

Publication in the Journal  
**QZ Qualität und Zuverlässigkeit**  
(Quality and Reliability), Issue 5/2002

## Less Inspection Stress

**Development partnerships with international car manufacturers place high demands on the test equipment management. A supply company of the car industry has made it their goal to integrate the maintenance processes company-wide and to make them transparent. At the same time the management process were to be optimized.**

Up to now the MANN+HUMMEL GMBH, filtration specialist and development partner of the car industry with world-wide 9,100 employees, has worked with its own programmed solutions in the test equipment management. These individual solutions strongly took into consideration the needs of the user. For example all necessary inputs were based on one single mask when recording test equipment, adjustment and assessment. When replacing the systems previously used, all business processes should be supported and handled by the IT tool SAP R/3 Rel. 4.0 B with the module PM. The main business processes of the test and measurement equipment management were to be implemented with the PM and QM modules.

The new solution promised the integration and the standardisation of the test and measurement equipment management company-wide. The processes and the data about the objects to be managed were therefore to be specified centrally for all production facilities. The users were to be provided with a tool that allows adjustment tests to be handled easily.

### 15 Months to Achieve the Goal

The pilot project was started thirteen months before the change-over date (roll-out and going live), key users were trained in the individual R/3 modules. In the course of the technical conception of the test and measurement equipment it became quickly clear that both questions of the R/3 module and PM as well as those of the QM module had to be answered. It was therefore decided to visit a reference customer who had already implemented the test and measuring equipment management in SAP R/3 and had gathered experience with it. On the basis of the experience reports of this customer the advantages and disadvantages, opportunities and risks were considered; finally the project group decided to implement the R/3 system.

In considering the complexity of the subject, the module team requested postponing the migration two months after the simultaneous introduction of almost all R/3 modules company-wide.

In R/3 the test equipment management function uses the PM module (maintenance) together with the QM module. The test tools are defined as equipment in the R/3 PM. They are subject to a maintenance plan which takes over the time control of the test and/or calibration. When a calibration is due, an order is generated and an inspection lot is created on the QM side with the help of the assigned equipment plan and its inspection characteristics. The inspection lot is processed and a usage decision is given for the corresponding test equipment. The subsystem EiQMI from Dr. Eilebrecht SSE, Leonberg, is used for processing the test lots, to record measurements and to make usage decisions (box). With the PM order exact costs and effort can be allocated to each cost unit or to the respective cost account. The inspection results are available for later assessment in SAP.



Fig. 1. Tool measuring centre at MANN+HUMMEL with EiQMI workstation

### Prize-worthy Complete Solution

The present company maintenance solution is used in the Marklkofen and Ludwigsburg production facilities to control through SAP R/3 the maintenance of the machines (2500 alone in Marklkofen). The machines and the work centers and their maintenance periods are recorded in R/3. If maintenance is due the complete order connected to it can be booked in through a bar code system - items such as amount of time and material required can be allocated exactly and can be charged internally and externally. The solution manages all of the approx. 12,000 test and measuring tools. It is supported by the EiQMI subsystem which, within the scope of the test equipment management, checks the calibration of each component yearly, amongst others through R/3 test batches.

## Establishing connection

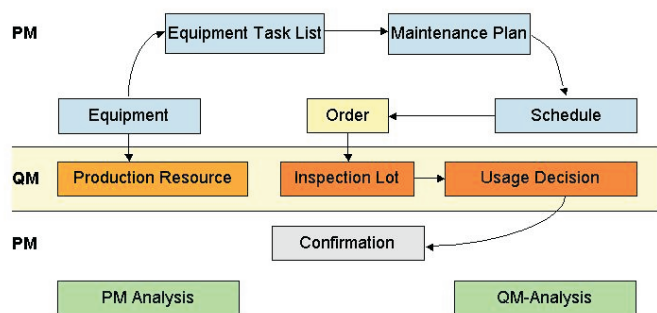
The subsystem EiQMI was introduced into the MANN+HUMMEL Works at the same time as SAP: in the first phase for the incoming inspection, afterwards also for the production inspection. This subsystem was supplemented by workstations in the test equipment administration, whereby this included the integration of a tool measuring centre.

The various measuring equipment and test systems are connected to SAP through EiQMI. The tester is provided with an easy to use interface which, with few actions, guides him through the processing of the test lots for the regular measurement equipment inspection. The tester can concentrate exclusively on the test and calibration work and is not distracted by keyboard input of measurements or other computer operations. The subsystem loads all test lots with the test characteristics and the catalogues (error catalogue, usage decision etc.) from R/3. The test lots are processed in the subsystem independently, the usage decision is made either automatically or by the operator. The characteristic results and findings are transferred to R/3 and used there in the tables.

For the usage decisions four types are used

- 'usable'
- 'correct, not used'
- 'adjustment required'  
(an inspection lot is immediately created) and
- 'cannot be used'

The complete functionality of the test and measurement equipment management of SAP R/3 (PM and QM module) is used in the calibration area. Since the different test equipment dimensions were unable to be implemented the project group decided to use the R/3 classification system in the test and measurement equipment management. Amongst other things the dimensions of all test equipment are defined in this classification system, because for calibration dimensioning print outs in large and small letters have different meanings and as a result different test methods must be carried out. Possible double procurement can be avoided since through the introduction of the classification system, measurement equipment can be found quickly e.g. through the search term "size", "tolerance field", "precision" or "special characteristic".



Great importance is given to training the end users. Every SAP R/3 PM user (tester in the test and measurement management) requires functional and operational knowledge of the new system and should understand it. This know-how must at least correspond to the requirements of the respective daily work with the system or go beyond in order to ensure efficient use of the system platform. The training was carried out by the respective key users. In addition the training documents were published in the intranet, accessible for everybody. For infrequent applications, manuals were prepared which exactly explain the applications step by step with the help of screen shots.

Last year the maintenance solution of MANN+HUMMEL was awarded one of three Maintainer SAP prizes of the T. A. Cook management consultancy, Berlin.

Franz Wimmer, Marklkofen,  
Dieter Michelfelder, Ludwigsburg,  
and Berthold Eilebrecht, Leonberg

Dr. Eilebrecht SSE GmbH & Co. KG  
Heinrich-Laengerer-Str. 9  
71229 Leonberg  
Germany  
Fon: +49 7152 90134-0  
Fax: +49 7152 90134-11  
sse@eilebrecht.de  
<http://www.eilebrecht.de>

