End Mill Troubleshooting Guide

Problem	Solution
Tool breakage	• Reduce feed rate • Decrease width and depth of cut • Hold shank deeper or use shorter end mill • Regrind at an earlier stage
Excessive wear	• Increase feed and speed • Decrease spindle speed • Use another coolant • Use end mill with coating (TiN, TiCN, TiAlN, AlTiN) • Change tool to correct helix angle • Change to smaller relief angle • Change chip size or clear chips with more coolant or air pressure
Reduced tool life	• Use end mill with coating (TiN, TiCN, TiAlN, AlTiN) • Change to correct helix angle and primary relief • Regrind at an earlier stage
Chipped cutting edges	• Reduce feed rate on first cut • Use better machine or tool holder • Change parameters of machine or tool holder • Hold shank deeper or use shorter end mill • Decrease primary relief and cutting angle • Reduce radial width of cut
Chip packing	• Decrease width and depth of cut • Use an end mill with fewer flutes • Use higher coolant pressure and reposition nozzle to point of cut or use air pressure
Work piece burrs	• Correct cutting parameters • Change to correct cutting angle • Regrind at an earlier stage
Rough surface finish	• Reduce feed rate • Increase RPM • Grind concave angle on bottom teeth • Change chip size or clear chips with coolant or air pressure • Regrind at an earlier stage
Squealing and chattering	• Correct feed and speed • Use better machine or tool holder • Change parameters of machine or tool holder • Improve clamping rigidity • Decrease width and depth of cut • Hold shank deeper or use shorter end mill • Decrease relief angle
Side wall taper in workpiece	• Reduce feed rate • Hold shank deeper or use shorter end mill • Use multiflute end mill • Use end mill with higher rigidity
No dimensional accuracy	• Decrease width and depth of cut • Repair machine or tool holder • Change machine or tool holder • Change parameters of machine or tool holder • Use multiflute end mill • Use end mill with higher rigidity

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