



DIE & MOLD

TEST SUMMARY – PROFILE MILLING – 2 OPERATIONS

The customer needed to save time machining electrodes.
Colibri's TJS GJET-ST20 Jet Spindle model



Total Machining Time (min) per part

Machine Spindle



HSM Jet Spindle



57.4%

Time savings per part

POSITIVE RESULTS: Time savings per part 57.4%

Test Date	2018
Country	Israel
Industry	Die & Mold
Application	Profile Milling
Material Group	Copper C11000ASTMB 152/2009



Operation	Semi Finishing		Finishing	
	Machine Spindle	Jet Spindle	Machine Spindle	Jet Spindle
Cutting Tool	Ball Nose		Ball Nose	
Diameter (mm)	2.0		1.0	
No. of Teeth	2		2	
Spindle Speed (rpm)	10,000	35,000	11,000	35,000
Cutting Speed (VC M/min)	63	220	35	110
Depth of Cut (mm)	0.08		0.04	
Width of Cut (mm)	0.08		0.04	
Run Out (micron)	7	5	6	4
Feed Per Tooth fz (mm/t)	0.05	0.037	0.027	0.021
Table Feed f (mm/min)	1,000	2,600	600	1,500
Machining Time (min) per part	17	10	30	10
Total Machining Time (min) per part			47	20



TEST SUMMARY – SLOT MILLING

The customer needed to increase tool life and save time machining complex tire molds. Colibri's TJS GJET-HSK-A63 Jet Spindle model



Cutting Time/Part (min)

Machine Spindle



HSM Jet Spindle

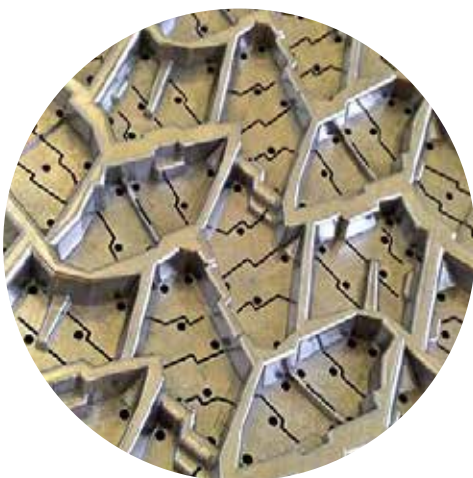


40%

Cutting time Savings Per Part

POSITIVE RESULTS:
Tool life increased by 200%
Cutting time savings 40% (3 hours per part)

Test Date	2019
Country	Slovakia
Industry	Automotive
Application	Slot Milling
Material Group	Alu AW5083 or ST 52-3 20-15 HRC



Operation	Rough / Finish	
Test Data	Machine Spindle	Jet Spindle
Cutting Tool	End Mill	End Mill
Tool Overhang	35	35
No. of Teeth	2	2
Spindle Speed (rpm)	12,000	55,000
Cutting Speed (VC M/min)	18.84	86.5
Depth of Cut (mm)	0.2	0.2
Width of Cut (mm)	0.5	0.5
Tool Cutting Diameter (mm)	0.5	0.5
Run Out (micron)	7	4
Feed Per Tooth fz (mm/t)	0.007	0.007
Feed Revolution fn (mm/r)	0.013	0.013
Table Feed f (mm/min)	350	750
Surface Finish	Good	Good
Results	Machine Spindle	Jet Spindle
Tool Life (tools per cavity)	3	1
Cutting Time (min)	450	270