

CNC Features

› Smart milling ›



FIDIA 

Machine tool operator functions

Introducing the numerical control to the world of die-making more than 40 years ago, Fidia has always paid particular attention to the needs of those machining individual parts.

Although tool paths are now all processed and checked on ever more reliable CAD/CAM systems, in various cases many users consider it important that a certain flexibility at the machine tool is assured, with interventions being decided by the operator according to his experience.

In order to satisfy this need, Fidia has developed various specific functions.



CQAHDW

How it works

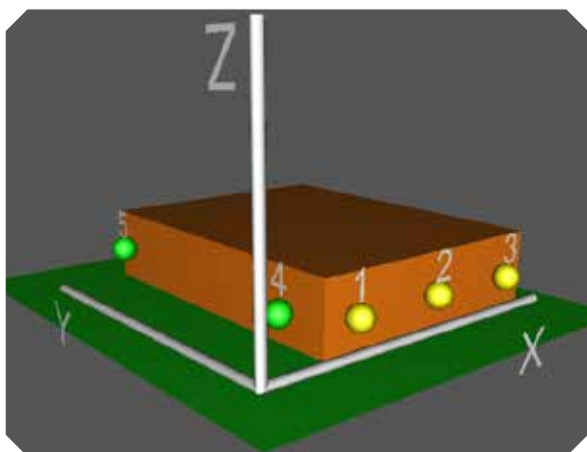
By linking the handwheel to an axis, translation along the selected axis of the machining program is enabled during program execution. All axes may be selected, including the virtual quill.

Advantages

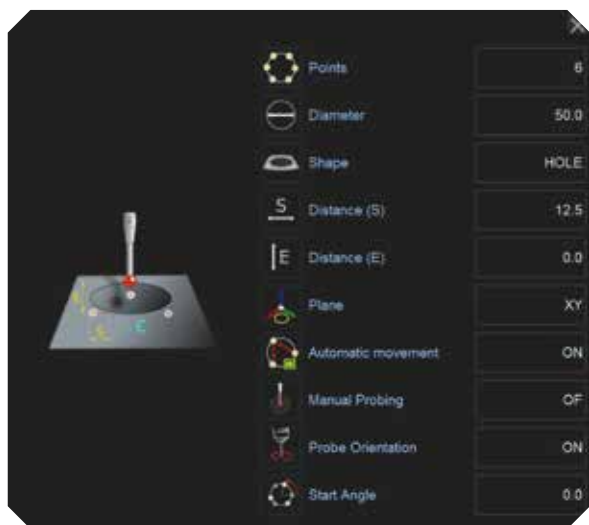
When a machining process has to be repeated on an already machined part, in particular finishing, this function helps the operator to position the tool path. By observing the machining, the operator can use the handwheel to move the entire tool path along the selected axis in steps that are equal to the resolution of the handwheel.



Use of the hand-wheel to translate the whole tool path



Measuring and aligning cycle



Display of measuring and aligning functions on the CNC screen

ES/AP

How it works

Starting from measurements made on the workpiece by the tracer, the control calculates a new reference system aligned with the part.

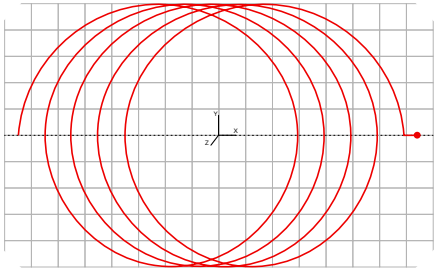
Advantages

In many cases, a precise alignment of the workpiece with the machine tool reference system is no longer necessary. On the contrary, by using this cycle the control determines the reference system aligned with the part and then executes the machining in relation to it.

Trochoidal milling

How it works

This is a milling method in which a circular movement is superimposed on a forwards movement. It is used especially for the high speed milling of slots and when using difficult materials. Specific functions enable the diameter and pitch of the trochoidal movement to be programmed.

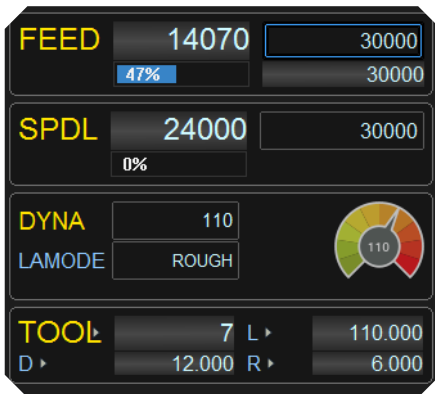


Trochoidal milling cycle

Advantages

- Generates a reduced radial cutting force allowing for greater cutting depth
- Reduces vibration
- Smaller diameter tools can be used, reducing costs and giving greater flexibility
- Generates thinner chips and reduces the heat produced, allowing for higher feeds and cutting speeds
- Significantly increases removal rates





Display of Dyna parameter value on the CNC screen

How it works

By the term Look Ahead is meant the overall algorithms governing the dynamics of the machine tool, in particular speed and acceleration, in relation to the movement of the tool path. Dyna is a parameter that acts internally on these algorithms, it is set by the machine tool operator and regulates the dynamic performance of the machine. The standard value is 100, and it can be set between 50 and 150: higher values allow for higher feeds, while lower values improve surface quality.

Advantages

It gives the machine tool operator the option of choosing high surface quality or, on the other hand, high execution speed.

Being able to make this choice at the machine tool, even while machining is in progress, the operator can set the Dyna parameter in relation to the type of machining and the expected result in terms of time and execution quality. Used in conjunction with the Lamode parameter, the Lamode parameter can be set to roughing or finishing mode in order to further refine machine tool behaviour.

Predict Time

How it works

When executing a program in TP mode, the control simulates the machining and estimates the machining time.

Advantages

During execution, the control displays the end of machining time and the time remaining.



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