

3M™ Cubitron™ II Resin bond grinding wheels for High Speed Steel (HSS) tool grinding

Flute grinding is the most demanding and time consuming grinding operation in tool grinding, characterized by high stock removal. It is a very cost intensive process during manufacturing of drills or end-mill products. Flute grinding puts high demands on optimization of the grinding process including machine, coolant system as well as the grinding wheel. Throughout the years developments have been made to improve machine stability, spindle power and CNC control systems.

3M™ Cubitron™ II Resin bond grinding wheels for precision grinding of HSS cutting tools take performance and cost efficiency to the next level.

Application examples:

- HSS taps
- HSS drills
- HSS end-mills



The advantages at a glance:

- Significantly higher specific material removal rates Q'_w
- Improved cycle time per part
- More parts per dressing cycle
- Reduced dressing amount
- Minimal risk of burning

Recommended operating parameters

Cutting speed (v_c)	93BW 75-80 m/s
	93BY 54-60 m/s
Infeed speed (v_f) (mm/min)	raise by ~50 %

Economic efficiency plan: Flute grinding HSS M10 Tap

Fluting data

	Competitors	3M™ Cubitron™ II 93BW / 93BY Specification : 99DA80 R7B674
Objective		Reduction of grinding time and cost per workpiece
Wheel dimension (mm)	T1SP - 200 × 6 × 76.2	T1SP - 200 × 6 × 76.2
Flute grinding	30° spiral	30° spiral

Grinding parameters

v_c wheel (m/s)	55	55
Number of passes	2	1
a_e (mm)	3,1	3,1
v_f (mm/min)	1200 (2x)	1300 (1x)

Results

Number of workpieces	500	500
Specific material removal rate Q'_w (mm ³ / mm / s)	31	67
Dressing cycle	every workpiece	every 4th workpiece
Dressing amount	25 µm	15 µm
Total grinding cycle time	68s	46s
Burning	no	no

Economic benefit

Workpieces per mm layer thickness / grinding wheel	40	266.6
Cost reduction per part	0 %	67 %

For any further information, or to make an appointment, please contact us at the address or telephone number below.



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