

Adaptive Clearing

PERFORMANCE
Mastercam. PACK

Cut Roughing time by ^{up} to 40%!

Mastercam HSM Performance Pack is first with Adaptive Clearing

Stable load, feed, and cutting

Adaptive Clearing is a roughing strategy which offers significant improvements compared to conventional roughing strategies, making it the most efficient way to cut hard as well as soft materials.

Basically, Adaptive Clearing avoids full-width cuts by progressively shaving material off the remaining stock.

This may sound simple, but is in fact the most unique feature of the new Adaptive Clearing strategy. By taking the remaining stock into account, the strategy is able to generate a tool-path, which is aligned with the remaining stock in such a way that the cutting conditions remain stable while always making the largest possible cut.

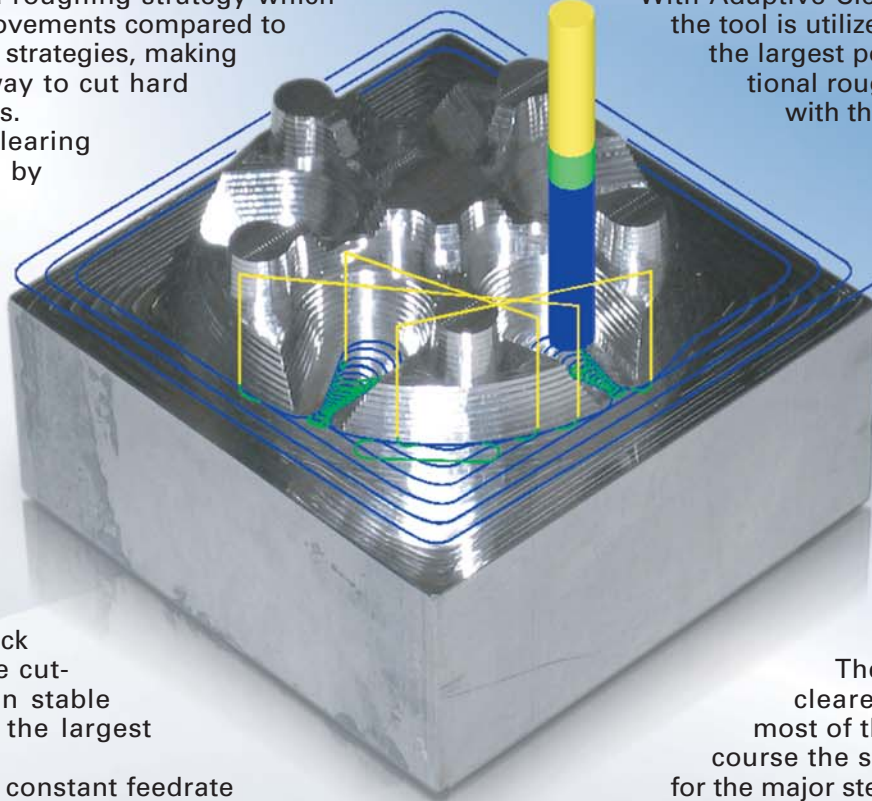
This results in a more constant feedrate and less vibration.

Easily defined cutting conditions

Traditional roughing strategies employ both side and slot milling throughout the operation. Since Adaptive Clearing guarantees that there will be no full-width slot milling, the recommended side milling conditions can be used straight from the tool manufacturer's catalog. By milling with a stable load on the tool the feed can be confidently increased up to twice the normal value.

Use the entire flute of the tool

With Adaptive Clearing the entire flute of the tool is utilized for side milling giving the largest possible stepdown. Traditional roughing strategies only cut with the very corner of the tool.



Intermediate steps

Adaptive Clearing provides built-in support for semi-roughing by allowing the user to machine any number of additional intermediate levels between the major stepdowns all within one operation.

The intermediate steps are cleared bottom up to utilize most of the flute possible, and of course the same strategy is used as for the major stepdowns.

Experimentation has shown an amazing reduction of up to 40% in machining time over conventional roughing, with less wear on the tool, *and* better surface quality, which is of importance to subsequent machining. Adaptive Clearing is a perfect solution for cutting in hardened steel because of the stable chip load, and also perfect and very fast for soft materials like aluminium, copper, and graphite.

