

Helicopter Structural Test



An NH90 as tested with Eurocopters new structural test bench

The mechanical stress to which a helicopter is subjected, regardless of military or civilian usage, is enormous. This may be one of the reasons that in order to prove and verify the quality of components, subsystems and functions units, hundreds of thousands of tests and measurements have to be performed. One of those tests is the structural analysis of the framework and body. Over 800 channels have to be parameterized, calibrated, measured, calculated online and stored. For this complex application, Eurocopter, one of Europe's leading helicopter companies, has chosen imc's measurement expertise.

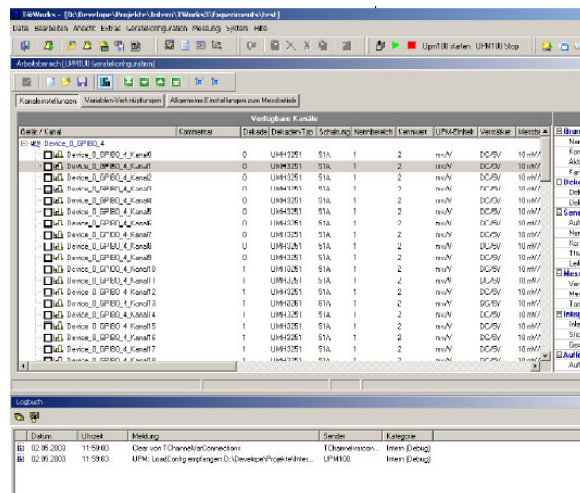


Tests mainly involve strain gauges and displacement signals

A special turnkey solution software and the imc measurement system CRONOS PL make up the main part of the system. Especially for highly dynamical signals, CRONOS PL is the ideal measurement and online evaluation tool. Two synchronized systems working in parallel for data acquisition. Their built-in ability of complex online result extraction is used to get test results instantly on the PC monitor. Meanwhile, depending on measurement values and online results, a synthesizer coupled to the measurement system generates the excitation of the test rig's hydraulic cylinders.

The software, however, is not only used to set-up the CRONOS PL. It includes a controller plug-in as well as a data converter. This converter transforms all incoming measurement data to a unified standard data format and integrates third party measurement systems and a special strain gauge scanner. In case of an unexpected or significant event, a logbook records all need-to-know information. In addition to this the software takes care of the data displaying and the data storage on a server.

Specially for the display of raw data, measurement results and documentation, two standard tools are used. The imc Curve Window and imc Report Generator. These tools, which are included in the imc Device software, serve to display and report measurement results, statuses or online data automatically. For further data analyses and interpretation, FAMOS, the imc offline data-analysis software, is used.



The software has to be easy to use and concise

