



**NIAGARA
CUTTER™
TROUBLE-
SHOOTING
GUIDE**

END MILL TROUBLESHOOTING GUIDE

PROBLEM / CAUSE	SOLUTION
Tool Breakage	
Feed rate excessive	Reduce feed rate
Depth of cut excessive	Decrease width and depth of cut
Overhang of tool is too much	Hold shank deeper, use shorter end mill
Wear is too much	Regrind at earlier stage
Excessive Wear	
Speed is too fast	Decrease spindle speed, use better coolant
Hard work material	Use the right coating
Improper speed and feed (usually too slow)	Increase feed and speed
Improper helix angle	Change tool to correct helix angle
Primary relief angle is too large	Change to smaller relief angle
Recutting chips	Change feed and speed / Use more coolant or high pressure coolant/air
Reduced Tool Life	
Cutting friction is excessive	Regrind at earlier stage
Hard work material	Use an appropriate coolant
Improper helix and relief angle	Change to correct helix angle and primary relief
Chipped Cutting Edges	
Feed rate excessive	Reduce feed rate
Feed too heavy on first cut	Reduce feed rate on first cut
Lack of rigidity (machine & holder)	Use better machine or tool holder or change parameters
Lack of rigidity (tool)	Use shorter tool, hold shank deeper, try climb milling
Tool cutting corner too sharp	Decrease primary relief and cutting angle, reduce radial width-of-cut

END MILL

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PROBLEM / CAUSE	SOLUTION
Chip Packing	
Cut too heavy	Decrease width and depth of cut
Not enough chip clearance	Use end mill with fewer flutes
Not enough coolant	Use higher coolant pressure and reposition nozzle to point of cut or use air pressure
Work Piece Burrs	
Wear on primary relief is too much	Regrind at earlier stage
Incorrect feed and speed rates	Correct cutting parameters
Improper helix angle	Change to correct cutting angle
Rough Surface Finish	
Feed rate too high	Reduce feed rate
Cutting speed too slow	Increase RPM
Wear is excessive	Regrind at earlier stage
Recutting chips	Change feed and speed. Use more coolant or high pressure coolant/air
Squeal and Chattering	
Feed and speed too fast	Correct cutting parameters
Lack of rigidity (machine & holder)	Use better machine or tool holder or change parameters
Poor set up	Improve clamping rigidity
Cut is too heavy	Decrease width and depth of cut
Overhang of tool excessive	Hold shank deeper, use shorter end mill
Lack of relief	Decrease relief angle
Side Wall Taper in Workpiece	
Feed rate too heavy	Reduce feed rate
Overhang of tool excessive	Hold shank deeper, use shorter end mill
Too few flutes	Use multiflute end mill, use end mill with higher rigidity
No Dimensional Accuracy	
Cut is too heavy	Decrease width and depth of cut
Lack of accuracy (machine & holder)	Repair machine or holder
Rigidity is insufficient (machine & holder)	Change machine or tool holder or change parameters
Too few flutes	Use multiflute end mill, use end mill with higher rigidity

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