Cutting Tool News

Troubleshooting for gear shaving

	Symptoms		Possible causes	Remedies
Workpiece	Profile error	Significant profile deviation among workpieces shaved with both the same cutter and the machine at once.	1. Measured with multiple inspection machines. 2. Measured different teeth. 3.Measured with different inspection criteria.	Measure, 1. Same inspection machine. 2. Same teeth alignment. 3. Same inspection criteria.
		Test cut have done with the same cutter at both Customer site and NMTJ site, however Customer's is out of the scope whereas NMTJ's is within scope.	The conditions at 2 sites are different 1. Cutting machine characteristics. 2. Cutting conditions. 3.The profiles at pre-shaving process. 4.The inspection machines. 5. The acceptance criteria even both of them look the same There might be non written ordinary scope of Customer standard.	These should be as same as both sites, 2. Cutting conditions 3. Same lot of pre-shave parts 4. Same inspection criteria. 5. Additional standard, if any
Cutter	Profile error	Actual profile is not as requested by customer.	1. The conditions at 2 sites are different a) Inspection criteria of cutter profile and lead b) Inspected teeth 2. Instruction of profile and lead is not clear.	These should be agreed at both sites a) Inspection criteria of profile and lead b) Inspected teeth c) Instruction of profile and lead
	Tool life	No.s of resharpening are smaller than others.	1. Serrations are shallower than others due to the tooth size. 2. The trial cut might've been done multiple resharpenings more than it should be before going to the production.	1. Change the substrate to increase the possible cut numbers. There's no solution for having the deeper serrations unless the tooth size gets bigger. 2. Reduce the Nos. of resharpening by copying the profile previously the best.
		Workpiece profile gets out of scope before the expected numbers of cut.	1. Cutter hardness is low for the part hardness. 2. Cutter profile, lead are instructed complicatedly. 3. Shaving stock is excessive. 4. Workpiece hardness is high as the shaving process.	1. Redesign the cutter with higher hardenss substrate. 2. Simplifies profile and lead. 3. Reduce the shaving stock. 4. Redesign the cutter with higher hardenss substrate.
	Breakage	Before use	1. Occurring the crack due to the excessive regrinding load.	1. Reduce the regrinding load.
		During use	1. Interference at adjacent part of the machined part, or the chip is stuck the area. 2. Used wrong cutter 3. Excessive cutting numbers. 4. Cutter tooth rigidity is not high. 5. Serration alignment is not appropriate.	1. Adjust the cutter stroke,set angle and adding the fluid outlet at the area the chip is stuck. 2. Check the cutter drawing before use. 3. Reduce the cutting numbers. 4. Redesign the tooth profile. 5. Redesign the serration alignment.