responsible for the dimensional stability of the products. The relaxation behavior can be investigated in a capillary rheometer with a simple experiment. The advantage here is that it can be done under process-like conditions. The Maxwell model serves as the basis.

Read more > Rheo Info