

HEIDENHAIN

Maximize Clearing Processes

Optimized Contour Milling (OCM)

TNC:\nc_prog\OCM\S Path overlap fac BEGIN PGM START	_OCM MM	ž.				
3 TOOL CALL "MIT. 1 C **0 B **0 R0 5 CYCL DEF 7.0 6 CYCL DEF 7.2 8 CYCL DEF 7.2 9 CYCL DEF 7.3 CONTOUR DEF P1 ** Frame* **Pocket2** P3 0 CYCL DEF 271 0 CYCL DEF 271 0 CYCL DEF 271 0 CYCL DEF 271 0 CYCL DEF 3	OCM cutting dat Workpiece mate: [(259) 1.4104 X Tool [(5) MILL_D10 R Diameter Angle of twist Limits Max. spindle c Max. milling	000H 19.000 mm 36.000 "	Number of teeth Cutting data Overlap factor(0370) Lateral infeed		Select	
	Process parameters Plunging depth (2022) 22.000 ms Hechanical load on tool 159% Thermal load on tool 100% 100%		Tooth feed FZ Spindle speed(0576) Cutting speed VC Climb or up-cut(0351) Material removal rate Spindle power Recommended cooling	-	U/min m/min m/min cm²/min kW	
Q576=+8014 ;SP	UNGING FACTOR S		ameters	APPLY	CANCEL	ENC
		lunging de				

Fast and tool-friendly machining

The OCM option lets you machine any pocket and island with reduced tool wear using the highly efficient trochoidal milling technique. Complex movements for the trochoidal milling operation are automatically calculated by the control. OCM sets new standards for economical milling:

- Easy and efficient programming
- Fast and tool-friendly machining

The integrated cutting data calculator draws from an integrated materials database, enabling full use of the milling cutter's performance potential. Users can also adapt the tool's mechanical and thermal load to the respective machining situation as desired.

Milling feed(Q207) 4808 mm/
Tooth feed FZ 0.150 mm

Spindle speed(Q576) 8014 U/n
Cutting speed VC dynamic

efficiency



High removal rate in a practical test

In this milling experiment, OCM reduced tool wear and machining time by a factor of three.

Conventional machining

S5000, F1200, a_p: 5.5 mm Overlap factor: 5 mm Machining time: **21 min 35 s**

Machining with OCM

S8000, F4800, a_p: 22 mm Overlap factor: 1.4 mm Machining time: **6 min 59 s**

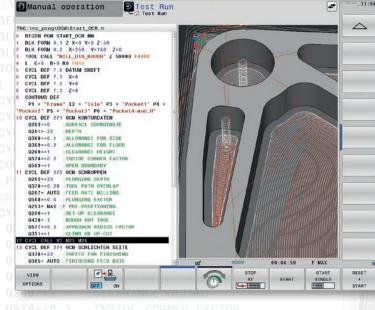


Tool after two parts



Tool after six parts

Tool: VHM end mill (Ø 10 mm) Workpiece material: 1.4104



Q578=+0.2 ;INSIDE CORNER FACTOR Q569=+1 ;OPEN BOUNDARY CYCL DEF 272 OCM SCHRUPPEN Q202=+22 ;PLUNGING DEPTH Q370=+0.28 ;TOOL PATH OVERLAP Q207= AUTO ;FEED RATE MILLING The OCM software option offers a package of functions for the efficient roughing, finishing, and deburring of pockets and islands of any shape. For all of these machining steps, contours are defined in the NC program only once. Simple contours such as circles or rectangles can be defined in cycle parameters. Complex contours are easily definable with CAD Import.

OCM is an effective, reliable, and convenient way to improve your throughput:

- Uniform tool-workpiece engagement
- Higher possible cutting parameters
- Superior chip removal
- Reduced thermal load on the tool
- Considerable reduction in tool wear
- More chips in less time

HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH

Dr.-Johannes-Heidenhain-Straße 5

83301 Traunreut, Germany

2 +49 8669 31-0

FAX +49 8669 32-5061

E-mail: info@heidenhain.de

www.heidenhain.de