



Machining

How Used Edge Detection Can Reduce Scrap

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Would it surprise you to hear that as much as 10% of milling and turning insert edges go un-used?

Without magnification and close examination, it can be difficult to tell if an insert edge has been used. The usual black color of high-performance, aluminum-oxide coatings makes identifying used edges even more of a challenge. Add to this the sometimes low-light conditions within a shop and the risk of misidentifying a used insert edge further increases.

Why does this happen?

In shops where the operator is responsible for insert indexing and replacement, up to 30% of insert edges can go un-used. Operators are often under extreme production deadlines, and in rushing to get work done, they may misidentify whether or not an insert edge has been used. Additionally, new operators may simply have limited experience in properly identifying early signs of insert wear. A lack of standardized procedures and/or documented practices on the manufacturer's part can further limit operator ability to consistently and accurately detect used edges.

To prevent such high levels of insert waste and improve sustainability, tooling OEMs turned to coatings for the solution. Early efforts to prevent misidentification and minimize insert waste included the application of gold-colored TiN or TiC coatings on inserts for used-edge-detection capability. These coatings were designed to wear off and provide an indication of edge usage. However, in some cases, the additional coating negatively affected tool life.

How to detect used edges easily?

In response, Seco developed its chrome-colored coating with a focus on positive effects, without negatively affecting tool life. In fact, this less than 1 µm thick chrome-colored PVD coating adds a degree of lubricity, while also making it easier to identify used turning and milling insert edges. Black CVD aluminum oxide showing through the chrome-colored coating identifies a used insert edge and allows operators on shop floors to spot them even in low-light conditions.



used edge comparison

New unused edge

After 10 seconds

After 15 minutes

Featured on Seco MP milling insert grades and TP turning grades, the coating disappears when an insert edge has had contact with a workpiece. By using all the edges on a cutting insert, a shop is more sustainable by reducing scrap while lowering overall tooling costs.

What is “Duratomic”?

Seco Duratomic TP turning insert grades combine the benefits of advanced aluminum-oxide coatings with specially developed compositions of the tools’ bulk substrates and cobalt-enriched zones. Modifications of those elements make the grades both tougher and more wear resistant than their predecessors.

Seco Duratomic MP milling insert grades deliver high reliability for steel and cast-iron machining. With improved coatings, these inserts offer toughness and edge strength that prevent comb cracks and unexpected breakage.

Seco Duratomic turning and milling insert grades bring shops the used-edge-detection technology to reduce waste and improve sustainability.

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