



Digitale Werkzeugdatenverwaltung lohnt sich auch in kleinen und mittleren Betrieben

Better Small and Fast than Big and Slow: How One Small Business accelerates production processes with TDM



„Effective production in our company would be unthinkable today without our TDM Software! It gives us a completely centralized system. It has become one of the essential pillars which support our production organization. Precisely as a smaller company, we depend on top-quality technological know-how and efficient production processes to keep up with the competition,“ says Rainer Schlagenhauf, Managing Director of Power Hydraulik, with deep conviction.

Power Hydraulik GmbH has always placed great value on modern technology in its product development and production processes. Eight years ago, this small manufacturer of hydraulic systems, electric current dividers and equipment for

mobile production machines starting managing its tool data with TDM. Success was not slow in coming, along with enjoyment.

Power Hydraulik, which started as a small, one-man business operation more than 30 years ago, now makes and delivers complete, pre-tested hydraulic systems to its customers. Due to constantly growing demand, the company's production area has gone through enormous

growth over the last five years. In 2007 alone, investments by this expanding company, which now employs 65 people, amounted to one million euro. In addition to its own metal-cutting area with a hydraulic high-performance band saw for cutting rough blocks to length, 2007 saw the additional erection of a 10-meter-high production building with 600 square meters of floor space for a new Fastems production cell with 2 Heller MCH300 centers. Overall, on a total work area of 3000 square meters the company now has six horizontal and two vertical processing stations, for the most part from Heller.

The rough parts for the base are control blocks of aluminum, cast iron or steel weighing up to 900 kg and with a length of

„We are absolutely confident from our TDM-application!“

900 mm on a side. They arrive as long rods, are cut to length in the company's own metal-cutting area, and then machined. „We mill the front side flat at points where this is required; otherwise our processing of the base consists for the most part of drilling and threading operations,“ says Rainer Schlagenhauf, Managing Director of Power Hydraulik. It is often the case that 30% of the base is machined, making it look like a Swiss cheese with up to 329 holes requiring 3,700 NC programming blocks. The tool wear and tear on tools is correspondingly high.

Small, High-Quality, Flexible

High downtime rates involving stops and waiting periods at the machines, along with the desire to improve production quality even further, were the main reasons why Rainer Schlagenhauf and his NC programmer Silvester Holzer started looking around in 1998 for a good tool data management software. One thing they DIDN'T want, however, was a big, intricate solution. Rather, it had to be a software which offered efficiency - and most of all simplicity - even for smaller companies. „To get more

information, we paid a visit to Haff & Schneider Company in Nesselwang, Germany. That's when we saw the possibilities offered by TDM Systems for improving both daily production operations and quality at smaller companies.“

Endless set-up times and high rates of tool wear and tear called for a speedy solution

Major production problems plagued the company prior to the installation of TDM software. Tools and cutting data were undocumented, labels for tools were lacking. Different tool holders were often used for identical tools, and different tools for identical operations. The scrap rate which resulted is easy to picture. Moreover, the search for specific tools often led to downtimes at the machines. The machine operators often had no idea which tool holder might be best (drill chucks, collet chuck, Weldon), what length they should take, or even whether twist drills had already been repeatedly reground. There was a complete lack of uniform machining data. When a drill bit functioned with less than optimum quality, for example, it was standard practice for the machine operator simply to make slight changes in the cutting data. Enormous disparities in data were the inevitable result.

The machine operator often had to spend a full day at the machine in order to start up a big NC program: dozens of interruptions, searches for other tools, selection of different clamping parameters, lengthening of tools, etc. Long periods passed without the machines being at

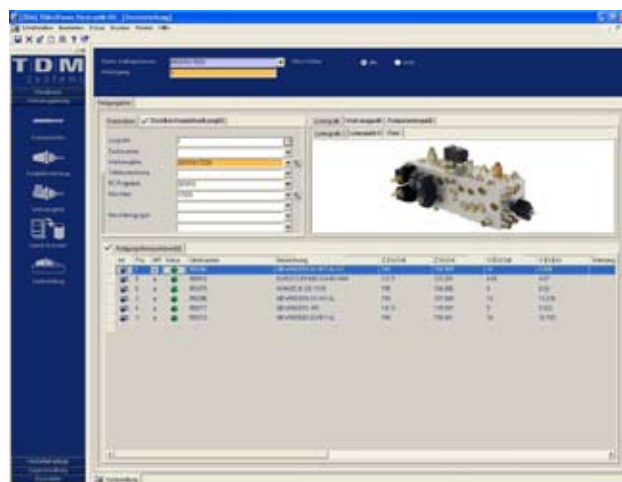
work. „And it started all over again every six months when the machine was re-programmed,“ remembers the company's NC expert Silvester Holzer. „Even though we knew it would work, we had no exact data to fall back on. For example, a drill bit is 50 mm shorter in a collet chuck than in a drill chuck,

which leads to workpiece mismatches and problems with jigs and fixture.“ As a result, it was no rarity for a tool to break or even for a workpiece to be damaged at startup.

