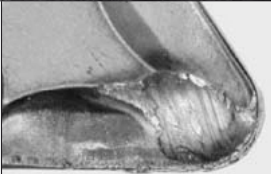
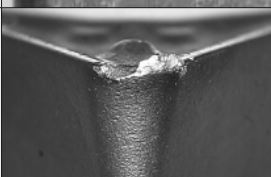
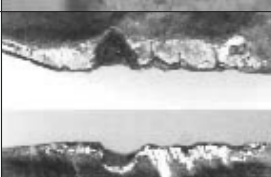
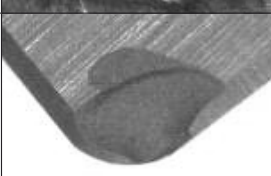


Troubleshooting

Cutting Edges Figuration and Countermeasures

Typical Cutting Edge Figuration		Observation	Causes	Countermeasures
Nose Wear		Deterioration of surface roughness and dimensional accuracy	- Too high Vc - End of tool life	- Reduce Vc - Change to higher wear resistant grade
Notching		- Burr formation - Cutting force increase	Too high f and Vc	- Sharper cutting performance - Reduce Vc - Change to higher heat resistant grade
Crater Wear		- Chip control deterioration - Surface finish deterioration (peeled surface)	Too high Vc	- Reduce Vc - Change to high speed type like Cermet or Al₂O₃ coated insert
Plastic Deformation		- Workpiece dimension's change - Crack at nose	- Too high cutting load - Inappropriate tool grade	- Change to harder grade - Reduce f and ϕ
Crack from Wear		- Surface finish's sudden deterioration - Workpiece dimension	Too high Vc	- Reduce the pre-set tool life - Change to higher wear resistant grade
Chipping		- Cutting force increase - Surface roughness deterioration	- Too high f - Chattering - Lack of insert toughness	- Reduce f and ϕ - Change to more rigid toolholder - Change to tougher grade
Crack from Welding or Built-up Edge		- Surface finish deterioration - Cutting force increase	Too low Vc	- Increase Vc - Improve sharp cutting performance (rake angle, chamfer)
Mechanical Fracture		- Sudden cracking - Unstable tool life	- Too high f and ϕ - Chattering	- Change to tougher grade - Enlarge chamfer - Enlarge Corner-R(ϵ) - Change to more rigid toolholder
Fracture from Thermal Crack		- Cracking by heat cycle - Possible in interrupted cutting and milling	Too high Vc and f	- Reduce f - Reduce Vc - Change to dry cutting
Flaking		- Possible in high-hardness material cutting - Possible in machining with chattering	- Lack of insert toughness - Lack of toolholder's rigidity	- Change to harder grade (TiC-base ceramic to CBN.) - Change to more rigid toolholder - Change edge preparation

R



Technical
Information