

PRESS RELEASE

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Machine safety – Key topic at METAV 2020

VDMA standard sheet clarifies "Safety requirements for clamping devices in machines"

Frankfurt am Main, 08 November 2019. Safety in machine handling will feature prominently in various forums at METAV 2020. One of the issues being discussed in Düsseldorf will be the new VDMA Standard Sheet 34192 which improves cooperation between the manufacturers of machine tools and clamping devices and thus increases safety.

"I very much welcome the fact that the VDMA is addressing the topic of clamping fixtures in its standard sheet," says Alfred Hillinger, head of design at Hainbuch GmbH in Marbach (near Ludwigsburg), explaining the situation. "Both machine and clamping tool manufacturers face the same problems." These include grey areas and discrepancies in interpretation.

Misinterpretations circulating on the Internet

The problems arise from the wide variety of interpretations of the new Machinery Directive 2006/42/EC which are circulating on the Internet with regard to clamping devices and tools. "These include a number of misinterpretations – for example, that the Machinery Directive covers clamping devices in full," reports Hillinger. "In fact, however, it doesn't focus explicitly on clamping equipment." The industry first developed the VDMA "Clamping Devices for Use on Machines" position paper together with VDMA trade associations. Issued in 2017, it sets out the scope of validity and proposes a procedure for fulfilling the requirements of the Product Safety Act.

"While working on the position paper, we realised that many details still need to be clarified," recalls the design manager. "The paper therefore served as the starting point for a working group in which both machine manufacturers and our customers were actively involved." Hillinger sees it as a clear advantage that he no longer has to discuss basic issues with the machine manufacturers and end users every time an order is placed. These have now been set down in black and white in the VDMA standard sheet. The risk of project partners being confronted with requirements that they cannot meet has now been banished. "We noticed large numbers of gaps which we then discussed in detail," explains Hillinger. "Now, the VDMA standard sheet provides a full and comprehensive basis that minimises typical interface problems."

Standard sheet reduces additional costs

There was one basic question: Who is responsible for which tasks? "In the past you often noticed that crucial jobs had not been taken care of," says the design manager. "This then led to discussions and problems. I hope that adhering to the standard sheet will help reduce the additional work and keep costs to a minimum. It serves as a checklist to be worked through. As a result, everyone knows what they can expect from their partners in a project. This

applies in particular to technical solutions such as condition monitoring, where we can only achieve the required safety levels with the cooperation of the machine manufacturer."

Checklist for designers

The new standard sheet was published in August 2019. "The standard sheet is aimed at the manufacturers of clamping devices," adds Bernt Ritz, Consultant for Technology, Standardisation and Clamping Equipment in the VDMA Precision Tools Association. "It serves designers as a checklist which they can use to see which safety aspects need to be taken into account at the design stage. The Annex also states what information, such as labels and operating instructions, they need to provide."

But what use is the standard sheet to machine manufacturers? Ritz: "It gives machine manufacturers confidence that any clamping device that has been developed on the basis of the standard sheet will meet the specified safety requirements. They can count on receiving a safe device."

Dr. Volker Wittstock, research assistant in the Professorship of Machine Tool Design and Forming Technology at Chemnitz Technical University, discovered a further, oft-neglected aspect when assessing risks in virtual environments. The team came up with the idea of analysing risks under actual working conditions. A test procedure was developed at TU Chemnitz as part of a master thesis on the subject of human reliability. At the suggestion of the VDW (German Machine Tool Builders' Association), the scientists used this method in a study aimed at investigating the risks involved in man-machine interaction.

Sources of human error

To this end, the Chemnitz-based company analysed possible sources of human error in trainees during the clamping of workpieces for vertical turning at the

"Richard-Hartmann" vocational school in Chemnitz. "Machine manufacturers are particularly interested in what actually happens when humans interact with parts such as clamping devices," says Wittstock.

The scientist regards the clamping of loads in HGVs as the model solution, as this is very safe in practice: very few mistakes are made because employees have to complete a training course. Wittstock also recommends high-quality and reliable training for clamping: "The tests with the trainees revealed, for example, that they had problems fastening the chuck to the lathe as this was a task they did not have to perform very often."

The test results provide a useful supplement to the new standard sheet.

Wittstock: "The high speeds can result in workpieces coming loose if they have not been securely clamped. This is why it's important to ensure instructive safety." For Wittstock, instructive safety means first of all adding extra protection features to an already inherently safe design. Information on possible sources of error is then required in order to formulate accurate operating and safety instructions.

Companies required for troubleshooting

However, the Chemnitz-based company cannot compile these on its own. They are therefore looking for other companies to help with troubleshooting the clamping of workpieces. Information on the procedure can be obtained from the Professorship of Machine Tool Design and Forming Technology at TU Chemnitz.

Interested parties can find out more about VDMA Standard Sheet 34192 "Safety requirements for clamping devices for use on machines" and current trends at the VDW Technology Day devoted to "Safety technology in machine tools under changing conditions" on 10 March during METAV 2020 from 10 to 13 March 2020 and at the VDMA "Clamping Technology - Solutions for Megatrends" Clamping Technology Forum on 11 March.

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Background – METAV 2020 in Düsseldorf

METAV 2020 - 21st International Trade Fair for Metalworking Technologies displays the full spectrum of manufacturing technology. The focus is on machine tools, manufacturing systems, precision tools, automated material flows, computer technology, industrial electronics and accessories. Added to this are new topics such as Moulding, Medical, Additive Manufacturing and Quality. They are firmly established in so-called Areas in the METAV exhibition programme, each with its own nomenclature. The

target group of METAV visitors includes all branches of industry that process metals, in particular mechanical and plant engineering, the automotive and supply industry, the aerospace sector, the electrical industry, energy and medical technology, tool and mould making as well as metalworking and trades.

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