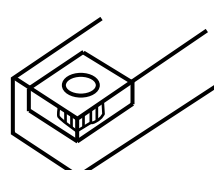
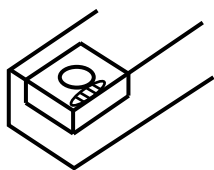
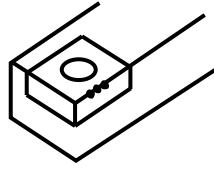
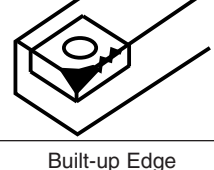
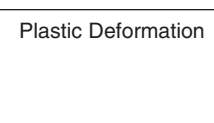



Tool Failures and Remedies

1. Forms of Tool Failure

No.	Failure	Cause	
		Physical	Chemical
1-5	Flank Wear		Due to the abrasive effect of hard grains contained in the work material
6	Chipping		Fine chips caused by high-pressure cutting, chatter, vibration, etc.
7	Partial Fracture		Due to the mechanical impact when an excessive force is applied to the cutting edge
8	Crater Wear		Carbide particles are removed due to degradation of tool performances and chemical reactions at high temperature
9	Deformation		The cutting edge is deformed due to its softening at high temperature
10	Thermal Crack		Thermal fatigue in the heating and cooling cycle with interrupted cutting
11	Build-Up Edge		A portion of the workpiece material adheres to the insert cutting edge

2. Failure Remedies

Failure	Tool Material Cutting Conditions	Basic Remedy	Proven Remedies																	
			Steel	Cast Iron																
Edge Failure  Excessive Flank Wear  Excessive Crater Wear  Cutting Edge Chipping  Partial Fracture of Cutting Edges  Built-up Edge  Plastic Deformation	Tool Material Cutting Conditions Tool Material Tool Design Cutting Conditions Tool Material Tool Design Cutting Conditions Tool Material Tool Design Cutting Conditions Tool Material Cutting Conditions Tool Material Cutting Conditions	<ul style="list-style-type: none"> Use a more wear-resistant grade Carbide → { Coated Cermet Decrease speed <ul style="list-style-type: none"> Use a crater-resistant grade Carbide → { Coated Cermet Enlarge the rake angle Select the correct chip breaker Decrease speed Reduce the depth of cut and feed <ul style="list-style-type: none"> Use tougher grades If carbide, (AC2000 → AC3000) If built-up edge occurs, change to a less susceptible grade (cermet) Reinforcement of the cutting edge (honing) Reduce the rake angle Increase speed (if caused by edge build-up) <ul style="list-style-type: none"> Use tougher grades If carbide, (AC2000 → AC3000) Use holder with a large approach angle Use larger shank-size holder Reduce the depth of cut and feed <ul style="list-style-type: none"> Change to a grade which is adhesion resistant Increase the cutting speed and feed Use cutting fluids <ul style="list-style-type: none"> Change to high thermal resistant grades Reduce the cutting speed and feed 	<ul style="list-style-type: none"> Recommended Insert Grade: <table border="1"> <thead> <tr> <th></th> <th>Steel</th> <th>Cast Iron</th> </tr> </thead> <tbody> <tr> <td>Finishing</td> <td>T2000Z, AC700G</td> <td>BN700, BN500</td> </tr> <tr> <td>Rough</td> <td>AC2000</td> <td>AC700G</td> </tr> </tbody> </table>				Steel	Cast Iron	Finishing	T2000Z, AC700G	BN700, BN500	Rough	AC2000	AC700G						
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General Info

Negative Inserts

Positive Inserts

Ace-Fix Inserts

Threading, Grooving, & Cut-Off Inserts

Ceramic Inserts

PCBN & PCD Inserts

Toolholders

Swiss Toolholders

Boring Bars

Technical Info

ALMT