Successful Implementation of CAQ Modules

Putting Inspection on a Digital Footing

The company Fiedler CNC Fertigungstechnik e.K. from Wechingen produces for companies in the aerospace, electrical, automotive and mechanical engineering industries. Their customers' high level of satisfaction is guaranteed by high-quality goods with an extremely low error rate. To ensure this, Fiedler attaches great importance to its testing department. In 2016, the company's steady expansion made it necessary to support its inspection and quality processes with specialized CAQ software. The choice fell on the CAQ modules Initial Sample Inspection Report (ISIR), Inspection Plan and Control Plan (PP/CP), and In-process Inspection (SPC) from iqs Software GmbH in Bühl, Baden. The result after the first years is very positive.

Wechingen/Bühl - An extremely low error rate and very satisfied customers - these have been the hallmarks of Fiedler CNC Fertigungstechnik e.K. since its beginnings: founded in 1986 by Herbert and Wolfgang Fiedler in a small workshop at their parents' house as Fiedler Maschinenbau, 45 employees and two trainees now work there after many years of continuous growth, the production area has grown to 2,200 square meters and they are certified according to ISO 9001:2015 and EN 9100:2018. 75 percent of the components are produced for aerospace companies, which have particularly high specifications. *"In order to be able to maintain our quality standards in parallel with the constant company growth and still produce cost-effectively, we focused on our testing in 2016. In the process, we saw that an upgrade with the appropriate CAQ software was urgently needed,"* recalls business owner Wolfgang Fiedler.

Excel is no longer enough

Because it is the same for many SMEs that are successful and growing: in the highly competitive, globalized market, their quality processes with Office documents reach their limits at some point. *"Just archiving the Excel lists in accordance with ISO 9001:2015 swallowed up an incredible amount of resources,"* says Wolfgang Fiedler, looking back. *"So we had to find another solution!"*

User-Friendly Handling

Three CAQ providers made the shortlist. Among them was iqs Software GmbH from Bühl, Germany, whose CAQ system was presented to Fiedler at the Control trade fair: *"We were particularly impressed by its very user-friendly handling and the simple creation of checklists. And we also expected great benefits from the automatic stamping of drawings. Therefore, we decided to use iqs quite soon - and have not regretted the decision until today,"* says Wolfgang Fiedler.

Step-by-step implementation

The connection to the existing SAP Business One system was realized via alternative order numbers and iqs inspection sheets. The software was then implemented machine by machine: the first - a machine for a new product with a small range of parts - was equipped with iqs software in 2017 for the complete quality process, including the initial sample inspection report (ISIR), inspection plan and control plan (PP/CP), and in-process inspection (SPC). Only when the processes on the first machine were running stable, others followed. In this way, the team working with the new software also grew gradually: the enthusiasm of the experienced employees was transferred to those who were newly trained. Today, a total of eight employees work with the new software at the inspection stations of four machines.

Very good online training

For the first key user, the software training took place in a personal course lasting several days directly at iqs in Bühl. All other employees were trained by the key user or "live" by an iqs trainer as part of online training courses. *"The support provided by iqs was also very individual and effective during training sessions. The iqs trainer was always able to follow the training progress of the employees. It all went very smoothly,"* recalls Wolfgang Fiedler about the introduction of the CAQ modules. *"And we also carry out the latest software updates ourselves in a very user-friendly way with just a few clicks. As a result, we can decide for ourselves what we really need, are flexible in terms of scheduling, and can avoid interruptions in the production process, for example, through updates on the weekend."*

Big time savings at the ISIR

In many places, the new software has now proven its worth. Above all, the time saved is very noticeable: For example, the drawing is only read in and stamped once at the beginning, after which all target values and tolerances can be automatically transferred to the ISIR. Previously, the values were transferred manually, which not only took much longer, it was also a very error-prone step. *"With the software, we can now create the ISIRs much faster. What used to take a whole day, we now do in around 20 minutes,"* Stefan Fiedler specifies the time savings.

Fiedler Case Study

During the inspection, the measured values are then transferred directly from the measuring machines to the software and entered into the ISIR as actual values. This makes it immediately apparent whether there are deviations between target and actual values and whether action is required. In addition, the new software now makes it possible to process the ISIR completely paperless. *"This is not only much easier for us, it is now also demanded by our customers,"* says Wolfgang Fiedler.

Benefit for the inspection plan

At the same time, when the drawing is read in, the values are also transferred to the inspection plan, which means that the ISIR and the inspection plan are always based on identical values. *"In addition, the inspection plan is created in a timely manner. A drawing sometimes has 300 to 400 characteristics, so it used to take up to two weeks to complete the inspection protocol. Today, it takes just a few minutes,"* says Stefan Fiedler.

Another advantage of the iqs ISIR and iqs inspection plan is the creation of reports. Here, Fiedler can customize the layout himself via the report designer, and additional data fields can also be added. *"For us, for example, it is important to have the serial number on the report. With the iqs software, this can be done without any problems,"* says Stefan Fiedler. About 99 percent of the database fields are available to the customer for an individual entry in the report with the help of the iqs software.

Optimizations at the inspection station

The iqs software has also optimized the inspector's workplace, the inspection station, according to his tasks. By means of a preselection, for example, each inspector only sees the inspection orders that are relevant to him. However, other inspection orders can be switched on if required.

Graphical inspection instructions from the iqs software using images, drawings, videos or in PDF documents support the entry of measured values. If the inspector clicks on the characteristic to be inspected in the drawing, this characteristic (stamp) is brought into focus in the drawing window. Thus, the worker immediately sees which characteristic is involved. For a better display, the active iqs drawing window is shown as a separate window on a second screen. For this purpose, each inspection station at Fiedler has two screens.

Control station inspires customers

In the iqs Control Center, all information is evaluated in real time. The production planner can filter by part, machine and date. This enables efficient monitoring of inspections during production (iqs SPC). The control center's tasks also include the planning of inspection orders and the evaluation of random samples.

This also means that the management at Fiedler is always informed about the quality status of production. *"The automatic evaluation has saved us a lot of manual work here as well. And during audits, customers are thrilled at how quickly and reliably all quality-relevant information can be retrieved from us and displayed in a graphically well-prepared manner,"* says Wolfgang Fiedler.

Reliable project management

However, Fiedler also required many specific adjustments when implementing the software from iqs, because extremely high quality standards apply to the aviation industry. *"And we are very satisfied with how well iqs was able to respond to our requests. Most of them were fulfilled, and for some we are still in the process of developing solutions together,"* says Stefan Fiedler, pleased with the very good support and the fast response times.

Outlook: 3D PDF

On the agenda for the near future is, for example, the variable adaptation of inspection intervals and inspection frequencies in the inspection plan to the special requirements of aerospace. Also a high priority is the integration of automatic stamping of 3D PDF. *"We are already using the 3D image files, all that is missing is the link to the characteristics,"* says Stefan Fiedler. *"I am convinced that with iqs we have the right partner at our side for these goals. I don't know any other CAQ provider who has developed the automatic stamping of 3D PDF as far as iqs."*

Fiedler has now perfected its inspection system to such an extent that the company also performs contract measurements for other companies as a service provider. For Airbus, for example, Fiedler takes over the external final inspection of incoming goods as an 'extended inspection station'. *"We work there in safety class 1, and that is also supported by the iqs software. We are very happy about this very good cooperation with iqs,"* Wolfgang Fiedler sums up the implementation of the CAQ modules.