Trouble Shooting Guide

Problem	Cause	Solution
Premature Wear	• Cutting speed is too fast • Hard/Abrasive work-piece material • Speed and/or feed is too light • Helix angle is incorrect for application • Re-cutting chips	• Decrease spindle speed • Use coatings (TiCN, TiAlN, AlTiN) • Increase speed and/or feed • Select tool with appropriate helix angle • Adjust speed & feed, axial and/or radial D.O.C., Increase coolant pressure and/or air to clear chips.
Edge Chipping	• Feed rate too aggressive • Feed rate too aggressive on initial cut • D.O.C. too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity	• Reduce feed rate • Reduce feed rate on initial pass • Decrease axial and/or radial D.O.C. • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out
Breakage	• Feed rate too aggressive • D.O.C. too aggressive • Excessive tool overhang • Chip packing • Excessive wear	• Reduce feed rate • Reduce axial and/or radial D.O.C. • Hold shank deeper, use shorter end mill • Adjust speed and/or feed, select end mill with fewer flutes, increase coolant pressure and/or air • Re-grind tool sooner
Chip Packing	• Speed and/or feed too aggressive • Flute gullet too small for chips • Insufficient coolant volume and/or pressure	• Reduce speed and/or feed • Use end mill with less flutes • Increase coolant and/or air pressure, reposition nozzle to point of cut
Chattering	• Speed and/or feed too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity • D.O.C. too aggressive • Wrong tool geometry	• Reduce speed and/or feed • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out • Reduce axial and/or radial D.O.C. • Use *Whisperkut*™ Type end mill
Burrs	• Incorrect speed & feed • Helix angle is incorrect for application • Primary cutting edge(s) are dull	• Adjust speed & feed • Change to correct helix angle, use climb milling • Re-grind tool sooner
Poor Finish	• Feed rate too aggressive • Speed is too slow • D.O.C. too aggressive • Excessive wear	• Reduce feed rate • Increase spindle speed (RPM) • Reduce axial and/or radial D.O.C. • Re-grind tool sooner
Poor Dimensional Accuracy	• D.O.C. too aggressive • Tool Rigidity • Machine tool rigidity	• Reduce axial and/or radial D.O.C. • Use tool with more flutes • Check, inspect & repair machine tool, tool holder and fixtures

Should your milling problems persist please feel free to contact our Technical Service Department for further assistance at 1-800-444-6455.