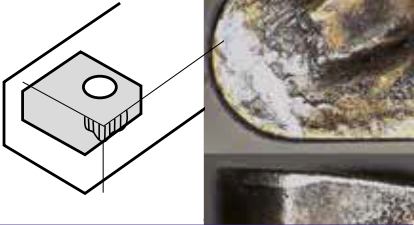
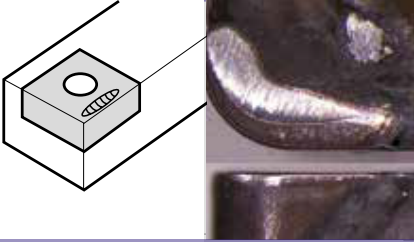
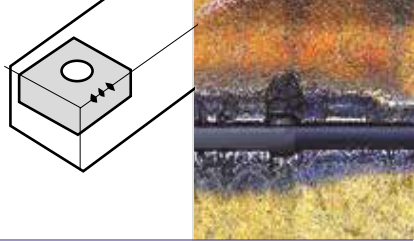
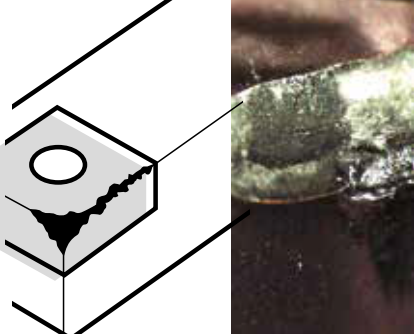

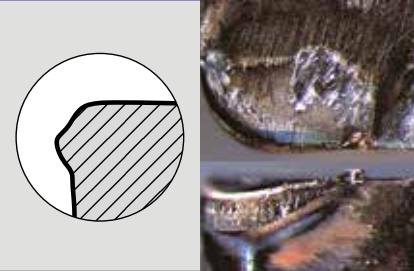
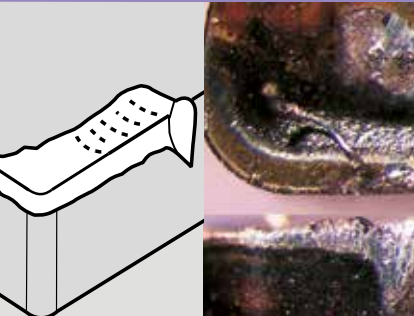


Damage	Cause	Countermeasures
<p>Excessive flank wear</p> 	<p>Grade lacks wear resistance</p> <ul style="list-style-type: none"> • Cutting speed is too fast. • Feed rate is far too slow. 	<ul style="list-style-type: none"> • Select a wear resistant grade. P30 ⇔ P20 ⇔ P10 K20 ⇔ K10 ⇔ K01 • Use an insert with a larger rake angle. • Decrease the cutting speed. • Increase feed rates.
<p>Excessive crater wear</p> 	<ul style="list-style-type: none"> • Grade lacks crater wear resistance. • Rake angle is too small. • Cutting speed is too fast. • Feed rate and depth of cut are too large. 	<p>Select a more crater-resistant grade P30 ⇔ P20 ⇔ P10 K20 ⇔ K10 ⇔ K01</p> <ul style="list-style-type: none"> • Use an insert with a larger rake angle. • Select an appropriate chipbreaker. • Decrease the cutting speed. • Decrease the D.O.C. and feed rate.
<p>Cutting edge chipping</p> 	<ul style="list-style-type: none"> • Grade lacks toughness. • Insert falls off due to chip build-up. • Cutting edge lacks toughness. • Feed rate and depth of cut are too large. 	<ul style="list-style-type: none"> • Change to tougher grades P10 ⇔ P20 ⇔ P30 K01 ⇔ K10 ⇔ K20 • Increase amount of honing on cutting edge. • Reduce rake angle. • Reduce feed rates and depth of cut.
<p>Cutting edge fracture</p> 	<ul style="list-style-type: none"> • Grade lacks toughness. • Cutting edge lacks toughness. • Holder lacks toughness. • Feed rate is too fast. • Depth of cut is too large 	<p>Change to tougher grades P10 ⇔ P20 ⇔ P30 K01 ⇔ K10 ⇔ K20</p> <p>Select a chipbreaker with a strong cutting edge.</p> <ul style="list-style-type: none"> • Select a holder with a larger approach angle. • Select a holder with a larger shank size. • Decrease the D.O.C. and feed rate.

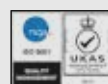
Damage	Cause	Countermeasures
<p data-bbox="193 338 424 376">Build-up edge</p> 	<ul style="list-style-type: none"> • Inappropriate grade selection. • Dull cutting edge. • Cutting speed is too slow. • Feed rate is too slow. 	<p>Select a grade with less affinity to the work material. Coated carbide or cermet grades.</p> <ul style="list-style-type: none"> • Select a grade with a smooth coating. • Use an insert with a larger rake angle. • Reduce amount of honing. • Increase cutting speeds. • Increase feed rates.
<p data-bbox="148 750 464 788">Plastic deformation</p> 	<ul style="list-style-type: none"> • Grade lacks thermal resistance. • Cutting speed is too fast. • Feed rate is too fast. • Depth of cut is too large. • Not enough cutting fluid. 	<ul style="list-style-type: none"> • Select a more crater-wear-resistant grade. • Use an insert with a larger rake angle. • Decrease the cutting speed. • Reduce feed rates and depth of cut. • Supply a sufficient amount of coolant.
<p data-bbox="213 1120 400 1158">Notch wear</p> 	<p>Grade lacks wear resistance.</p> <ul style="list-style-type: none"> • Rake angle is too small. • Cutting speed is too fast. 	<ul style="list-style-type: none"> • Select a wear resistant grade. P30 ⇔ P20 ⇔ P10 K20 ⇔ K10 ⇔ K01 • Use an insert with a larger rake angle. • Alter depth of cut to shift the notch location.



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