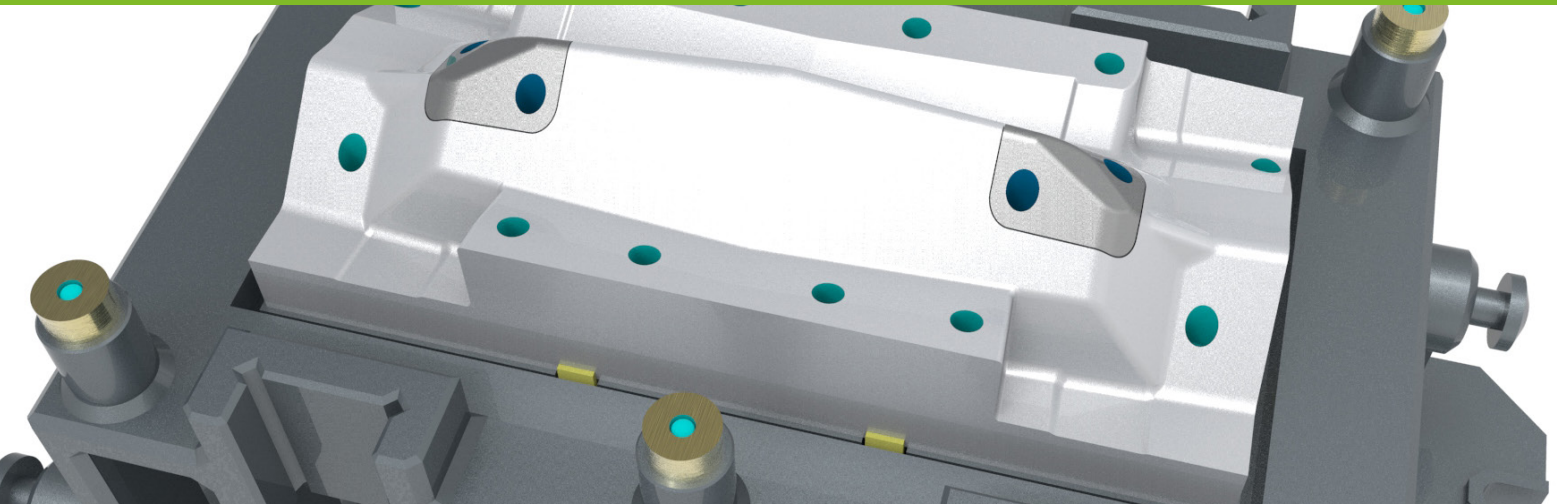


VISI Machining



MACHINING STATISTICS

Operation Details / Tooling	Spindle Speed (n)	Feed Rate (Vf)	Step Over (Ae)	Step Down (Ap)	Feed Time
STANDARD ROUGHING Ø16MM MITSUBUSHI MS6MH	2586	1782	12mm	1mm	00:24:48
WAVEFORM ROUGHING Ø16MM MITSUBUSHI MS6MH	2586	1782	1.6mm	30mm	00:10:44
RASTER ZIG-ZAG Ø10MM MITSUBUSHI MS2SB	6366	2095	0.5mm	N/A	00:13:04

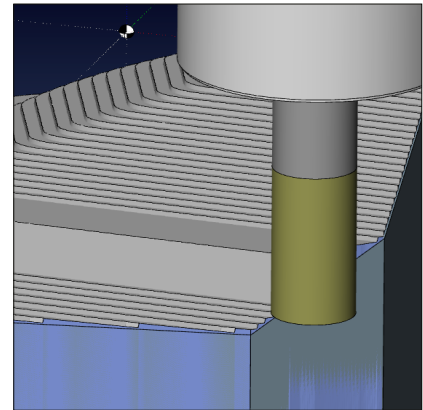
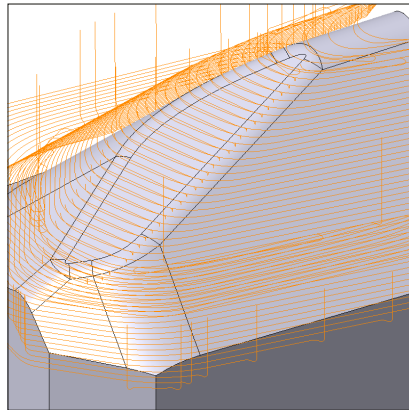
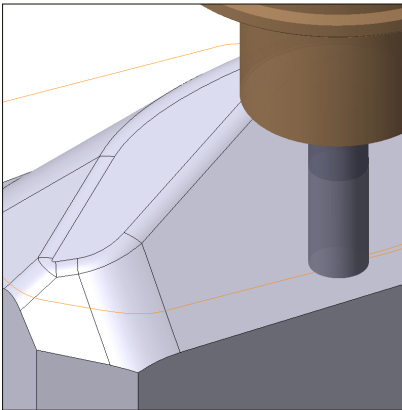
waveform = 58% CYCLE TIME REDUCTION

Toolpaths inside VISI are tailored towards high speed machining and hard-metal cutting. Smooth corners, smooth stopovers and arc fitting are used to minimize sudden direction changes. The elimination of tool retracts, maintaining a constant tool load and optimised NC code make it easy to successfully program high speed machine tools with VISI.

MACHINE : QUASER MV235 3 AXIS



VISI Machining



Intelligent roughing toolpaths

A combination of constant Z roughing, adaptive roughing, core roughing and rest roughing, combined with intelligent ramp, helical and planar entry methods provide the operator with the freedom to produce efficient NC code to suit any component.

Positional machining

Positional (3+2) machining allows both 2D and 3D toolpaths to be used at a fixed angle. The traditional benefit is the reduction of multiple setups. The ability to orientate the head to the correct position automatically will significantly cut machining time and reduce the need for multiple fixtures. Similar to continuous 5-axis, positional machining also allows the machining of undercuts and enables the usage of shortened cutters for rigidity and improved surface finish.

Multiple finishing strategies

High-speed finishing requires the same fundamentals as high-speed roughing - consistent tool loading, lighter cuts, minimising any sudden direction changes, optimising NC code and reducing stress on the machine tool. Traditional toolpaths such as ISO-machining, Raster, Waterline, Radial, Spiral, Offset and Curve machining are supported by intelligent combination routines that automatically adapt the toolpath to suit the geometrical form - eliminating witness lines and greatly improving surface finish.

All toolpaths are gouge checked against neighbouring surfaces to eliminate the possibility of a tool collision. In addition, small smoothing radii are automatically added to internal corners, stopping the tool from dwelling in the internal corners, which can cause the tool to pull into the job creating an unexpected gouge, which would not be detected by toolpath verification.

3D > 5-axis conversion

All 3D toolpaths can be converted to 5-axis operations which dramatically increases the number of strategies available to cover any scenario. Using this approach will apply high speed machining technology to 5-axis toolpaths.

The 3D > 5-axis conversion provides intelligent collision detection and will automatically tilt away from the piece only when required. This type of semi-automatic toolpath will dramatically speed up programming and shorten the learning curve.

Kinematic simulation

Toolpath verification can be applied using the real machine dimensions and limits with the kinematic simulation including the motion display of all rotational and linear axis. Cutting tool, holders, jigs and fixtures can all be checked when running the kinematic display and any issues will be graphically highlighted. A comprehensive list of tested 3, 4 and 5-axis machine are available. Vero engineers are also available to help with the construction of any bespoke machine.