Now: clear-cut processes, with good communication

Everything changed after TDM software was introduced: suddenly, all processes at Power Hydraulik were clearly defined. After TDM Systems showed the company how to link its TDM software with the Missler NC programming system TopSolid CAM and with its processing stations and presetting activities, the company's data flow suddenly smoothed out, resulting in enormous savings in time and improved product quality.

The versatile TDM tool management software has revolutionized work at Power Hydraulik. After tools are mounted and measured at the presetting unit, their readings are sent via a standard interface to the TDM System and then via Tooloffset to the processing stations; there the operator needs only enter the T-number, confirm his entry, and start processing the



TDM software shows a pre-setting list to the setting device operator. Interfaces ensure a smooth transfer of data between the machine, the pre-setting device, and the TDM tool management software. The advantages: automatic application of tooling and tool holder geometries, along with all cutting parameters and additional information (e.g. for coolants) from the TDM software.

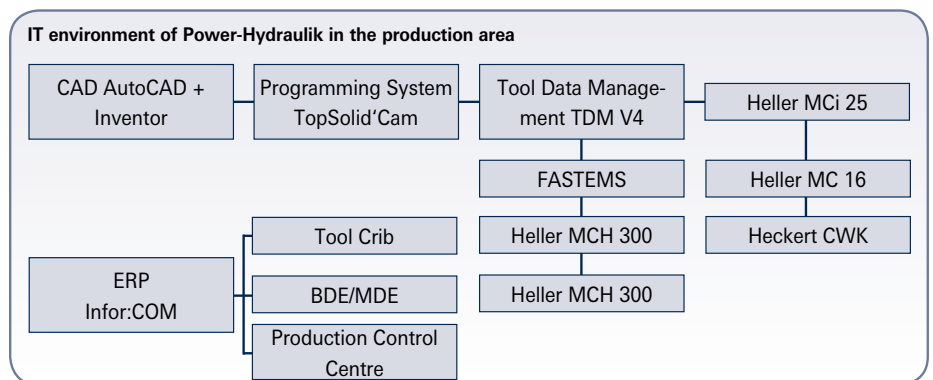
next production order. All remaining data are transferred via the Tooloffset interface. „The friendly experts from TDM Systems in Tübingen have helped us create real-time online interfaces. That is a far cry from the reading in and out of Excel sheets which is common with other solutions,“ says Schlagenhauf.

Complete Elimination of Error Sources

Over the course of time, the TDM software has completely eliminated former sources of error at Power Hydraulik. For example, whenever an operator changes any data at the machine, the NC program is sent back with these changes to the server, and the new cutting data are stored in the TDM software system for future use. Or should it come to pass that a tool holder which is specified for a certain tool is unavailable, the operator no longer picks up another tool, as in the past, with the resulting discrepancies. The reason: all cutting data and all parameters for each tool are always present in the TDM software’s memory system. In fact, TDM’s base software module makes it possible to document several sets of technological data for every tool. Concretely, this means that all conditions for use of any tool at Power Hydraulik are always met 100%. Just one example: the TDM software knows that all normal twist drills are to be clamped only in drill chucks, whereas all tap drills are to be clamped only in collet chucks with the driving chuck at the rear.

An Uncomplicated Solution for Smaller Companies

„Our TDM software has been a piece of luck. So much so that we have added other modules from TDM Systems many times, thus optimizing our TDM System for our own uses. And we have invested considerable amounts in our Tooloffset interfaces,“ is how Rainer Schlagenhauf



sums things up. And the future? „Even though we see no further optimization needs on the horizon at the moment, there’s no doubt that TDM will be a permanent part of our future. I always have an open ear for innovations when I hear about something in the pipeline that could be of value to Power Hydraulik!“ One such possible innovation was discovered by Silvester Holzer at the AMB Trade Show last Autumn: a vending automat with TDMstoreasy, another software module from TDM Systems. He was visibly impressed: „It’s a really fascinating solution: every shop worker needs only his personal card to get the tool of his choice, and TDMstoreasy keeps track of everything!“



Assembly at Power Hydraulik. The hydraulic systems are delivered fully assembled and tested for proper function.