Even difficult, high tech alloys like for example Inconel are machined, with Adaptive Clearing making the difference between a broken tool and a finished roughing.

www.cimco-hsm.com

 **CIMCO**
Integration
When Reliability Matters

Adaptive Clearing

PERFORMANCE
Mastercam. PACK

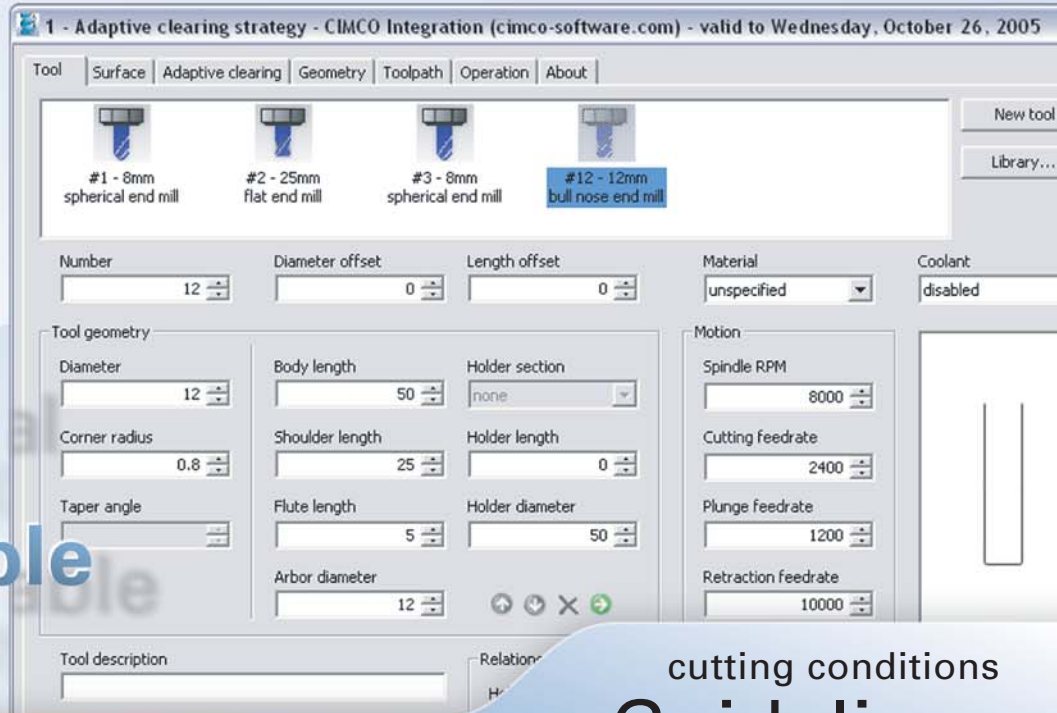
High Speed Machining

Fast

Effective

Economical

Indispensable



cutting conditions Guidelines

"For some time now we have been using Mastercam HSM Performance Pack in the CNC programming. In times where the materials become increasingly exotic, the machining strategy becomes steadily more important, and with the new Adaptive Clearing strategy we can now efficiently machine materials like Inconel.

It is a matter of importance to us that the system is easy to operate and that the number of parameter settings are reduced to a minimum. HSM Performance Pack is straightforward and fast to get to know.

Without this strategy, the manufacturing of certain parts would be unthinkable. Using the Mastercam HSM Performance Pack we can put even the most extraordinary idea into practice, and keep our demanding customers enthusiastic about it."

- Hans Leng, MBFZ toolcraft GmbH, Germany

Steel: Depth of cut is the flute length, sideways step can be up to 20% of cutter diameter.

Hardened steel: Depth of cut is the flute length, sideways step can be up to 5% of cutter diameter.

Aluminum: Depth of cut is 1.5 to 2 times the cutter diameter (but can be up to the flute length), sideways step is 30% of cutter diameter (but can be up to 50% of cutter diameter).

These values are for cutters suited for roughing. Multi flute cutters should only be set to half or less of the above sideways steps.

As an example, a 16 mm diameter cutter with a 32 mm flute length would be set to a 32 mm depth of cut and sideways step of 4.8 mm (optimal) and 8 mm (maximum) if cutting aluminum. In hardened steel the sideways step would be only 0.48 mm (optimal) and 0.8 mm (maximum).

Reseller



CIMCO Integration I/S
Lyngby, Copenhagen, Denmark
Tel. +45 45 85 60 50

CIMCO Integration I/S
Oakboro, North Carolina, USA
Tel. +1 704 644 3587

www.cimco-hsm.com