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Zwick
Materials Testing

Product Information

Automatic Testing of Plastics: X-Linear Specimen Feeding

Pic 1:Automated Bending Tests with „X-Linear feeding system

Automated tensile and bending tests on plastics

The testing system with “X-Linear” construction can perform bending tests to ISO 178 and ASTM 790, as well as to ISO 527-2 (1A, 1B, 1BA) and ASTM 790 (IV). The demand for quick results, reproducibility and constant testing conditions, while lowering the testing costs at the same time, can be optimally fulfilled by an automated tensile and bending testing machine. The entire test sequence, with cross-section determination, is performed fully automatically. The test results are passed on to a Host computer system for creation of testing documents and production control.

The testing system shown in Fig. 1, consists of a 10 kN testing machine with an automatic extensometer for measurement of bending moment, a motor driven bending table in which the bending support separation is automatically set by the test programme to the dimensions of the specimen to be tested, and automatic specimen feeding with cross-section measurement. The magazine consists of 45 specimen holders in which the bending specimen can be stacked on each other to a height of 40 mm. With an average specimen thickness of 4 mm, we can calculate a magazine capacity of 450 specimen.

Fig. 2 shows an automated tensile test.

The automatic specimen feeding unit is an electric and mechanical-self-sufficient, system which is coupled to a Standard testing machine from the front via centralising system. The control is performed by an industry PLC. For manual testing, the feeding system can be moved away from the testing machine without tools. This allows the operator access to the testing machine from the front.

If tensile and bending tests are to be performed alternatively, a wider testing machine with two test axis can be used. For automatic feeding, the specimen feeding system is positioned in front of the corresponding test axis. A coding ensures that the correct test axis is fed.
Magazine carriers are available for tensile and bending specimen of the most varied shapes.
Data transfer with a Host computer can be realised via an RS-232 interface or a local PC-Network. The test parameters as well as the test results are transferred.

Use of a bar-code-scanner makes mistake-free, automatic identification of the specimen possible.

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Pic 2: Feeding of a tensile sample into the testing machine

Pic 3: Feeding of a bending sample into the testing machine

Main uses of automatic specimen feeding

- The modular system makes an economic adaptation to specific customer requirements possible
- Elimination of subjective influences through the high positioning accuracy of the automatic specimen feeding
- The order of testing can be controlled by the operator with individual loading of specimen and free selection if where the specimen gripper picks up the specimen
- The universal and easy operation of the automatic testing system is guaranteed through collection of all system functions in the operational masks of the Zwick user´s software testXpert

Further advantages of the automatic specimen feeding

- Reproducibility of the testing requirements even over a long operating time, no influences through different operators
- Secure documentation and statistical long-term control of process and production
- Unmonitored testing (“ghost shift”), loading of the system by untrained personnel possible
- “All from one source”: Zwick takes over everything from consultation until service, for the testing machine as well as for the automated specimen feeding
- The Zwick maintenance and calibration service is officially recognized by the Physical-Technical Institute (PTB) as a DKD-calibration laboratory. Zwick is there by authorised to check materials testing machine on location and issue DKD calibration certificates for the measurment units for force and extension measurements.

For further information contact

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All data at ambient temperature.