



At the heart of production

How the FMEA becomes the central database for all manufacturing documents

The company Hengst from Münster, with an annual turnover of over 400 million Euro, is one of the major renowned suppliers to the automotive industry. In 2011, Hengst extended its CAQ system with the iqs FMEA module of iqs Software GmbH with its headquarters in Bühl. At that point in time, no one at Hengst could imagine the potential of the software expansion. Today, the FMEA is a recurrent theme in the entire product life cycle and controls all steps along the value chain as well as the accompanying quality assurance processes. The FMEA which was classed as a "dead" project document, has become a key document within the Hengst production. The benefits for the company are immense.

Bühl / Münster - The company Hengst SE & Co. KG was founded in 1958 by the engineer Walter Hengst and is still a family owned company. With over 3,000 employees, Hengst develops and manufactures high-quality and multifunctional filtration and fluid management systems for passenger cars and commercial vehicles at 15 locations worldwide, both as original equipment manufacturer and with a broad range of products for the independent aftermarket. In addition, Hengst increasingly supplies the industrial filtration sector. In addition to leading carmakers such as Daimler, VW, and BMW, customers include global industrial companies such as Miele, Bosch, and Kärcher. Awards from, for example, General Motors "Supplier of the Year 2016" or Sinotruk from China "Best Cooperation Supplier 2016" confirm Hengst's quality-oriented corporate philosophy.

"If we refer to the FMEA as the heart of our production today, it is not the implementation of a decision that we once took at a meeting, but the result of a continuous improvement process that took many years," Michael Cedrola, manager of quality management at the Nordwalde site, explains the unusual progression that the FMEA

has taken within Hengst. "But one thing is clear: without iqs by our side, we could not have managed this step."

In retrospect, four steps can be identified where the FMEA has become the central control instrument of production.

Step 1: iqs Initial Sample Inspection Report enables professional sampling

"Initial contact with iqs Software GmbH from Bühl was in 2007, when we redesigned our entire sampling with the software component iqs ISIR (Initial Sample Inspection Report)," Michael Cedrola explains the beginnings of the cooperation with the CAQ System manufacturer from Bühl in Baden. Due to the enormous growth of the company, the method of initial sampling, which at that time was still handled with Excel spreadsheets, had long reached its limits. "With iqs Initial Sample Inspection Report we are now very fast and very efficiently. Time savings are enormous and communication with our customers is therefore transparent," says Cedrola. >

2nd step: From iqs Initial Sample Inspection Report to iqs FMEA

Since iqs had already established itself as an IT service provider, who responded to the individual customer requirements in an extremely flexible and competent manner during the introduction of ISIR, it was obvious that iqs would be chosen for the implementation of the FMEA software module in 2011 and inspection data collection/SPC. The implementation of the new software iqs FMEA and iqs SPC ran as smoothly as expected: necessary data was transferred as an inspection lot from SAP to the iqs system in the incoming goods department, both systems ran very stable.

Although the software was now available, Hengst still lacked a standardized method description on how the FMEA should be implemented within Hengst and also the fundamental understanding of integrating the FMEA beyond the isolated use at the beginning of a project into the entire production process. Furthermore, the quality of the FMEA was still too dependent on individual skills of participants in an FMEA team. This meant that the actually well-implemented FMEA was too abstract in the early Hengst days. The occurrence and detection probabilities were also evaluated customer-oriented. The result was therefore generally a customer-friendly document that could contribute little to the quality of the product.

3rd step: Realignment of the FMEA

In 2013, the decision was made to realign the FMEA with the support of top management. Cedrola: "Two things were of particular importance to us: First, the clear separation of product and process FMEA and secondly, clearly structuring the process FMEA in three stages of cause of error, error, and error effect. The software supports this approach and makes it possible to build comprehensible function and error networks and display error chains based on the cause of the error in the error network. As a result of the action analysis, based on an error cause, we can process all future error possibilities at a glance - in contrast to the one-dimensional error chain in the FMEA form. "The reorientation of the FMEA supported by the iqs software brought the desired results: Hengst now has a company-wide standardized FMEA methodology which can be used to create simple and lean, yet enormously informative FMEAs with great efficiency and manageability.

4th step: iqs FMEA becomes the central control tool

The successful reorientation of FMEA was the precondition for the fact that the process FMEA could now also be used as a central control instrument for the entire production process. The concept and structure of the iqs FMEA made it possible to store all the information about the process steps and to create documentations such as production control plans, work instructions, process flow diagrams, Ishikawa diagrams, process data sheets, and much more and store them centrally from one data source.

Goals are and were, for example:

- › the direct and inseparable link between FMEA and the production control plan,
- › the connection of SPC / inspection data collection to the FMEA by taking the inspection characteristics directly from the iqs FMEA (including inspection specifications) as an inspection lot,
- › the direct derivation of the process flow diagram from the FMEA, since the process flow is already shown there,
- › when processing complaints, creating an Ishikawa diagram directly from the FMEA,
- › the fully automated derivation of work instructions from the FMEA, as it basically contains all work steps of the respective person as a listing.

The function of the FMEA as a central database enables to consistently use synergies and avoid inconsistencies. Hengst can no longer lose know-how in this structure, as knowledge is no longer stored exclusively in the minds of employees, but also in the iqs software. Thus, the developer of a project knows about complaints that occur due to an error in the series production and can take this into account for future projects.

High customer satisfaction

"When it comes to quality, we are at a whole new level since we implemented the iqs FMEA in production: we almost have no complaints," says Cedrola. However, the high level of customer satisfaction is also noticeable in the case of audits: "We regularly hear from external auditors and our customers that they have not yet experienced such transparency and consistency of data. Together with the qualitative improvement of the (process) FMEA, we were also able to pursue the Lean idea for indirect areas with this step and have achieved a significant increase in efficiency. "

In order to further optimize the system, the next step is the purchase of iqs RKM (iqs Complaints Management). Currently, complaints are still handled in SAP. However, this requires manual comparison - "... and that too is a potential source of error we want to eliminate," says Cedrola, who is pleased about the continued cooperation with iqs. ○

Interview was conducted with user:

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