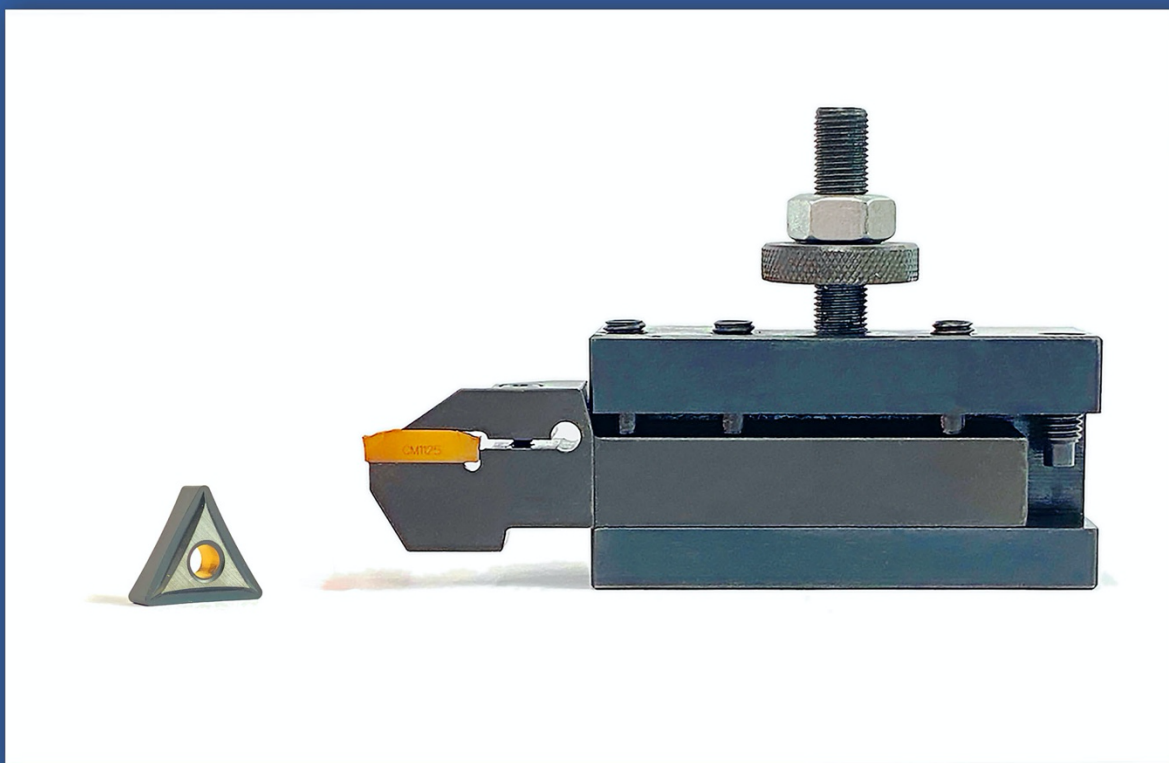


A User Guide

Introduction to Indexable Tooling for the Metal Lathe



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About this Handbook

This handbook is a guide to indexable or “insert” tooling for use on medium-sized metal lathes. Prepared specifically for newcomers to the world of carbide inserts and tool holders, this handbook offers practical suggestions on what tools to buy and how to identify and select the carbide inserts that go with them.

I prepared this guide specifically for newcomers to the world of carbide inserts and the tool holders that go with them. In essence, this is the information I wish someone had given me when I got started with indexable tooling for my newly acquired manual metal lathe. I make no claim to be an industry expert on indexable tooling or carbide inserts. But I have learned a great deal from others, and gained extensive experience using these tools with my Precision Matthews 1340GT lathe. My goal in creating this guide is to share this practical knowledge and give back to the community.

The field of indexable tooling is both complex and murky, and very poorly explained for someone coming into this subject matter as a novice. There are bits and pieces of information scattered around the internet, but there is no single point of reference that does justice to this topic for a newcomer.

Much of the available online information caters to the CNC manufacturing community where the minutia of every possible option and configuration of insert tooling becomes important. This is especially true of the carbide inserts themselves, but also for the tool holders that are described in the catalogs of major suppliers such as Kennametal, Sandvik, and Iscar to name just a few. While all of these companies make tool holders and inserts for the small shop user, their bread-and-butter customer is a high-volume CNC production shop where the goal is to wring out every last opportunity to reduce spindle time, improve on tool life, or meet specific repeatable tolerance specs.

Manufacturers of indexable tools and inserts have responded to the needs of the CNC industry with more and more specialized offerings, and the result is that the catalogs for these products have become increasingly complex and difficult to digest by someone new to this category of tooling. Many of the products described in these dense catalogs simply do not apply to manual lathe operations, and basic educational and tutorial content is sparse or nonexistent.

To make matters worse for the newcomer, the nomenclature used to describe and differentiate one tool or insert from another is a string of alphabet soup that can be baffling and is often inconsistent from one supplier to another. Even the international standards organizations like ANSI (American) and ISO (European) have different systems for the codes that describe the same tool or carbide insert.

This introductory guide will simplify the process of acquiring tools that are field-tested and function well on a md-sized manual metal lathe, and clarify the how to identify and select carbide inserts to go with those tools.

There are four main sections to this handbook:

- The first section is organized to provide a basic understanding of indexable tooling categories, and an overview of the terminology associated with the tool holder and inserts that go with them. I offer some suggestions on how to approach buying indexable tooling and inserts, along with some specific recommendations on what tools to buy based on your experience and budget.
- The second section provides a more fundamental look at carbide insert terminology. This section is by no means all-encompassing but does pull together the disparate collection of information every indexable tool user should be familiar with regarding insert selection.
- The third section has more thorough detail on each of the indexable tool categories (e.g. turning, facing, threading, parting, boring), along with a more complete list of tools I own and can recommend to users of 12 to 14" sized manual lathes.
- And the final section is dedicated to demystifying the various classification code systems that are used to distinguish and specify inserts and the variety of tool holders for those inserts. This section also includes information of feeds and speeds, sources of supply and a glossary of terms.