

Tebis CAM Automation with Virtual Machine Library

Paul Scally, Operations Manager of Tebis UK, explains why you need Tebis CAM automation with Virtual Machine library.

Tebis CAD/CAM software offers a unique Virtual Machine library which helps customers to plan, program and verify NC machining operations all in Tebis CAD/CAM programming environment, together with four other Tebis database libraries: cutting tools with advanced machining parameters grouped for different materials and different machines, geometric features associated with machining features, machining cycles and machining processes.

Tebis software uses Virtual Machine technology at three stages of CAM work: planning, programming and verification. Most other CAM software systems may only use machine tool geometry models for verification, and this type of verifications usually don't support advanced features of Tebis Virtual Machines.

At the first stage of the planning process, Tebis Virtual Machine technology provides tools to ensure that a component which is planned to be machined will fit on the designated machine tool. This can be checked along with the optimum setup position, tool tilt directions and cutting tool lengths required.

For programming, Tebis uses Virtual Machines for toolpath calculation in addition to cutting tools, tool holders and machine tool heads. Virtual Machine geometry information and machine tool axis limits are included for toolpath calculation. It is possible to see when programming if a toolpath angle can be achieved on the machine. Tebis will not allow creation of a toolpath which is not achievable in reality. Also special parameters for the Virtual Machine can be defined during the programming stage to account for certain applications such as: activating of particular parameters which you may not always want to be active. With Tebis, what you see is what you get.

At the last stage of toolpath verification, Tebis supports automated toolpath checking. This prevents any collisions, not only against cutting tools, tool holders, machine heads and components, but also the whole machine tools including the shields, barriers, fixtures, clamping devices and any other components setup on the machine at the same time. If there is a problem, it is easy to modify and recheck everything, all within Tebis.

Tebis Virtual Machines also supports verifications of machine tool macros and links between toolpaths, which are usually not supported by most other CAM systems though these potential collision damage costs can be very high.

Additionally, Tebis Virtual Machines build machine tool kinematics into them. One of the benefits of this is accurate estimations of machining time, which is especially useful for work scheduling.

Tebis not only provides off-the-shelf catalogue Virtual Machines, but also come to customer sites to measure the actual machines when required to create exact digital mirror of the machines on the shop floor. Paul explains: "Tebis team will come and measure the physical machines and create Virtual Machines together with associated post-processors with a sign-off procedure. This is to create the exact digital mirror of the machines together with the controls for maximum safety. "

Paul continues: “Tebis Virtual Machines can also be used for Tebis CAM automation templates. It is possible to choose a machine and apply it to pre-defined machining processes, with automatic setup position and machining parameters, etc.”

Virtual Machines in the library can be grouped as the customer sees fit, possibly, small medium, large machines or the machine for particular tasks, roughing, finishing and etc. This supports the best uses of the machines with tested and optimised machining parameters.

Tebis Virtual Machines can also have tool magazines attached to them, to ensure the correct tools with both fixed and random position carousels, and these again can be mixed with manual tool changes for tools from a cabinet rather than in the magazine and even handle special tool builds.

Finally, Tebis CAD/CAM software can support wide range of machines: it could be standard vertical milling machines, 5-axis milling machines, lathe with multiple turrets, turnmill machines or even robots. All of these are within one integrated CAD/CAM software package.

Tebis Virtual Machine for CAM automation is to make your manufacturing process safe, to ensure machining quality and to maximise machining productivity while reducing CAM work difficulty, time and costs.

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